TALON Architecture

**MANAGEMENT LEVEL**
- AX Supervisor
- Desigo CC
- Field Panel Web Server

**AUTOMATION LEVEL**
- BACnet/IP
  - TC-1000
- LonTalk
  - TALON Network Manager
  - TC-36
  - TC-16

**FIELD LEVEL**
- LonTalk
  - 3rd Party LonTalk
  - TC-16/24
  - UEC
  - TEC
  - ATEC
- BACnet MS/TP
  - 3rd Party BACnet MS/TP
Table of Contents

This catalog is organized to follow the architecture of the TALON® Building Automation System:

1 The Management Level Network or MLN is where the Insight workstations and other user interfaces and tools reside, allowing you to monitor and control your entire system from a single point.

2 The Automation Level Network or ALN is where the field panels and other controllers reside and carry out system monitoring and control.

3 The Field Level Network or FLN equipment controls at the floor, zone or room level.

4 Sensors tie into controllers to sense temperature, humidity, CO2 and more.

1 Management Level Network

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  - TC-16

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- TC-16/24
- UEC
- TEC
- ATEC
- 3rd Party BACnet MS/TP

**Network Protocols**
- BACnet/IP
- LonTalk
- BACnet MS/TP
TALON AX Workstation

DESCRIPTION

The TALON® AX Workstation is a powerful network interface that provides comprehensive database management, alarm management and messaging services. It makes integrated facility management easier than ever by providing an advanced, user-friendly and cost-effective solution for performing the daily operational tasks associated with any facility.

The TALON AX Workstation also provides a comprehensive engineering environment for easy creation and editing of system control programming and user interface graphics.

The TALON AX Workstation powered by the NiagaraAX Framework®, is a suite of Java™-based products designed to integrate a variety of devices and protocols into a common distributed automation system.

It incorporates the industry’s first software technology to integrate LonWorks®, BACnet®, and various Internet standards in a common object model, embedded at the controller level and supported by a standard web browser interface.

The TALON AX Workstation enables a user to select the interface method that will best meet the needs of each facility.

FEATURES

- Java-enabled user interface (UI) as well as a non-Java UI for web browsers
- Supports an unlimited number of users over the Internet / Intranet with a standard web browser, depending on the host PC resources
- Optional Enterprise-level data archival using SQL, Oracle or DB2 database, and HTTP/HTML/XML text formats.
- “Audit Trail” of database changes, database storage and backup, global time functions, calendar, central scheduling, control, and energy management routines.
- Sophisticated alarm processing and routing, including e-mail and paging.
- Provides access to alarms, logs, graphics, schedules, and configuration data with a standard web browser.
- Password protection and security using standard Java authentication and encryption techniques with optional security supported via an external LDAP connection
- HTML-based help system that includes comprehensive on-line system documentation.
- Supports multiple Network Manager stations connected to a local Ethernet network, or the Internet.
- Provides online/offline use of the Niagara Framework WorkPlace AX® graphical application configuration
TALON AX Workstation

SPECIFICATIONS

Niagara Version 3.7
Processor
Intel Pentium® IV, or Core 2 Duo, 2 GHz or higher

Operating System
Microsoft Windows XP Professional, Windows 2003 or 2008 Server (if Microsoft IIS is disabled), Vista Business, or Windows 7. Mozilla Firefox®, Internet Explorer® 5.0 or later.

Memory
1 GB minimum, 2GB or more recommended for large systems

Hard Drive
1 GB minimum, 5 GB or more for applications that need more archiving capacity

Display
Video card and monitor capable of displaying 1024 x 768 pixel resolution or greater

Network Support
Ethernet adapter (10/100 Mb with RJ-45 connector)

ORDERING INFORMATION

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<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
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<tr>
<td>Windows based 32 or 64 bit AX Supervisor software limited to 3 TNM® controllers; Includes Niagara Historical Database and Workplace AX. Includes OBIX client / server driver for connecting to Niagara based controllers only. CD must be requested at time of purchase.</td>
<td>588-970</td>
</tr>
<tr>
<td>Windows based 32 or 64 bit AX Supervisor software limited to 100 TNM® controllers; Includes Niagara Historical Database and Workplace AX. Includes OBIX client / server driver for connecting to Niagara based controllers only. CD must be requested at time of purchase.</td>
<td>588-971</td>
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<tr>
<td>Windows based 32 or 64 bit AX Supervisor software No numerical device limit on the number of TNM controllers allowed; Includes Niagara Historical Database and Workplace AX. Includes OBIX client / server driver for connecting to Niagara based controllers only. CD must be requested at time of purchase.</td>
<td>588-972</td>
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<tr>
<td>BACnet Advanced Workstation (AWS) software module for an existing AX Supervisor. Requires the BACnet IP Client Driver (588-748)</td>
<td>588-722</td>
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<tr>
<td>Upgrade from an Operator Workstation (OWS) to and Advanced Workstation (AWS)</td>
<td>588-723</td>
</tr>
<tr>
<td>BACnet IP Client Driver with BACnet export functions for the AX Supervisor; Includes license for 500 BACnet Points NOTE: Adding the OWS or AWS feature will invalidate the BTL Listing</td>
<td>588-748</td>
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<tr>
<td>BACnet Operator Workstation (OWS) software module for an existing AX Supervisor. Requires the BACnet IP Client Driver (588-748)</td>
<td>588-749</td>
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<tr>
<td>AX 500 Point BACnet Driver</td>
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<td>AX 500 Point OPC Driver</td>
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<tr>
<td>AX 500 Point SNMP Driver</td>
<td>588-805</td>
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<td>AX BACnet Additional 500 Points</td>
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<td>588-809</td>
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<tr>
<td>AX Alarm Console Client</td>
<td>588-921</td>
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<tr>
<td>Allows Excel and CSV file data to be imported into Niagara AX</td>
<td>588-922</td>
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<tr>
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<tr>
<td>Microsoft SQL Database Driver</td>
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<tr>
<td>IBM DB2 Database Driver</td>
<td>588-954</td>
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<tr>
<td>Oracle Database Driver</td>
<td>588-955</td>
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<tr>
<td>Software upgrade for Supervisor. Price includes all applications and drivers licensed for the Supervisor. Upgrades the Supervisor to the current release</td>
<td>588-962</td>
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<tr>
<td>Windows supervisor upgrade from 3 devices to 100 connected TNMs</td>
<td>588-973</td>
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<tr>
<td>Windows supervisor upgrade from 100 devices to unlimited connected TNMs</td>
<td>588-974</td>
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Siemens AX Appliance

DESCRIPTION
The Siemens AX Appliance is designed for use with Siemens BACnet Terminal Equipment Controllers (PTEC’s and ATEC’s). It is a smart, configurable, browser-based application that streamlines the installation, setup, and turnover of jobs that utilize the pre-engineered, terminal applications of the Siemens BTL-listed, application-specific controllers.

The Siemens Appliance provides the most streamlined method for integrating Siemens BACnet controllers into a TALON AX system. The Siemens AX Appliance also provides a unique, high-end graphics package that will help ensure our solutions stand out from the competition.

FEATURES
– Dynamically recognizes Siemens PTEC and ATEC applications
– Siemens Solution Partner Discovery Wizard for easy setup.
– Significantly reduces job execution time as significant portions of the engineering process have been automated.
– End user graphics mode for unmatched user experiences and system equipment visualization.
  – Auto-generates smart and dynamic user interfaces;
    • Detailed equipment screens
    • Summary pages
    • Feeder AHU roll-up data and graphics
    • System Navigation
– Eliminates the requirement for tedious and time-consuming manual mapping and linking for web-based user navigation of facility equipment.
Siemens AX Appliance

SPECIFICATIONS
– Internet Explorer 8.0 or later, or Firefox 3.6 or later,
  Google Chrome Version 28 or later
– Cookies must be enabled
– Browser must be capable of running and displaying Adobe Flash
  Player Plug-in 11.5 or later

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
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<td>TNM-6 (524MHz, 128 DDR RAM)</td>
<td>588-706</td>
</tr>
<tr>
<td>TNM-6E (524MHz, 128 DDR RAM, battery-less)</td>
<td>588-706E</td>
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<tr>
<td>TNM-7 (667MHz, 256 DDR RAM)</td>
<td>588-707</td>
</tr>
<tr>
<td>TALON AX Supervisor Software for 3 TNMs</td>
<td>588-970</td>
</tr>
<tr>
<td>TALON AX Supervisor Software for 100 TNMs</td>
<td>588-971</td>
</tr>
<tr>
<td>TALON AX Supervisor Software for unlimited TNMs</td>
<td>588-972</td>
</tr>
<tr>
<td>TALON AX – Office Demo Software</td>
<td>588-529</td>
</tr>
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</table>

Network Support
The Siemens AX Appliance is currently designed to work with AX based BACnet Networks and require BACnet IP and or the
BACnet MS/TP driver.

<table>
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<th>Description</th>
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<tr>
<td>BACnet IP Client over Ethernet</td>
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</tr>
<tr>
<td>BACnet MS/TP over RS-232 or RS-485</td>
<td>588-815</td>
</tr>
</tbody>
</table>

ORDERING INFORMATION
The Siemens AX appliance is a free download from Vantage for exclusive use with TALON AX branded stations and the
Siemens BACnet line of building automation controllers

<table>
<thead>
<tr>
<th>File / Folder</th>
<th>Location</th>
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</thead>
<tbody>
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<td>SiemensApp.jar</td>
<td>On Vantage</td>
</tr>
<tr>
<td>SiemensAppliance.jar</td>
<td>On Vantage</td>
</tr>
<tr>
<td>J2services.jar</td>
<td>On Vantage</td>
</tr>
<tr>
<td>J2lib.jar</td>
<td>On Vantage</td>
</tr>
<tr>
<td>SiemensApplianceTNM folder</td>
<td>On Vantage <a href="http://iknow.us009.siemens.net/vantage/BACnet/AX">http://iknow.us009.siemens.net/vantage/BACnet/AX</a> Appliance.asp</td>
</tr>
<tr>
<td>Field Panel Firmware Tools Installer Package</td>
<td>On Vantage</td>
</tr>
</tbody>
</table>
### Desigo CC

#### DESCRIPTION

Desigo CC workstation software provides an integrated approach to managing and controlling facilities from a flexible, easy-to-use interface. Desigo CC provides facility-wide efficiencies, cost effective information sharing, improved event management and decision making.

- Support for the leading open standards: BACnet, OPC, Modbus, ONVIF and SNMP.
- The latest industry-used IT technologies, including 64-bit operating system support.
- Multiple client options for dedicated, browser-based, and Windows desktop app clients with the same user interface.

#### FEATURES

**Easy to Learn, Easy to Use**
- Consistent interface designed around user-based workflows
- Simple navigation through tree views or graphics
- Anticipates your next step with auto-defined Related Items
- Drag-and-drop graphics creation

**Smart Application for Better Decision Making**
- Integrated data from multiple building and information systems
- Investigative event management for fast response to critical events
- Customized reporting capabilities
- Time-shifted Trend graphs for quick data comparison
- Powerful graphics with AutoCAD integration and endless display options
- Built-in email, SMS, and paging for remote notification

**Adaptable to Meet the Needs of Any Facility**
- Multiple client options for use at a dedicated workstation, in a browser, or as a light desktop application
- Built-in profiles for building automation and fire safety users
- Adjustable pane layouts for beginners and power users
- Separate operation and configuration modes
- Flexible Views – facilities as you want to view them
- User groups and profiles control and simplify site visibility

**Open, Integrated System**
- Open protocol support for building automation, fire safety, and camera systems
- Standard interface support for IT systems
- Normalization and management of data from multiple sources
- Integration support for complex and simple systems
- Intelligent import and discovery learn how points are used

**Robust System Platform**
- Built on a proven SCADA technology and IT standards
- Scalable to support small and large facilities
- Flexible to provide a wide range of applications
- Extensible to grow with facility’s needs
Desigo CC

SPECIFICATIONS  Refer to the Desigo CC System Description document for detailed configuration recommendations.

SERVER – GENERAL

Operating System

Memory Recommended
16-32 GB
Refer to System Description for details

Processor Recommended
– i7-4700 @ 3.4 GHz or similar for small configurations
– 2x Xeon E5-2690 or similar for large high throughput configurations
Refer to System Description for details

Hard disk Recommended
2 TB

Monitor
For server administration only: 1280 x 1024
For Desigo CC client: 1920 x 1080

Communications
Clients/LAN: TCP/IP over Ethernet
Intranet (if required) TCP/IP over Ethernet
APOGEE BACnet: TCP/IP over Ethernet
APOGEE P2: TCP/IP over Ethernet
Video cameras: TCP/IP over Ethernet
OPC: TCP/IP over Ethernet
SNMP: TCP/IP over Ethernet

DATABASE

Database
RAIMA (Real-time) – Data MS SQL 2008 R2 and 2012 – History

ORDERING INFORMATION

Licenses Without Hardware

<table>
<thead>
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<th>Description</th>
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<tr>
<td>Server license-only. Does not include Clients, Points, Installation Media, or Sentinel which must be ordered separately</td>
<td>P55802-Y118-A100</td>
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<tr>
<td>License for 1 Client</td>
<td>P55802-Y119-A200</td>
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<tr>
<td>License for Unlimited Clients</td>
<td>P55802-Y120-A200</td>
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<tr>
<td>License for 100 Building Automation Points</td>
<td>P55802-Y157-A412</td>
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<tr>
<td>License for 1000 Building Automation Points</td>
<td>P55802-Y157-A413</td>
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<tr>
<td>License for 5000 Building Automation Points</td>
<td>P55802-Y157-A453</td>
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<tr>
<td>License for 100 OPC Points</td>
<td>P55802-Y124-A412</td>
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<td>License for Remote Notification Option</td>
<td>P55802-Y126-A300</td>
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<td>License for OPC Server</td>
<td>P55802-Y100-A300</td>
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<tr>
<td>License for Assisted Treatment Option</td>
<td>P55802-Y103-A300</td>
</tr>
<tr>
<td>License for Reaction Processor Option</td>
<td>P55802-Y104-A300</td>
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</tbody>
</table>
DESCRIPTION

The BACnet Field Panel Web Server provides a Web-based Graphical User Interface compatible with BACnet® networks that is hosted directly from a TALON® TC Field Panel. The Web Server allows remote access through an intuitive Web-based user interface to monitor, control, command and configure any Siemens building automation system.

Version 3 extends the capabilities of the solution to include:
– Device configuration parameters for remote network management functions.
– New PC based client application that is not dependent on a browser plug-in for flexibility in how the customer remotely interacts with their building automation system.

FEATURES

– Cost effective HMI solution for small and medium size projects
– Cost effective HMI solution for remote access to any number of isolated buildings
– Remote access for startup, database configuration and editing, and troubleshooting
– Simple interface/increased productivity
– Redundant local control for distributed sites
– Complete online tool set
– Mobile phone based access via native Blackberry and Android smart phones provides true anytime, anywhere access to facility equipment and controls.
Field Panel Webserver

SPECIFICATIONS

Supported BACnet Field Panels
BACnet IP-based TC Modular
BACnet IP-based TC Compact 16/24/36

Note: In order to use the field panel web server functionality the web server license must be enabled. UI files are no longer available on the Graphics Editor DVD, but can be downloaded for free from Vantage.

Web Browser
Internet Explorer 6.0 or later, or Firefox 3.6 or later with Adobe Flash Player Plug-in 10.1 or later is supported
Any browser capable of running and displaying Adobe Flash Player Plug-in 10.1 or later is compatible.

ORDERING INFORMATION

TC Controllers equipped with Web Services Functionality as a standard option out of the factory. Firmware revision 3.2.5 or later is required.

<table>
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<tr>
<th>Description</th>
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<td>Field Panel Web Server</td>
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<tr>
<td>TC Compact, 16 point, BACnet/IP ALN MS/TP FLN</td>
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<tr>
<td>TC Compact, 16 point, BACnet/IP ALN, FLN enabled (MS/TP)</td>
<td>TC16.2-EF32.T</td>
</tr>
<tr>
<td>TC Compact, 24 point, MS/TP ALN</td>
<td>TC24.2-M.T</td>
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<tr>
<td>TALON Compact, 24 point, BACnet/IP ALN, RS485, Rooftop</td>
<td>TC24.2-ERF.T</td>
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<tr>
<td>TC Compact, 24 point, BACnet/IP ALN MS/TP FLN</td>
<td>TC24.2-EF.T</td>
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<td>TC Compact, 24 point, BACnet/IP ALN, FLN enabled MS/TP</td>
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<td>TC Compact, 24 point, BACnet/IP ALN, rooftop MS/TP FLN</td>
<td>TC24.2-ERF.T</td>
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<tr>
<td>TC Compact, 36 point, BACnet/IP ALN, MS/TP FLN</td>
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<td>TC Modular, BACnet IP ALN</td>
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</table>
FIN Builder

**DESCRIPTION**

Designed by a BAS company, built by a software company, FIN Builder combines efficient workflow with the latest UI technology to make it easy for System Integrators to create fantastic user experiences. Mobile device cross platform support extends that user experience to tablets and smartphones too.

**FEATURES**

**Save Time**
- Automate SI tasks
- Floor Plan Builder
- Equipment Builder
- Plant and 3D Piping Builder
- Custom Dashboard Builder
- Navigation Builder

**Visually Appealing**
- Built by a team of world class designers
- Features that allow a novice user to make advanced look and feel

**Provides Cross Platform Support (Mobile)**
- Solves the problem of getting User Experience on to multiple client platforms
- With one tool to create the User Experience once for all client devices

**Promotes Standards, Do it once and Reuse it**
- Allows you to share and reuse your library
- FIN P bundles assets into a portable / sharable file

**Simple to Use**
- Optimized tool to be the most efficient and easy to use
- Drag and drop, minimized mouse clicks

**Visualize any Data Source**
- One tool for User Experience for all systems and data
## FIN Builder

### ORDERING INFORMATION

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<th>Description</th>
<th>License</th>
</tr>
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<tr>
<td>Web Page Service Controller</td>
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<td><strong>For TALON Web Supervisors:</strong></td>
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<tr>
<td>FIN license for any server hardware platform, open to any device data, additional capacity (CAP) of 100K</td>
<td>FIN-0100K</td>
</tr>
<tr>
<td>FIN license change fee to modify existing an existing license, fee is waived for bundle orders adding 1K or greater</td>
<td>FIN-LICS-CHG</td>
</tr>
<tr>
<td>FIN Builder training for one participant. Dates and locations can be found on the J2Innovations Web site</td>
<td>FIN Builder TRNG</td>
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This catalog is organized to follow the architecture of the TALON® Building Automation System: The Automation Level Network or ALN is where the field panels and other controllers reside and carryout system monitoring and control.

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TC-1000 Modular Series for BACnet® Networks

DESCRIPTION

The TC Modular for BACnet Networks is an integral part of the TALON® Automation System. It is a high performance, modular Direct Digital Control (DDC) supervisory field panel. The controller is classified as a BACnet Building Controller (B-BC) and utilizes the BACnet/IP protocol and BACnet MS/TP.

The field panel operates stand-alone or networked to perform complex control, monitoring, and energy management functions without relying on a higher level processor.
- Up to 100 modular field panels communicate on a peer-to-peer network
- With the addition of TX-I/O modules and a TX-I/O Power Supply on a self-forming bus, the PXC Modular can directly control up to 500 I/O points

With the addition of an Expansion Module, the PXC Modular also provides central monitoring and control for distributed wireless or wired Field Level Network (FLN) devices.

FEATURES

- Classified as BACnet Building Controller (B-BC) using BACnet/IP protocol and BACnet MS/TP
- Modular hardware components match initial control requirements while providing for future expansion
- DIN rail mounting and removable terminal blocks simplify installation and servicing
- Proven program sequences to match equipment control applications
- Built-in energy management applications and DDC programs for complete facility management
- Comprehensive alarm management, historical data trend collection, operator control and monitoring functions
- HMI RS-232, Ethernet and USB ports provide connectivity to a laptop computer for local operation and engineering
- Support for peer-to-peer communications over industry-standard 10 BaseT and 100 BaseTX Ethernet networks
- Auto Save and persistent database back-up and restore within controller
- Back-up battery protection eliminating the need for time-consuming program and database re-entry in the event of an extended power failure
- The TC Modular illuminates a “battery low” status LED and can send an alarm message to selected printers or terminals
- Extended battery backup of Real-Time Clock
- Optional LCD Local User Interface support
- Included Web-based Graphical User Interface (GUI) support
TC-1000 Modular Series for BACnet® Networks

SPECIFICATIONS

Dimensions
TC Modular Series
7.56” L × 3.54” W × 2.76” D
(192 mm L × 90 mm W × 70 mm D)

Expansion Module with three RS-485 FLN connections
1.26” L × 3.54” W × 2.76” D
(32 mm L × 90 mm W × 70 mm D)

Processor, Battery, and Memory

Processor
MPC885 (PowerPC®)

Processor Clock Speed
133 MHz

Memory
80 MB (64 MB SDRAM, 16 MB Flash ROM)

Secure Digital Input/Output (SDIO) card
Expandable or removable non-volatile memory

Battery backup of SDRAM
30 days (accumulated)
AA (LR6) 1.5 Volt Alkaline (non-rechargeable)

Battery backup of Real Time Clock
12 months (accumulated)
Cell coin 3 Volt lithium

Communication

BACnet/IP Automation Level Network (ALN)
10Base-T or 100Base-TX compliant

RS-485 BACnet MS/TP Automation Level Network (ALN)
9600 bps to 115.2 Kbps

RS-485 BACnet MS/TP Field Level Network (FLN) on the
Expansion Module
9600 bps to 76.8 Kbps

TX-I/O Self forming bus connection
115.2 Kbps

Human-Machine Interface (HMI) port
RS-232 compliant, 1200 bps to 115.2 Kbps

Ethernet
10 BaseT or 100 BaseTX compliant

USB Device Port
Standard 1.1 and 2.0 USB device port,
Type B female connector

USB Host port
Standard 1.1 and 2.0 USB host port,
Type A female connector

Electrical Rating

Power Requirements
24 Vac ±20% input @ 50 or 60 Hz

Power Consumption
24 VA @ 24 Vac

AC Power
NEC Class 2

Operating Environment

Ambient operating temperature
32°F to 122°F (0°C to 50°C), 5% to 95% rh, non-condensing

Ambient operating environment
Operate in a dry location, which is protected from exposure to
salt spray or other corrosive elements. Exposure to flammable
or explosive vapors must be prevented.

Shipping and Storage environment
-13°F to 158°F (-25°C to 70°C), 5% to 95% rh, non-condensing

Mounting Surface
Building wall or structural member

Agency Listings

UL
UL 864 UUKL Smoke Control Equipment
UL 864 UUKL7 Smoke Control Equipment
CAN/ULC-S527-M8
UL 916 PAZX
UL 916 PAZX7

Agency Compliance

FCC Compliance
Australian EMC Framework
European EMC Directive (CE) – with enclosure

BACnet Testing Laboratories (BTL) Certified,
Firmware Revision 3.0 and later

OSHPD Seismic Certification
## TC-1000 Modular Series for BACnet® Networks

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<tr>
<td>the connection to the FLN devices</td>
<td>PXX-485.3</td>
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<td>Field Panel Web Server License</td>
<td>LSM-FPWEBPL.T</td>
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<td>PXF-TXIO.T</td>
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<td>Serial cable required for PXM10T/S connection to PXC Series controllers</td>
<td>PXA-HMI.CABLEP5</td>
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<td>The Wire Tie Bar kit can be used when addition tie bars are needed to</td>
<td>PXA-TIEBARKIT</td>
</tr>
<tr>
<td>secure wiring within the enclosure.</td>
<td></td>
</tr>
<tr>
<td>UC or FLNC to DIN Migration Kit includes perforated backplane with ground,</td>
<td>PXA-UCKIT</td>
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<tr>
<td>power wires, wire tie bars, mounting hardware and DIN rail.</td>
<td></td>
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<td>USB to RS232 Adapter converts USB Host signals (Type A male connector) to</td>
<td>PXA-USBADAPTER</td>
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<td>RS232 signals (DB9 male connector).</td>
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<td>PXA-USBMODEMKIT</td>
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<td>the USB Host port of the TC Modular controller.</td>
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<tr>
<td>Controller mounted Operator Display module with point monitor and optional</td>
<td>PXM10S</td>
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<tr>
<td>blue backlight</td>
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<td>Controller mounted Operator Display module</td>
<td>PXM10T</td>
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<td>Service Boxes and Enclosures</td>
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<tr>
<td>The DIN Replacement Kit can be used when additional 16&quot; DIN rail is</td>
<td>PXA-DIN16KIT</td>
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<td>required.</td>
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<td>PXA-ENC18</td>
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<td>19&quot; Enclosure (UL Listed NEMA Type 1 Enclosure)</td>
<td>PXA-ENC19</td>
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<td>34&quot; Enclosure (UL Listed NEMA Type 1 Enclosure)</td>
<td>PXA-ENC34</td>
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<td>PX Series Service Box – 115V, 24 Vac, 50/60 Hz, 192 VA</td>
<td>PXA-SB115V192VA</td>
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<td>PX Series Service Box – 115V, 24 Vac, 50/60 Hz, 384 VA</td>
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<tr>
<td>PX Series Service Box – 230V, 24 Vac, 50/60 Hz, 384 VA</td>
<td>PXA-SB230V384VA</td>
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<tr>
<td>Service Box Sidewall Kit, 192 VA</td>
<td>PXA-SW192VA</td>
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<td>Service Box Sidewall Kit, 384 VA</td>
<td>PXA-SW384VA</td>
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<tr>
<th>Documentation</th>
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<tr>
<td>Powers Process Control Language (PPCL) User’s Manual</td>
<td>588-583</td>
</tr>
<tr>
<td>TC Modular Series Owner’s Manual</td>
<td>588-781</td>
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</table>
EASY ORDERING

• By phone, fax or email
  Our knowledgeable customer support teams can assist you with questions about products, ordering, fulfillment, and shipping information.

  Call us at 1-800-516-9964 from 7 am to 5:30 pm (CST) Monday through Friday.

  Fax 877-765-4295
  We’ll send an order confirmation to let you know that your fax was received.

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  www.usa.siemens.com/buildingtechnologiesonlineordering
TC Compact Series for BACnet Networks

DESCRIPTION

The TC Compact for BACnet networks is a high-performance Direct Digital Control (DDC) supervisory equipment controller. It is an integral part of the TALON® Automation System. It is classified as a BACnet Building Controller (B-BC) and uses the BACnet/IP protocol.

The TC Compact offers integrated I/O based on state-of-the-art TX-I/O™ Technology, which provides superior flexibility of point and signal types, and makes it an optimal solution for AHU control. It is available in 16, 24 and 36 point versions. The controller operates stand-alone or networked to perform complex control, monitoring, and energy management functions without relying on a higher-level processor.

The TC Compact communicates with other field panels or workstations on a peer-to-peer Automation Level Network (ALN). The following communication options are supported:
- Native BACnet/IP communications over 10/100 MB Ethernet networks
- Native BACnet MS/TP on RS-485

FEATURES

- Classified as BACnet Building Controller (B-BC) using the BACnet/IP protocol and/or BACnet MS/TP
- Message control for terminals, printers, pagers, and workstations
- Highly configurable I/O using Siemens state-of-the-art TX-I/O™ Technology
- Several styles of controllers to match application requirements
- DIN rail mounting and removable terminal blocks simplify installation and servicing
- Proven program sequences to match equipment control applications
- Built-in energy management applications and DDC programs for complete facility management
- Comprehensive alarm management, historical data trend collection, operator control, and monitoring functions
- Uses Siemens state-of-the-art TX-I/O™ Technology, which provides increased flexibility through highly-configurable I/O
- Models with either 16, 24 or 36 inputs/outputs to cost-effectively match the needs of the application
- Optional LCD Local User Interface support
- Included Web-based Graphical User Interface (GUI) support (BACnet/IP)
- Optional Hand-off-Auto
- Optional extended temp range for rooftop installs
- Optional support for BACnet MS/TP FLN devices
- Auto Save and persistent database back-up and restore within controller
- Extended battery backup of Real Time Clock
- HMI RS-232 port provides laptop connectivity for local operation and engineering
TC Compact Series for BACnet Networks

**SPECIFICATIONS**

**Dimensions (L × W × D)**

| TC Compact Series | 10.7” × 5.9” × 2.45” (272 mm × 150 mm × 62 mm) |

**Processor, Battery, and Memory**

**Processor and Clock Speed**

- TC-16 and TC-24: Freescale MPC852T, 100 MHz
- TC-36: Freescale MPC885, 133 MHz

**Memory**

- TC-16 and TC-24: 24 MB (16 MB SDRAM, 8 MB Flash ROM)
- TC-16 and TC-24 “F” and “F32”: 40 MB (32 MB SDRAM, 8 MB Flash ROM)
- TC-36: 80 MB (64 MB SDRAM, 16 MB Flash ROM)

**Battery Backup of SDRAM (field replaceable)**

- TC-16 and TC-24 Non-rooftop Models: 60 days (accumulated) AA (LR6) 1.5 Volt Alkaline (non-rechargeable)
- TC-36: 28 days (accumulated) AA (LR6) 1.5 Volt Alkaline (non-rechargeable) Rooftop (Extended Temperature) Models: 90 days (accumulated) AA (LR6) 3.6 Volt Lithium (non-rechargeable)

**Battery Backup of Real Time Clock**

- Coin cell (BR2032) 3 Volt lithium
- Non-rooftop Models: 10 years
- Rooftop (Extended Temperature) Models: 18 months

**Communication**

**A/D Resolution (analog in)**

- 16 bits

**D/A Resolution (analog out)**

- 10 bits

**BACnet/IP Automation Level Network (ALN)**

- 10Base-T or 100Base-TX compliant

**RS-485 BACnet MS/TP Automation Level Network (ALN)**

- 9600 bps to 115.2 Kbps

**RS-485 BACnet MS/TP Field Level Network (FLN)**

- on selected models
- 9600 bps to 76.8 Kbps

**Human-Machine Interface (HMI)**

- RS-232 compliant, 1200 bps to 115.2 Kbps

**USB Device Port**

- generic serial interface, does not support firmware flash upgrades
- Standard 1.1 and 2.0 USB device port, Type B female connector

**USB Host port on selected models**

- Standard 1.1 and 2.0 USB host port, Type A female connector

**Electrical**

**Power Requirements**

- 24 Vac ± 20% input @ 50 or 60 Hz

**Power Consumption (Maximum)**

- TC-16: 18 VA @ 24 Vac
- TC-24: 20 VA @ 24 Vac
- TC-36: 35 VA @

**AC Power and Digital Outputs**

- 24 Vac

**AC Power and Digital Outputs**

- NEC Class 1 Power Limited

**Communication and all other I/O**

- NEC Class 2

**Analog Outputs**

- 0-10 V

**Digital Inputs**

- Contact Closure Sensing, Status/Binary
- Dry Contact/Potential Free inputs only
- Does not support counter inputs

**Digital Outputs**

- Class I Relay

**Electrical Rating**

**Universal Input (UI) and Universal Input/Outputs (U)**

**Analog Input**

- Voltage (0-10 Vdc)
- Current (4-20 mA)
- 1K Ni RTD @ 32°F
- 1K Pt RTD (375 or 385 alpha) @32°F
- 10K NTC Type 2 or Type 3 Thermistor @ 77°F
- 100K NTC Type 2 Thermistor @77°F

**Digital Input**

- Pulse Accumulator
- Contact Closure Sensing
- Dry Contact/Potential Free inputs only
- Supports counter inputs up to 20 Hz

**Analog Output U points only**

- Voltage (0-10 Vdc)
TC Compact Series for BACnet Networks

SPECIFICATIONS (Continued)

**Super Universal I/Os**

**Analog Input**
- Voltage (0-10 Vdc)
- Current (4-20 mA)
- 1K Ni RTD @ 32°F
- 1K Pt RTD (375 or 385 alpha) @32°F
- 10K NTC Type 2 or Type 3

**Digital Input**
- Pulse Accumulator
- Contact Closure Sensing
- Dry Contact/Potential Free inputs only
- Supports counter inputs up to 20 Hz

**Analog Output**
- Voltage (0-10 Vdc)
- Current (4-20 mA) Digital Output (requires an external relay)
- 0 to 24 Vdc, 22 mA max.

**Operating Environment**

**Ambient Operating Temperature**
+32°F to +122°F (0°C to 50°C), 5% to 95% rh, non-condensing

**Ambient Operating Temperature with rooftop (extended temperature) option**
-40°F to +158°F (-40°C to 70°C), 5% to 95% rh, non-condensing

**Ambient Operating Environment**
Operate in a dry location, which is protected from exposure to salt spray or other corrosive elements. Exposure to flammable or explosive vapors must be prevented

**Shipping and Storage Environment**
-40°F to 185°F (-40°C to 85°C)

**Mounting Surface**
Direct equipment mount, building wall, or structural member

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**Agency Listings**

- UL
- UL 864 UUKL (except rooftop models)
- UL 864 UUKL7 (except rooftop models)
- UL 864 UDTZ (except rooftop models)
- CAN/ULC-S527-M8 (except rooftop models)
- UL 916 PAZX (all models)
- UL 916 PAZX7 (all models)

**Agency Compliance**

- FCC Compliance
- Australian EMC Framework
- European EMC Directive (CE)
- European Low Voltage Directive (LVD)
- OSHPD Seismic Certification
# TC Compact Series for BACnet Networks

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<td>TC16.2-M.T</td>
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<tr>
<td>TC Compact, 16 point, BACnet/IP ALN, MS/TP FLN</td>
<td>TC16.2-EF.T</td>
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<tr>
<td>TC Compact, 16 point, BACnet/IP ALN, MS/TP FLN enabled</td>
<td>TC16.2-EF32.T</td>
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<td>TC Compact, 24 point, MS/TP ALN</td>
<td>TC24.2-M.T</td>
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<tr>
<td>TC Compact, 24 point, MS/TP ALN, rooftop</td>
<td>TC24.2-MR.T</td>
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<tr>
<td>TC Compact, 24 point, BACnet/IP ALN, MS/TP FLN option</td>
<td>TC24.2-EF.T</td>
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<td>TC Compact, 24 point, BACnet/IP ALN, rooftop, MS/TP FLN enabled</td>
<td>TC24.2-EF32.T</td>
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<tr>
<td>TC Compact, 36 point, BACnet/IP ALN</td>
<td>TC36-E.T</td>
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<td>TC Compact, 36 point, BACnet/IP or MS/TP ALN</td>
<td>TC36-EF.T</td>
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<tr>
<td>TC Compact, 36 point, BACnet/IP or MS/TP ALN, Island Bus support, MS/TP FLN</td>
<td>TC36-EF32.T</td>
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<th>Optional License(s)</th>
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<td>License to enable FLN support on TC-16 or TC-24 &quot;F&quot; models</td>
<td>LSM-FLN.T</td>
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<td>License to enable FLN support on TC-36</td>
<td>LSM-FLN36.T</td>
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<tr>
<td>License to enable Island Bus support on TC-36</td>
<td>LSM-IB36.T</td>
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<tr>
<td>License to enable 2 TX-I/O Modules on the Island Bus and FLN support on model TC36-E.T</td>
<td>LSM-36.T</td>
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<td>LSM-FPWEBPL.T</td>
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<tr>
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<td>16-switch HOA (UL864)</td>
<td>PXA16-M</td>
</tr>
<tr>
<td>16-switch HOA (extended temp, UL 916) with HMI cable</td>
<td>PXA16-MR</td>
</tr>
<tr>
<td>Serial cable required for HOA connection to non-rooftop variants of the 16-point and 24-point Compact Series (pack of 5)</td>
<td>PXA-HMI.CABLEPS</td>
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<tr>
<td>The Wire Tie Bar kit can be used when addition tie bars are needed to secure wiring within the enclosure.</td>
<td>PXA-TIEBARKIT</td>
</tr>
<tr>
<td>UC or FLNC to DIN Migration Kit includes perforated backplane with ground, power wires, wire tie bars, mounting hardware and DIN rail.</td>
<td>PXA-UCKIT</td>
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<td>USB to RS232 Adapter converts USB Host signals (Type A male connector) to RS232 signals (DB9 male connector).</td>
<td>PXA-USBADAPTER</td>
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<td>USB Modem kit contains everything needed for dial up modem connection using the USB Host port of the TC Modular controller.</td>
<td>PXA-USBMODEMKIT</td>
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<td>Controller mounted Operator Display module with point monitor and optional blue backlight</td>
<td>PXM10S</td>
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<tr>
<td>Controller mounted Operator Display module</td>
<td>PXM10T</td>
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<td>Labels for HOA and TX-I/O Modules, pack of 100, letter format</td>
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<tr>
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<td>The DIN Replacement Kit can be used when additional 16&quot; DIN rail is required.</td>
<td>PXA-DIN16KIT</td>
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<td>PXA-ENC18</td>
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<td>PXA-ENC19</td>
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<tr>
<td>34&quot; Enclosure (UL Listed NEMA Type 1 Enclosure)</td>
<td>PXA-ENC34</td>
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<tr>
<td>PXM10T/S and HOA Remote Door Mount Kit</td>
<td>PXA-HMI.RMKIT</td>
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<tr>
<td>PX Series Service Box – 115V, 24 Vac, 50/60 Hz, 192 VA</td>
<td>PXA-SB115V192VA</td>
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<td>PX Series Service Box – 115V, 24 Vac, 50/60 Hz, 384 VA</td>
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<td>Service Box Sidewall Kit, 192 VA</td>
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<tbody>
<tr>
<td>TC Compact Series Owner's Manual</td>
<td>588-682</td>
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</table>
TX-I/O™ Product Range

DESCRIPTION

TX-I/O™ is a range of I/O modules, with associated power and communication modules, for use within the TALON® system. The TX-I/O product range includes the following:

TX-I/O Point Modules

Eight types of I/O modules, which act as signal converters. The I/O modules communicate between the TC Modular or the TC-36 and the related devices in the building services plant. I/O points for TALON are based upon TX-I/O Technology which provides flexibility of point types, tremendous flexibility of signal types and support for manual operation.

- 8 point DI module (TXM1.8D)
- 16 point DI module (TXM1.16D)
- 6 point DO with Relay module (TXM1.6R)
- 6 point DO with Relay and Manual Override module (TXM1.6R-M)
- 8 point Universal module (TXM1.8U)
- 8 point Universal with local override/identification device (LOID) module (TXM1.8U-ML)
- 8 point Super Universal module (TXM1.8X)
- 8 point Super Universal with LOID module (TXM1.8X-ML)

FEATURES

- The self-forming TX-I/O island bus transmits power as well as communication signals
- Hot-swappable electronic components allow powered electronics to be disconnected and replaced without removing terminal wiring or disturbing the self-forming bus
- LEDs that provide status indication and diagnostic information for the I/O module, as well as for each point on the module
- Separable into terminal base and plug-in I/O module electronics
- DIN rail mounting
- High density point count to physical dimensions
- Hardware addressed with address keys
- Removable label holder that allows for customized point labels

TX-I/O Power Supply (TXS1.12F4)

The TX-I/O Power Supply generates 24 Vdc at 1.2A to power TX-I/O modules and peripheral devices.

FEATURES

- Transfers 24 Vac at 4A to power TX-I/O modules and peripheral devices
- Routes CS (+24 Vdc Communication Supply) and CD (Communication Data signal) between DIN rails
- Provides an input point for 24 Vac to power additional peripheral devices
- Isolates the 24 Vac peripheral device supply in case of overload or short-circuit with Class 2 distribution. The replaceable AC fuse can be accessed from an installed module
- Indicates the AC fuse status (via LED) for easy diagnostics
TX-I/O™ Product Range

TX-I/O Bus Connection Module (TXS1.EF4)
TX-I/O Bus Connection Module bridges communication and power from one DIN rail to another.

FEATURES
– Routes CS (+24 Vdc Communication Supply) and CD (Communication Data Signal) between DIN rails
– Provides an input point for 24 Vac to power additional peripheral devices
– Isolates the 24 Vac peripheral device supply in case of overload or short-circuit with Class 2 distribution. The replaceable AC fuse can be accessed from an installed module
– Indicates the AC fuse status (via LED) for easy diagnostics

TX-I/O Island Bus Expansion Module (TXA1.IBE)
TX-I/O Island Bus Expansion (IBE) module, increases the communication distance between the primary field panel and expansion field panels.

FEATURES
– An LED provides an indication of island bus communication
– Each IBE module supports a maximum of two RS-485 segments
– Each segment may extend up to 200 ft (61 m) from the primary enclosure
## TX-I/O™ Product Range

### Specifications

#### Dimensions (L × W × D)

<table>
<thead>
<tr>
<th>Component</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX-I/O Modules</td>
<td>2.52” × 3.54” × 2.75” (64 mm × 90 mm × 70 mm)</td>
</tr>
<tr>
<td>TX-I/O Power Supply</td>
<td>3.78” × 3.54” × 2.75” (96 mm × 90 mm × 70 mm)</td>
</tr>
<tr>
<td>TX-I/O Bus Connection Module</td>
<td>1.26” × 3.54” × 2.75” (32 mm × 90 mm × 70 mm)</td>
</tr>
<tr>
<td>TX-I/O Island Bus Expansion (IBE) Module</td>
<td>1.26” × 3.54” × 2.75” (32 mm × 90 mm × 70 mm)</td>
</tr>
</tbody>
</table>

#### Electrical

**Power Requirements**

- 24 Vac ±20% input @ 50 or 60 Hz

**Power Consumption**

- Power Supply: 35 VA with 96 VA pass-thru
- Bus Connection Module: 0 VA with 96 VA pass-thru

With the above power consumption, the Power Supply produces 28.8 W (1.2A at 24 Vdc) to be used by the following:

<table>
<thead>
<tr>
<th>Module</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>TXM1.8D</td>
<td>1.1 W</td>
</tr>
<tr>
<td>TXM1.16D</td>
<td>1.4 W</td>
</tr>
<tr>
<td>TXM1.8U</td>
<td>1.5 W</td>
</tr>
<tr>
<td>TXM1.8U-ML</td>
<td>1.8 W</td>
</tr>
<tr>
<td>TXM1.8X</td>
<td>2.2 W</td>
</tr>
<tr>
<td>TXM1.8X-ML</td>
<td>2.3 W</td>
</tr>
<tr>
<td>TXM1.6R</td>
<td>1.7 W</td>
</tr>
<tr>
<td>TXM1.6R-M</td>
<td>1.9 W</td>
</tr>
<tr>
<td>Island Bus Expansion Module</td>
<td>1.2 W</td>
</tr>
</tbody>
</table>

#### Digital Outputs

- Latched contact, AC/DC 250V, 4A; Pulse

#### Digital Inputs

- Status indication, voltage-free/dry contact; Count/accumulator, voltage-free/dry pulse contact

#### Analog Inputs

- Temperature LG-Ni1000
- Temperature Pt 1000 375
- Temperature Pt 1000 385
- Temperature (NTC) 10 K
- Temperature (NTC) 100 K
- Voltage, DC 0…10V
- Current DC 4…20 mA (8X module only)

#### Analog Outputs

- DC 0…10 V
- DC 4…20 mA

#### Terminations I/O Terminals

- 20-12 AWG Solid
- 20-14 AWG Stranded

#### Power Supply, BCM, and IBE

- 2-, 3-, or 4-position screw terminal pluggable blocks

#### Operating Environment

- 32°F to +122°F (0°C to 50°C)
- 5% to 95% rh, non-condensing

#### Agency Listings

- UL 864 UUKL Smoke Control Equipment UL 864 UUKL7
- Smoke Control Equipment UL 916 PAZX CSA 22.2
- No. 205 PAZX7

#### Agency Compliance

- FCC Compliance Australian EMC Framework (C-Tick)
- European EMC Directive (CE) European Low Voltage Directive (LVD)
## TX-I/O™ Product Range

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TX-I/O Modules</strong></td>
<td></td>
</tr>
<tr>
<td>TX-I/O Module, 8 DI points</td>
<td>TXM1.8D</td>
</tr>
<tr>
<td>TX-I/O Module, 16 DI points</td>
<td>TXM1.16D</td>
</tr>
<tr>
<td>TX-I/O Module, 8 Universal points</td>
<td>TXM1.8U</td>
</tr>
<tr>
<td>TX-I/O Module, 8 Universal points with LOID</td>
<td>TXM1.8U-ML</td>
</tr>
<tr>
<td>TX-I/O Module, 8 Super Universal points</td>
<td>TXM1.8X</td>
</tr>
<tr>
<td>TX-I/O Module, 8 Super Universal points with LOID</td>
<td>TXM1.8X-ML</td>
</tr>
<tr>
<td>TX-I/O Module, 6 DO with Relay points</td>
<td>TXM1.6R</td>
</tr>
<tr>
<td>TX-I/O Module, 6 DO with Relay points with manual override</td>
<td>TXM1.6R-M</td>
</tr>
<tr>
<td><strong>TX-I/O Power Supply and Bus Modules</strong></td>
<td></td>
</tr>
<tr>
<td>TX-I/O Power Supply, 1.2 A, 4A Fuse</td>
<td>TXS1.12F4</td>
</tr>
<tr>
<td>TX-I/O Bus Connection Module, 4A Fuse</td>
<td>TXS1.EF4</td>
</tr>
<tr>
<td><strong>Accessories</strong></td>
<td></td>
</tr>
<tr>
<td>One set of address keys, numbers 1-12</td>
<td>TXA1.K12</td>
</tr>
<tr>
<td>One set of address keys, numbers 1-24</td>
<td>TXA1.K24</td>
</tr>
<tr>
<td>One set of address keys, numbers 25-48</td>
<td>TXA1.K-48</td>
</tr>
<tr>
<td>One set of address keys, numbers 49-72</td>
<td>TXA1.K-72</td>
</tr>
<tr>
<td>Labels for TX-I/O 100 sheets/pack Letter format</td>
<td>TXA1.LLT-P100</td>
</tr>
<tr>
<td>Replacement label holders</td>
<td>TXA1.LH</td>
</tr>
</tbody>
</table>
TC Compact Series Unitary Equipment Controller

DESCRIPTION

The TC Compact Series Unitary Equipment Controller (Programmable Controller–Compact) for BACnet networks is a high-performance Direct Digital Control (DDC) equipment controller, which is an integral part of the TALON® Automation System. The controllers are classified as a BACnet Advanced Application Controller (B-AAC) with support for BACnet MS/TP protocol.

The TC Compact Series offers integrated I/O based on state-of-the-art TX-I/O™ Technology, which provides superior flexibility of point and signal types, and makes it an optimal solution for Air Handling Unit (AHU) control. The TC Compact operates stand-alone or networked to perform complex control, monitoring, and energy management functions without relying on a higher-level processor.

TC Compact Series communicates with other field panels or workstations on a peer-to-peer Automation Level Network (ALN), or on the Field Level Network (FLN), and supports Native BACnet MS/TP on RS-485.

FEATURES

- BACnet Testing Laboratories (BTL) certified Classified as BACnet Advanced Application Controllers (B-AAC) using the BACnet MS/TP protocol for specific models
- Sophisticated Adaptive Control, a closed loop control algorithm that auto-adjusts to compensate for load/seasonal changes
- Models with either 16 or 24 inputs/outputs to cost-effectively match the needs of the application
- Message control for terminals, printers, pagers, and workstations
- HMI RS-232 port, which provides laptop connectivity for local operation and engineering
- Extended battery backup of Real Time Clock
- Auto Save and persistent database backup and restore within the controller
- PXM10T and PXM10S support: Optional LCD Local user interface with HOA (Hand-off-auto) capability and point commanding and monitoring features
TC Compact Series Unitary Equipment Controller

SPECIFICATIONS

Dimensions (L × W × D)
TC Unitary Equipment Controller, 24 point, BACnet MS/TP
10.7” × 5.9” × 2.45” (272 mm × 150 mm × 62 mm)

Processor, Battery, and Memory
Processor and Clock Speed
Freescale MPC852T, 100 MHz

Memory
24 MB (16 MB SDRAM, 8 MB Flash ROM)

Battery backup of SDRAM (field replaceable)
AA (LR6) 1.5 Volt Alkaline (non-rechargeable)
60 days (accumulated)

Battery backup of Real Time Clock
10 years (32°F to 122°F (0°C to 50°C)
Coin cell (BR2032) 3 Volt lithium

Communication
A/D Resolution (analog in)
16 bits

D/A Resolution (analog out)
10 bits

BACnet MS/TP Automation Level Network (ALN)
9600 bps to 115.2 Kbps, up to 10 nodes per MS/TP ALN

BACnet MS/TP Field Level Network (FLN)
9600 bps to 115.2 Kbps

Human-Machine Interface (HMI)
RS-232 compliant, 1200 bps to 115.2 Kbps

Human-Machine Interface (HMI)
Ethernet, 10/100 MB

USB Device port (for non-smoke control) (applications only)
Standard 1.1 and 2.0 USB device port, Type B connector

Electrical
Power Requirements
24 Vac ±20% input @ 50/60 Hz

Power Consumption (Maximum)
20 VA @ 24 Vac

A/D Resolution (analog in)
16 bits

D/A Resolution (analog out)
10 bits

AC Power and Digital Outputs
NEC Class 1 Power Limited

Communication and all other I/O
NEC Class 2

Analog Outputs
0-10 V

Digital Inputs
Contact Closure Sensing, Status/Binary
Dry Contact/Potential Free inputs only
Does not support counter inputs

Digital Outputs
Class I Relay

Electrical Rating

Universal Input (UI) and Universal Input/ Outputs (U)

Analog Input
Voltage (0-10 Vdc)
Current (4-20 mA)
1K Ni RTD @ 32°F
1K Pt RTD (375 or 385 alpha) @32°F
10K NTC Type 2 or Type 3 Thermistor @ 77°F
100K NTC Type 2 Thermistor @77°F

Digital Input
Pulse Accumulator
Contact Closure Sensing
Dry Contact/Potential Free inputs only
Supports counter inputs up to 20 Hz

Analog Output (U points only)
Voltage (0-10 Vdc)
TC Compact Series Unitary Equipment Controller

SPECIFICATIONS (Continued)

Super Universal I/Os

Analog Input
Voltage (0-10 Vdc)
Current (4-20 mA)
1K Ni RTD @ 32°F
1K Pt RTD (375 or 385 alpha) @32°F
10K NTC Type 2 or Type 3

Digital Input
Pulse Accumulator
Contact Closure Sensing
Dry Contact/Potential Free inputs only
Supports counter inputs up to 20 Hz

Analog Output
Voltage (0-10 Vdc)
Current (4-20) mA Digital Output (requires an external relay)
0 to 24 Vdc, 22 mA max.

Operating Environment

Ambient operating temperature
32°F to 122°F (0°C to 50°C)
5% to 95%, non-condensing

Shipping and Storage Environment
-40°F to 185°F (-40°C to 85°C)

Mounting Surface
Direct equipment mount, building wall, or structural member
CE Compliance must be installed inside a metal enclosure rated at IP20 minimum

Agency Listings

UL
UL916 PAZX
UL916 PAZX7

Agency Compliance
FCC Compliance CFR47 Part 15, Subpart B, Class B
Australian EMC Framework
European EMC Directive (CE)
European Low Voltage Directive (LVD)

OSHPD Seismic Certification
## TC Compact Series Unitary Equipment Controller

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC Unitary Equipment Controller, 16 point, BACnet MS/TP</td>
<td>TC16.3-UCM.T</td>
</tr>
<tr>
<td>TC Unitary Equipment Controller, 24 point, BACnet MS/TP</td>
<td>TC24.3-UCM.T</td>
</tr>
</tbody>
</table>

### Accessories

- Serial cable required for PXM10T/S connection to non-rooftop variants of the 16-point and 24-point Compact Series (pack of 5)
  
  **Product Number:** PXA-HMI.CABLEP5

- The Wire Tie Bar kit can be used when addition tie bars are needed to secure wiring within the enclosure.
  
  **Product Number:** PXA-TIEBARKIT

- USB to RS232 Adapter converts USB Host signals (Type A male connector) to RS232 signals (DB9 male connector).
  
  **Product Number:** PXA-USBADAPTER

- USB Modem kit contains everything needed for dial up modem connection using the USB Host port of the TC Modular controller.
  
  **Product Number:** PXA-USBMODEMKIT

- Controller mounted Operator Display module with point monitor and optional blue backlight
  
  **Product Number:** PXM10S

- Controller mounted Operator Display module
  
  **Product Number:** PXM10T

### Service Boxes and Enclosures

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>The DIN Replacement Kit can be used when additional 16” DIN rail is required.</td>
<td>PXA-DIN16KIT</td>
</tr>
<tr>
<td>18” Enclosure (Utility Cabinet) (UL Listed NEMA Type 1 Enclosure)</td>
<td>PXA-ENC18</td>
</tr>
<tr>
<td>19” Enclosure (UL Listed NEMA Type 1 Enclosure)</td>
<td>PXA-ENC19</td>
</tr>
<tr>
<td>34” Enclosure (UL Listed NEMA Type 1 Enclosure)</td>
<td>PXA-ENC34</td>
</tr>
<tr>
<td>PX Series Service Box – 115V, 24 Vac, 50/60 Hz, 192 VA</td>
<td>PXA-SB115V192VA</td>
</tr>
<tr>
<td>PX Series Service Box – 115V, 24 Vac, 50/60 Hz, 384 VA</td>
<td>PXA-SB115V384VA</td>
</tr>
<tr>
<td>PX Series Service Box – 230V, 24 Vac, 50/60 Hz, 192 VA</td>
<td>PXA-SB230V192VA</td>
</tr>
<tr>
<td>PX Series Service Box – 230V, 24 Vac, 50/60 Hz, 384 VA</td>
<td>PXA-SB230V384VA</td>
</tr>
<tr>
<td>Service Box Sidewall Kit, 192 VA</td>
<td>PXA-SW192VA</td>
</tr>
<tr>
<td>Service Box Sidewall Kit, 384 VA</td>
<td>PXA-SW384VA</td>
</tr>
</tbody>
</table>

### Documentation

<table>
<thead>
<tr>
<th>Description</th>
<th>Document Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC Compact Series Owner's Manual</td>
<td>588-682</td>
</tr>
</tbody>
</table>
MS/TP Point Pickup Modules

DESCRIPTION
The Point Pickup Modules (PPM) are expansion I/O devices that communicate on a BACnet master-slave/token-passing (MS/TP) network, allowing for the incorporation of a cluster of remote points into the Building Automation Station over the MS/TP network.

FEATURES
- Wide range of signal type support for flexible I/O solutions
- Device ID and Device name auto-populated for efficient start up (Device ID and Device name are also writable for customization)
- UL and cUL Listed as Enclosed Energy Management Equipment. No additional enclosure required
- Evaluated and certified by UL as suitable for installation in plenum areas. (Building codes for plenum requirements vary by location, check with local building authority)
- LEDs, visible through the housing, indicate the power, communication, and DO status
- Default communication at 19200 baud also supports 9600, 38400 and 76800 lps via DIP switch
- 8-bit DIP switch to configure MAC address
- Recover and resume communication on the network after a power interruption without operator intervention
- Capable of mounting on electrical junction box without field modification or adaptors. (4 in. x 4 in. standard depth US box, 100 mm x 100 mm x 25 mm Asia/Pacific standard box.)
- DIN rail and surface mount installation also possible
- Assembly has a cover label associated with the LEDs for easy labeling and identification
- Supports unsolicited COVs when faster data point value updates are required
- Smoke control status S2 - Allowed to be connected to a smoke control network but may not perform any smoke control functions
MS/TP Point Pickup Modules

SPECIFICATIONS

Power Requirements

Power Consumption
Input power range of 19.2 Vac to 28.8 Vac (50 or 60 Hz)
4 VA to 7 VA

Universal Inputs
6 Point Digital PPMs (PPM-1U32.BPR and PPM-1U32.BPF)
1- 10KΩ Type II NTC Thermistor or dry contact
6 Point Analog PPMs (PPM-2U22.BPR and PPM-2U22.BPF)
2- 1000 Nickel RTD, 1000 Pt RTD, 0-10V, or dry contact
12 Point Combination PPMs (PPM-2U3322.BPR and PPM-2U3322.BPF)
2- 1000 Nickel RTD, 1000 Pt RTD, 0-10V, or dry contact

Digital Inputs
6 Point Digital PPMs (PPM-1U32.BPF and PPM-1U32.BPR)
3- Dry contact or Pulse accumulator
6 Point Digital PPMs (PPM-1U32.BPR)
2- Hand-Off-Auto switches provide manual operation of the relays for commissioning
12 Point Combination PPMs (PPM-2U3322.BPF and PPM-2U3322.BPR)
3- Form A NO (Normally Open) Relays. 24 to 240 Vac, 5A resistive, 2A General Purpose, 5(2)

Digital Outputs
6 Point Digital PPMs (PPM-1U32.BPF and PPM-1U32.BPR)
3- Dry contact or Pulse accumulator
6 Point Digital PPM (PPM-1U32.BPR)
2- Form A NO (Normally Open) Relays . 24 to 240 Vac, 5A resistive, 2A General Purpose, 5(2)
12 Point Combination PPMs (PPM-2U3322.BPF and PPM-2U3322.BPR)
3- Form A NO (Normally Open) Relays. 24 to 240 Vac, 5A resistive, 2A General Purpose, 5(2)

Analog Inputs
6 Point Analog PPMs (PPM-2U22.BPF and PPM-2U22.BPR)
2- 1000 Nickel RTD, 1000 Pt RTD, 0-10Vdc, or 4-20mA
12 Point Combination PPMs (PPM-2U3322.BPF and PPM-2U3322.BPR)
2- 1000 Nickel RTD, 1000 Pt RTD, 0-10Vdc

Analog Outputs
6 Point Analog PPM (PPM-2U22.BPF and PPM-2U22.BPR)
2- 0-10 Vdc
12 Point Combination PPM (PPM-2U3322.BPF and PPM-2U3322.BPR)
2- 0-10 Vdc

Dimensions
4.5 in x 4.5 x 1.4 in (114.3 mm x 114.4 mm x 34.5 mm)

Weight
0.8 lb max. including box

Communications Remote Local
BACnet MS/TP master or slave
9600 to 76800 baud set via DIP switch

Storage Temperature
-40°F to 158°F (-40°C to 70°C) 32°F to 122°F (0°C to 50°C)
93% RH (non-cond.)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Point Digital BACnet MS/TP Point Pickup Module, Fixed terminal blocks</td>
<td>PPM-1U32.BPF</td>
</tr>
<tr>
<td>(1UI 3DI 2DO)</td>
<td>PPM-1U32.BPR</td>
</tr>
<tr>
<td>6 Point Digital BACnet MS/TP Point Pickup Module, Removable terminal blocks</td>
<td>PPM-2U22.BPF</td>
</tr>
<tr>
<td>and HOA switches (1UI 3DI 2DO)</td>
<td></td>
</tr>
<tr>
<td>6 Point Analog BACnet MS/TP Point Pickup Module, Fixed terminal blocks</td>
<td>PPM-2U22.BPF</td>
</tr>
<tr>
<td>(2UI 2AI 2 AO)</td>
<td></td>
</tr>
<tr>
<td>6 Point Analog BACnet MS/TP Point Pickup Module, Removable terminal blocks</td>
<td>PPM-2U22.BPF</td>
</tr>
<tr>
<td>(2UI 2AI 2 AO)</td>
<td></td>
</tr>
<tr>
<td>12 Point Combination BACnet MS/TP Point Pickup Module, Fixed terminal blocks</td>
<td>PPM-2U3322.BPF</td>
</tr>
<tr>
<td>(2UI 3DI 3DO 2AO 2AI)</td>
<td></td>
</tr>
<tr>
<td>12 Point Combination BACnet MS/TP Point Pickup Module, Removable terminal</td>
<td>PPM-2U3322.BPF</td>
</tr>
<tr>
<td>blocks (2UI 3DI 3DO 2AO 2AI)</td>
<td></td>
</tr>
<tr>
<td>BACnet MS/TP Point Pickup Module DIN rail mounting brackets (5 pair)</td>
<td>PPM-DIN.RMB</td>
</tr>
<tr>
<td>3-wire 120 ohm 1/2W carbon composition resistor/each end of line terminator</td>
<td>550-975P100</td>
</tr>
<tr>
<td>(pkg. of 100)</td>
<td></td>
</tr>
<tr>
<td>3-wire RS-485 reference terminator for single earth ground termination at</td>
<td>550-974P100</td>
</tr>
<tr>
<td>one end of network.</td>
<td></td>
</tr>
</tbody>
</table>
Integration Drivers

DESCRIPTION
The TALON® Automation Building Management System is a powerful building control system able to manage an entire facility or campus. It extends control to include every aspect of a building's needs by integrating subsystems and devices into the TALON System for operational efficiencies.

The TALON System brings together all vital parameters of a building and its subsystems such as:
- Chillers and boilers
- Power related devices
- Lighting systems
- Automation controls and SCADA systems

Through integration, the TALON system provides migration options for legacy building automation systems, extending the life of an investment, as well as providing a standard protocol integration platform for integrating the standard protocol building automation systems of today.

Hardware Types
All of the Integration Drivers License part numbers are available for use on TC Modular Hardware. A select group of drivers are available on TC Compact 36.

FEATURES
- TALON Integration Drivers are based on standard hardware platforms and use standard TALON Tools for programming
- Third-party devices look identical to native TALON devices once integrated
- TALON Integration Drivers offer all of the standard protocol options as well as proprietary protocols for fire, security, legacy BMS systems, and specialty systems

Integration Driver Types
Integration drivers are available for many standard protocols as well as proprietary protocols. Integration drivers may integrate systems or individual devices.

They may use one or two or three of the FLN ports available. In some cases, the FLN ports are selectable between standard FLN protocol and the driver protocol. In others, the driver only supports one protocol through the FLN ports. Refer to the specification data listed in the License Table.

Note: At this time Integration Driver Licences are not compatible with firmware support, Field Panel Web Server, or Launch Pad.

ORDERING INFORMATION
The complete Integration Driver solution involves ordering an Integration Driver License plus a PXC Series Controller. A RS485 Module for TC modular controllers is needed for most cases. TC Series Controller + LSM License = Integration Driver Solution

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC Modular Hardware</td>
<td></td>
</tr>
<tr>
<td>TC Modular BACnet MS/TP or BACnet/IP ALN - TX-I/O included with all licenses</td>
<td>TC1000-E96.A</td>
</tr>
<tr>
<td>RS-485 Expansion Module FLN</td>
<td>PXX-485.3</td>
</tr>
<tr>
<td>TC Compact 36 Hardware</td>
<td></td>
</tr>
<tr>
<td>TC Compact, 36 pt, BACnet/IP or MS/TP ALN</td>
<td>TC36-E.T</td>
</tr>
</tbody>
</table>
Integration Drivers

ORDERING INFORMATION (Continued)

The following Integration Driver Licenses are available for use on TC Modular or TC 36 Compact controllers, as specified in the chart below.

*Note: Not all BACnet TC Modular hardware is compatible with every License. See the additional specification data column for details.

<table>
<thead>
<tr>
<th>Driver Description</th>
<th>Part Number</th>
<th>Supports Integration To</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACnet MS/TP or IP</td>
<td>LSM-INT-BMSTP.T</td>
<td>1 network of BACnet MS/TP devices plus 1 network of BACnet IP devices</td>
<td>TC-M</td>
</tr>
<tr>
<td>Barber Colman Network</td>
<td>LSM-INT-BC8000.T</td>
<td>Barber-Colman 8000 Enhanced Driver Network 8000 system. Supports Barber Colman and P1 devices on same FLN.</td>
<td>TC-M</td>
</tr>
<tr>
<td>CSI Host</td>
<td>LSM-INT-CSIHOST.T</td>
<td>1 CSI INET system</td>
<td>TC-M</td>
</tr>
<tr>
<td>Johnson Controls N2 Master</td>
<td>LSM-INT-JCIN2M.T</td>
<td>3 networks of N2 &amp; P1 FLN devices (on same FLN)</td>
<td>TC-M</td>
</tr>
<tr>
<td>Modbus**</td>
<td>LSM-INT-MDBS.T</td>
<td>3 networks of Modbus RTU devices. P1 FLN devices on FLN, if not used for Modbus devices.</td>
<td>TC-M</td>
</tr>
<tr>
<td>Modbus 250**</td>
<td>LSM-INT-MDBS250.T</td>
<td>3 networks of Modbus RTU devices and/or one network of Modbus TCP devices for a total of up to 250 Modbus points. P1 FLN devices on FLN, if not used for Modbus devices.</td>
<td>TC-M</td>
</tr>
<tr>
<td>Modbus 500**</td>
<td>LSM-INT-MDBS500.T</td>
<td>3 networks of the Modbus RTU devices and/or one network of Modbus TCP devices for a total of up to 500 Modbus points. P1 FLN devices on FLN, if not used for Modbus devices.</td>
<td>TC-M</td>
</tr>
<tr>
<td>Modbus 1000**</td>
<td>LSM-INT-MDBS1000.T</td>
<td>3 networks of the Modbus RTU devices and/or one network of Modbus TCP devices for a total of up to 1000 Modbus points. P1 FLN devices on FLN, if not used for Modbus devices.</td>
<td>TC-M</td>
</tr>
<tr>
<td>Pneumercator</td>
<td>LSM-INT-PNMRCTR.T</td>
<td>Pneumercator system</td>
<td>TC-M</td>
</tr>
<tr>
<td>Staefa Smart</td>
<td>LSM-INT-STFASMRT.T</td>
<td>Staefa Smart Driver license file</td>
<td>TC-M</td>
</tr>
<tr>
<td>Trane</td>
<td>LSM-INT-TRANE.T</td>
<td>1 network of Trane BCU controllers</td>
<td>TC-M</td>
</tr>
<tr>
<td>Veeder Root**</td>
<td>LSM-INT-VR.T</td>
<td>Veeder-Root system</td>
<td>TC-M</td>
</tr>
<tr>
<td>Veeder Root Enterprise**</td>
<td>LSM-INT-VRE.T</td>
<td>Veeder-Root TLS system via Ethernet network</td>
<td>TC-M</td>
</tr>
</tbody>
</table>

**Driver may or may not require an RS-485 Expansion Module depending on system architecture. Reference the Product Update for more information.

OTHER LICENSES

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Island Bus and FLN License for TC36</td>
<td>LSM-36.T</td>
</tr>
<tr>
<td>FLN License for TC Compact</td>
<td>LSM-FLN.T</td>
</tr>
<tr>
<td>Compact 36 License to Support FLN</td>
<td>LSM-FLN36.T</td>
</tr>
<tr>
<td>Compact 36 License to Support Island Bus</td>
<td>LSM-I836.T</td>
</tr>
</tbody>
</table>
Soft TALON® Network Manager

DESCRIPTION

New levels of flexibility from the leading provider of open, Internet enabled, automation infrastructure solutions.

Now you can take advantage of the real-time control, dynamic graphics, and multi-protocol integration capabilities of Tridium’s Niagara Framework® on the hardware of your choice. The AX SoftTNM makes it easy to address unique application needs such as rack mounting, extended temperature ranges, industrial packaging Windows environment. The SoftTNM provides all of the capabilities of a programmable controller, multi-protocol adapter, network manager, web server (with optional Web User Interface), data logger and alarm system in a single software solution.

You can run the AX SoftTNM on most Microsoft XP Professional®, Windows Server 2003 and other Windows compatible computers (except Vista). The AX SoftTNM communicates with external devices utilizing Ethernet-based protocols, and currently supports the industry’s most common standard protocols: OPC®, BACnet® IP, Modbus® TCP, oBIX and SNMP. The oBIX driver (client/server) is included with the SoftTNM license, other drivers are sold separately.

FEATURES

- Meet the needs of special applications – choose from the wide range of hardware platforms that support Windows XP Professional, Windows Server 2003.
- Supports the most widely used system protocols over Ethernet: OPC, BACnet IP, Modbus TCP, SNMP, (oBIX Client/Server included; others sold separately).
- Supports optional Web User Interface - Serves dynamic, animated graphic displays directly to a standard web browser. No need for additional hardware or web servers.
- No need to install and manage “thick client” software applications to give your end users access to the critical real time information. Access your system from anywhere with a standard web browser.
- A fully integrated station of a Niagara distributed-architecture system. AX SoftTNM nodes communicate with other AX SoftTNMs, embedded AX TNMs and AX Supervisors on a peer-to-peer basis when configured with the optional Enterprise Connectivity Service Pack (EC-SP-SJ).
- Use AX Supervisor software to aggregate multiple AX SoftTNMs into a unified system with centralized database storage, data logging and archiving, and alarm reporting.
Soft TALON® Network Manager

SPECIFICATIONS
– PC platform with Intel or AMD CPU 400 MHz or higher
– 512 MB RAM or greater; 1 GB recommended
– Hard Disk 20 GB or larger
– One Ethernet Port; 10/100 Mbit
– CD reader for loading
– Platform must be dedicated to the AX SoftTNM application only
– Windows XP Professional, Windows Server 2003, other WIN compatible

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>AX SoftTNM software package with installation instructions, 10,000 AX KRu resource count limit. Package includes a CD and installation instructions. Includes oBIX client/server driver. Web server and Niagara connectivity included.</td>
<td>SJ-1-M-AX</td>
</tr>
<tr>
<td>Upgrade for SJ-1M-AX to increase Java resource count to 30,000 kRu resources.</td>
<td>SJ-2M-U-AX</td>
</tr>
</tbody>
</table>
TALON® Network Manager-7

DESCRIPTION
The TALON Network Manager-7 (TNM-7) is an embedded controller/server platform with more processing power and higher memory storage than the TNM-6. It combines integrated control, supervision, data logging, alarming, scheduling and network management functions with Internet connectivity and web serving capabilities in a small, compact platform. The TNM-7 makes it possible to control and manage external devices over the Internet and present real time information to users in web-based graphical views.

The TNM-7 is the newest member of the TALON System suite of Java-based controller/server products, software applications and tools, which are designed to integrate a variety of devices and protocols into unified, distributed systems. The TNM-7 is powered by the NiagaraAX Framework®. Niagara supports a wide range of protocols including LonWorks®, BACnet®, MODbus, and Internet standards. The NiagaraAX Framework also includes integrated network management tools to support the design, configuration, installation and maintenance of interoperable networks.

FEATURES
- Powerful 440Epx PowerPC processor@667 MHz
- Fixed 1 GB DDR-2 memory
- Rechargeable internal NIMH battery backup, for short term power fail events
- Built-in recharging and monitoring support for an external 12V sealed lead-acid backup battery, for longer power fail durations. Built-in contact inputs are also available for UPS monitoring
- Supports open and legacy protocols
- Web User interface (optional) sends rich presentations and live data to a web browser
- Runs stand-alone control, energy management, and multi-protocol integration
- Standard and optional communications boards
- Expandable to 16 remote modules or 256 points, using the RS-485
- Compact design is easy to install and supports multiple power options
- Supports Embedded Workbench (optional) for projects which require an onsite programming tool
TALON® Network Manager-7

SPECIFICATIONS

Operating System Environment
QNX OS version 6.3.2 with IBM J9 Virtual Machine version 2.3
Requires NiagaraAX Release 3.5 or higher
667 MHz 440Epx Power PC processor
Base unit – 1 GB MB DDR-2 333 MHz RAM
One GB NAND flash memory on board for database storage, trend storage and system software
Internal battery backup to allow system database save after power failure, plus maintenance of Real-time clock for up to one year

Communication
Two 1 Gigabit Ethernet ports
Two USB 2.0 ports (for future application use)
One RS-232 port and one isolated RS-485 port
Two TNM communication slots for optional TNM communication interface card use

Optional Communication Cards
588-654 Optional 78 Kbps FTT10 A Lon Card
587-659 Optional RS-232 port adapter
587-658 Optional dual port RS-485 adapter

Power
Uses 588-675 wall modules or 588-679 universal power supply module
Power required is 15 volts DC at 20 watts Max.
**Note:** The 588-675 is supplied with a “barrel plug.” To use this power option, the plug must be removed, and the wires must be attached to the TNM terminal connector.
Internal battery backup to save the system database after power failure, plus maintenance of Real-time clock for up to one year.

Dimensions
8 1/2” W x 6” L x 2 5/8” H
(215.9 mm x 152.4 mm x 68.3 mm)

Weight
Net 4 lbs. (1.814 kg), Gross 5 lbs. (2.268 kg)

Chassis
Housed in molded plastic enclosure
Cooling: Internal air convection
Panel mounting via screws or standard Din rail.

Environmental Conditions
0 – 50° C, 32 - 122° F; 0-90% RH, non-condensing (for electronics)

Agency Listings
UL 916
C-UL listed to Canadian Standards Association (CSA)
C22.2 No. 205-M1983 “Signal Equipment”
CE
FCC part 15 Class A.
RoHS compliant
BTL B-BC listed when optional BACnet driver is used

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNM-7</td>
<td>588-707</td>
</tr>
<tr>
<td>LON Card for the TNM-2 XPR, TNM-6 XPR, and TNM-7</td>
<td>588-654</td>
</tr>
<tr>
<td>Modem Card for the TNM-2 XPR, TNM-6 XPR, and TNM-7</td>
<td>588-674</td>
</tr>
<tr>
<td>Dual Port RS-485 Card</td>
<td>588-658</td>
</tr>
<tr>
<td>RS 232 Card</td>
<td>588-659</td>
</tr>
<tr>
<td>16 I/O Remote Module (8 UI, 4 DO, 4 AO)</td>
<td>588-692</td>
</tr>
<tr>
<td>Universal Power Supply, 90-263 VAC 50/60 Hz auto-sensing power supply</td>
<td>588-679</td>
</tr>
<tr>
<td>Wall adapter, 90-240 VAC, 50/60 Hz, US plug type</td>
<td>588-675</td>
</tr>
</tbody>
</table>
TALON® Network Manager 6E

DESCRIPTION

The TALON® Network Manager 6E (TNM-6E) is a compact, embedded controller/server platform. Building on the TNM-6, it combines integrated control, supervision, data logging, alarming, scheduling and network management functions with Internet connectivity and Web serving capabilities in a small, compact platform. The TNM-6E makes it possible to control and manage external devices over the Internet and present real-time information to you in Web-based graphical views.

The TNM-6E is a member of the TALON suite of controller/server products, software applications and tools, which are designed to integrate a variety of devices and protocols into unified, distributed systems. These products are powered by NiagaraAX Framework, software technology designed to integrate diverse systems and devices into a single AX-systems and devices into a single AX-based system. NiagaraAX supports a wide range of protocols including LonWork, BACnet, Modbus, oBIX, and Internet standards. The AX Framework also includes integrated network management tools to support the design, configuration, installation and maintenance of interoperable networks.

The TNM-6E enhancements include data recovery services for batteryless operation and increased operating ambient temperature. Battery maintenance is no longer necessary when using data recovery services. However, the TNM-6E can still be installed with an optional battery and can provide up to 10 minutes of operation during power outages and disturbances if equipped.

FEATURES

- Embedded PowerPC Platform @ 524 MHz
- Supports open and legacy protocols
- QNX Real-time Operating System
- Web User interface (standard) serves rich graphical browser presentations
- Run stand-alone control, energy management, and integration applications within the TNM-6E series controllers
- Supports two optional communications boards
- Optional 16 and 34 point I/O Modules
- Data Recovery Services prevents data loss during power interruptions
- Optional battery is available for extended runtime

Optional I/O Modules

**IO-34 – 34 Point I/O Module**
- Max of 1 per TNM-6E; includes integral 24 volt AC/DC input power supply for TNM 2 and IO; no other power required
- 16 Universal Inputs (Type 3 (10k) Thermistors, 0-1000 ohm, 0-10 volts, 0-20 mA with external resistor)
- 10 relay outputs (Form A contacts, 24 Vac @ 0.5 amp rated)
- 8 analog outputs (0-10Vdc)

**IO-16 – 16 Point I/O Module**
- Up to 4 per TNM-6E, 2 per TNM-6E if combined with a 34 Point I/O module
- 8 Universal Inputs (Type 3 (10k) Thermistors, 0-1000 ohm, 0-10 volts, 0-20 mA with external resistor)
- 4 relay outputs (Form A contacts, 24 Vac @ 0.5 amp rated)
- 4 analog outputs (0-10 Vdc)

**IO-16 – 485 Remote I/O Module**
- 16 IO Points per device
- 8 Universal Inputs – Type 3 (10k) Thermistors, 0-100K ohm, 0-10 Vdc, 0-20 mA with external resistor
- 4 relay outputs (Form A contacts, 24 Vac @ 0.5 amp rated)
- 4 analog outputs (0-10 Vdc)
- Up to 16 remote RS-485 IO 16 modules (588-692) max per TNM-6E
TALON® Network Manager 6E

SPECIFICATIONS

Platform
PowerPC 440 524 MHz processor
128 MB DDR RAM & 128 MB Serial Flash
Optional 256 MB DDR RAM
SRAM Data Recovery Services
Real-time clock

Operating System
QNX Real-time Operating System
Oracle Hotspot Java 5 VM
NiagaraAX 3.6 or later

Communication
Base Unit including two Ethernet ports, one RS-232 port, one RS-485 port, Web User Interface and Niagara Connectivity included. oBIX Client/Server Driver included.

Power
Direct connect (Pin compatible) with the 588-678 and 588-679 power supplies
Modules can be powered directly from select TNM models with 15 Vdc outputs
External 15 Vdc power supply

DIN rail or surface mounting
Optional battery kit provides up to 10 minutes of runtime during power outages and disturbances

Chassis
Construction: Plastic, din rail, or screw mount chassis, plastic cover
Cooling: Internal air convection

Environmental Conditions
Operating temperature range: 0-60°C (32°F to 140°F)
Operating temperature range: 0-50°C (32°F to 122°F) w/ optional battery kit
Storage Temperature range: 0-70°C (32°F to 158°F)
Relative humidity range: 5% to 95%, non-condensing

Agency Listings
UL 916, E207782 Energy Management
C-UL listed to Canadian Standards Association (CSA) C22.2 No. 205-M1983 "Signal Equipment"
FCC part 15 Class A
BTL
RoHS Compliant
CE

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNM and Memory Upgrade Option</td>
<td>588-706E</td>
</tr>
<tr>
<td>Base Unit including two Ethernet ports, one RS-232 port, one RS-485 port, Web User Interface and Niagara Connectivity included. Also includes oBIX Client/Server Driver.</td>
<td>588-663</td>
</tr>
<tr>
<td>Upgrade RAM memory 128 MB to 256 MB DDR.</td>
<td>588-663</td>
</tr>
<tr>
<td>Optional Communications Cards</td>
<td>588-654</td>
</tr>
<tr>
<td>Optional 78 Kbps FTT 10 A LON Adapter</td>
<td>588-654</td>
</tr>
<tr>
<td>Optional dual port RS-485 adapter; electrically isolated</td>
<td>588-658</td>
</tr>
<tr>
<td>Optional RS-232 port adapter with 9-pin D-shell connector</td>
<td>588-659</td>
</tr>
<tr>
<td>Power Supply &amp; Optional Power Modules</td>
<td>588-678</td>
</tr>
<tr>
<td>Note: All modules are universal input 90-240 volts, 50/60 Hz; the model numbers below represent the various plug configurations only (except 588-679).</td>
<td>588-678</td>
</tr>
<tr>
<td>24V Power Module. Optional: 24 Volt AC/DC power supply module, Din Rail mounted</td>
<td>588-678</td>
</tr>
<tr>
<td>Wall Adaptor. 120 Vac, 50-60 Hz. US</td>
<td>588-675</td>
</tr>
<tr>
<td>Wall Adaptor. 230 Vac, 50-60 Hz. Europe/Asia</td>
<td>588-676</td>
</tr>
<tr>
<td>Wall Adaptor. 230 Vac, 50-60 Hz. UK</td>
<td>588-677</td>
</tr>
<tr>
<td>Universal Power Supply. Optional universal voltage input power supply module, Din Rail mounted. Input voltage is 90-263 Volts AC, 50/60 Hz auto adjusting. Acceptable for ambient temperatures between 0-50°C</td>
<td>588-679</td>
</tr>
<tr>
<td>Replacement Battery Assembly. Optional Battery Kit. Provides up to 10 minutes of runtime during power outages and disturbances</td>
<td>588-778</td>
</tr>
<tr>
<td>Optional IO Modules</td>
<td>588-672</td>
</tr>
<tr>
<td>Optional 16-point IO module; directly connects to TNM IO connector</td>
<td>588-672</td>
</tr>
<tr>
<td>Optional 34-point IO module; directly connects to TNM IO connector</td>
<td>588-673</td>
</tr>
<tr>
<td>Optional remote 16-point IO module, RS-485 bus connected to TNM-6E; up to 16 units may be connected max., additional power supply required to power the remote IO.</td>
<td>588-692</td>
</tr>
</tbody>
</table>
TALON® Network Manager 3E

DESCRIPTION
TALON Network Manager 3E (TNM-3E) is an embedded controller/server platform designed for remote monitoring and control applications. The unit combines integrated control, supervision, data logging, alarming, scheduling, device communication and network management functions, with Internet connectivity and Web serving capabilities in a small, compact platform. The TNM-3E makes it possible to control and manage external devices over the Internet and present real time information to you in Web-based graphical views.

The TNM-3E is part of the Tridium portfolio of Java-based controller/server products, software applications and tools, designed to integrate a variety of devices and protocols into unified, distributed systems. Tridium products are powered by the NiagaraAX Framework, the industry’s leading software technology that integrates diverse systems and devices into a seamless system. NiagaraAX supports a range of protocols including LonWorks, BACnet, Modbus, oBIX and many Internet standards. The NiagaraAX Framework also includes integrated management tools to support the design, configuration and maintenance of a unified, real-time controls network.

FEATURES
- Embedded PowerPC platform @ 400 MHz
- Supports open and legacy protocols
- QNX Real-time Operating System
- Web User interface (standard) serves graphical browser presentations.
- Supports two optional communications boards
- Optional 16 and 34 point I/O Modules
- Data Recovery Services prevents data loss during power interruptions
- Optional battery is available for extended runtime

Optional Modules
- LON Card (588-654)
- Dual Port RS 485 Card (588-658)
- RS 232 Card (588-659)
TALON® Network Manager 3E

SPECIFICATIONS

Platform
PowerPC 405EX 400 MHz processor
256MB SDRAM and 128 MB Flash Memory
Data Recovery Services with SRAM
Real-time clock

Operating System
QNX Real-time Operating System
Oracle Hotspot JAVA VM
NiagaraAX 3.7.106 or later
Niagara 4.0 Ready

Communication
Two 10/100 Mb Ethernet port – RJ-45 connection
One RS-232 Port (9-pin D-shell connector)
One RS-485 non isolated part (3 Screw Connector on base board)

Power
15VDC 7.5VA/7.5W (with optional modules up to 20VA/20W)

Battery Backup
Optional with 588-778 – see ordering information

Dimensions
2.438” L x 6.313” W x 4.420” H
(61.9 mm x 279.4 mm x 355.6 mm)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNM-3E including 256 MB RAM, 128 MB Flash, 2 10/100 Mb Ethernet ports, 1 RS-485 serial port, 1 RS-232 serial port, NDIO port, 2 communication card option slots, and SRAM module. Power supply is not included – see Hardware Options. Battery is not included – see Hardware Options.</td>
<td>588-703E</td>
</tr>
<tr>
<td>License for Java Heap upgrade from 24MB to up to 96MB</td>
<td>588-663</td>
</tr>
<tr>
<td>24V AC/DC DIN Rail mountable power supply module – Not required with the purchase of a IO-34 module – Manufactured in the USA.</td>
<td>588-678</td>
</tr>
<tr>
<td>US Wall Adaptor 110V.</td>
<td>588-675</td>
</tr>
<tr>
<td>EU Wall Adaptor 240V.</td>
<td>588-676</td>
</tr>
<tr>
<td>Universal power supply – 90 – 263V AC50/60 Hz Auto sensing power supply module DIN rail mountable – not required with the purchase of a I/O-34 module. Optional Battery Kit. Provides up to 10 minutes of runtime during power outages and disturbances.</td>
<td>588-679</td>
</tr>
<tr>
<td>588-778</td>
<td></td>
</tr>
</tbody>
</table>

Note: See the current price list for additional options.

Optional Communications Cards
Optional 78 Kbps FTT10 A LON Adapter
Optional dual port RS-485 adapter; electrically isolated
Optional RS-232 port adapter with 9-pin D-shell connector

Optional I/O Modules
Optional 16-point I/O module; directly connects to TNM I/O connector.
Optional 34-point I/O Module; directly connects to TNM I/O connector.
Optional remote 16-point I/O module, RS-485 bus connected to TNM-6E; up to 16 units may be connected max., additional power supply required to power the remote I/O.
TALON® Network Manager 603

DESCRIPTION

TALON Network Manager 603 (TNM-603) is an embedded controller/server platform designed for remote monitoring and control applications. The unit combines integrated control, supervision, data logging, alarming, scheduling and network management functions, integrated IO with Internet connectivity and Web serving capabilities in a small, compact platform. The TNM-603 makes it possible to control and manage external devices over the Internet and present real time information to you in Web-based graphical views.

In addition to supporting TALON NiagaraAX Framework applications, the TNM-603 can optionally support TALON Niagara R2 applications. This option provides the ideal platform for projects currently utilizing R2 technology where a cost effective migration to TALON NiagaraAX Framework is desired. The NiagaraAX Framework compatible platform can be installed and optionally configured to support a facility utilizing a Niagara R2 Framework application today. At a later date, the facility can migrate to a NiagaraAX Framework application, thus spreading the cost of the migration across multiple phases.

The TNM-603 is part of the TALON portfolio of Java-based controller/server products, software applications and tools, designed to integrate a variety of devices and protocols into unified, distributed systems. Tridium products are powered by the NiagaraAX Framework, software technology that integrates diverse systems and devices into a seamless system. TALON NiagaraAX supports a range of protocols including LonWorks, BACnet, Modbus, oBIX and many Internet standards.

FEATURES

- Embedded PowerPC Platform@ 524 MHz
- One LON FTT10A port for LON device integration
- Direct, on-board I/O with six universal inputs, and 4 Form C relay outputs
- One RS-485 port for connection to open and proprietary protocol devices
- One RS-232 port for Integration or technical support
- Web UI services to support many simultaneous users over the intranet or Internet via a standard Web browser
- One option slot supporting option modules

Optional Modules
- LON Card (588-654)
- Dual Port RS 485 Card (588-658)
- RS 232 Card (588-659)
TALON® Network Manager 603

SPECIFICATIONS

Platform
PowerPC 440 524 MHz processor
128MB DDR RAM and 128 MB Serial Flash
Optional 256 MB DDR RAM
SLA Battery Backup
Real-time clock

Operating System
QNX Real-time Operating System
Sun HotSpot JVM Java Virtual Machine
NiagaraAX 3.6.45 or later

Communication
Two 10/100 Mb Ethernet port – RJ-45 connection
One RJ-45 connector for RS-232 port.
One screw terminal RS-485 port (up to 78,600 baud for MSTP)
One LonWorks port – FTT-10A with Weidmüller connector
One NiagaraAX option slot
(see available Optional Modules below)

Power
120 Vac, 50/60 Hz
25 VA maximum
Lead wires for hot/neutral (wire nut), stud for ground connection.

Battery Backup
Battery backup provided for all on board functions.
Battery is monitored and trickle charged.
Battery maintains processor operation through power failures for
a pre-determined interval, then writes all data to flash memory,
shuts processor down, and maintains clock for a minimum of
five years.

Dimensions
2.5 ” L x 11” W x 14” H
(63.5 mm x 279.4 mm x 355.6 mm)

Weight
Net 4 lbs. (1.814 kg), Gross 5 lbs. (2.268 kg)

Chassis
Housed in metal enclosure, Intended for indoor wall
mounting only.
Cooling: Internal air convection.

Environmental Conditions
Operating temperature range: 0° to 50°C (32°F to 122°F)
Storage Temperature range: 0° to 70°C (32°F to 158°F)
Relative humidity range: 5% to 95%, non-condensing

Agency Listings
RoHS Compliant
BTL
UL 916
C-UL listed to Canadian Standards Association (CSA) C22.2
No. 205-M1983 “Signal Equipment”
FCC part 15 Class A.

ORDERING INFORMATION

| Description                                                                 | Product Number |
|-----------------------------------------------------------------------------|----------------|----------------|
| TNM-603 NPM6E based unit, including two Ethernet ports, one RS-232 port, one RS-485 port, one LonWorks® FTT-10A port, six universal inputs, and four Form C relay outputs. Web User Interface and Niagara Connectivity included. oBIX Client/Server Driver included. | 588-605        |
| Capability to utilize a Niagara R2 based application.                       | 588-609        |
| Upgrade RAM memory to 256 MB DDR.                                            | 588-663        |

Note: See the current price list for additional options.
TALON® Network Manager 645

DESCRIPTION

TALON Network Manager 645 (TNM-645) is an embedded controller/server platform designed for remote monitoring and control applications. The unit combines integrated control, supervision, data logging, alarming, scheduling, device communication and network management functions, with Internet connectivity and Web serving capabilities in a small, compact platform. The TNM-645 makes it possible to control and manage external devices over the Internet and present real time information to you in Web-based graphical views.

In addition to supporting TALON NiagaraAX Framework applications, the TNM-645 can optionally support TALON Niagara R2 applications. This option provides the ideal platform for projects currently utilizing R2 technology where a cost effective migration to TALON NiagaraAX Framework is desired. The NiagaraAX Framework compatible platform can be installed and optionally configured to support a facility utilizing a TALON Niagara R2 Framework application today. At a later date, the facility can migrate to a NiagaraAX Framework application, thus spreading the cost of the migration across multiple phases.

The TNM645 is part of the Tridium portfolio of Java-based controller/server products, software applications and tools, designed to integrate a variety of devices and protocols into unified, distributed systems. Tridium products are powered by the NiagaraAX Framework, the industry's leading software technology that integrates diverse systems and devices into a seamless system. NiagaraAX supports a range of protocols including LonWorks, BACnet, Modbus, oBIX and many Internet standards. The NiagaraAX Framework also includes integrated management tools to support the design, configuration and maintenance of a unified, real-time controls network. The LonWorks FTT-10A port, four RS-485 ports, two RS-232 ports, metal enclosure and line voltage input power supply, make this platform ideal for a wide variety of integration applications.

FEATURES

- Embedded PowerPC Platform@ 524 MHz
- One LON FTT10A port for LON device integration
- Four RS-485 ports for connection to open and proprietary protocol devices
- Two RS-232 ports for Integration or technical support
- Web UI services to support many simultaneous users over the intranet or Internet via a standard web browser
- One NiagaraAX Framework option slot supporting option modules

Optional Modules

- LON Card (588-654)
- Dual Port RS 485 Card (588-658)
- RS 232 Card (588-659)
TALON® Network Manager 645

SPECIFICATIONS

Platform
PowerPC 440 524 MHz processor
128MB DDR RAM & 128 MB Serial Flash
Optional 256 MB DDR RAM
SLA Battery Backup
Real-time clock

Operating System
QNX Real-time Operating System
Sun HotSpot JVM Java Virtual Machine
NiagaraAX 3.6.45 or later

Communication
Two 10/100 Mb Ethernet port – RJ-45 connection.
Two RJ-45 connectors for RS-232 port.
Four screw terminal RS-485 ports (up to 78,600 baud for MSTP).
One LonWorks port – FTT-10A with Weidmuller connector.
One NiagaraAX option slot (see available option modules below)

Power
TNM645: 120 Vac, 50/60 Hz.
25 VA maximum
Lead wires for hot/neutral (wire nut), stud for ground connection

Battery Backup
Battery backup provided for all on board functions.
Battery is monitored and trickle charged.
Battery maintains processor operation through power failures for a pre-determined interval, then writes all data to flash memory, shuts processor down, and maintains clock for a minimum of five years.

Dimensions
2.5” L x 11” W x 14” H
(63.5 mm x 279.4 mm x 355.6 mm)

Weight
Net 4 lbs. (1.814 kg), Gross 5 lbs. (2.268 kg)

Chassis
Housed in metal enclosure, Intended for indoor wall mounting only.
Cooling: Internal air convection.

Environmental Conditions
Operating temperature range: 0° to 50°C (32°F to 122°F)
Storage Temperature range: 0° to 70°C (32°F to 158°F)
Relative humidity range: 5% to 95%, non-condensing

Agency Listings
RoHS Compliant
BTL
UL 916
C-UL listed to Canadian Standards Association (CSA) C22.2 No. 205-M1983 "Signal Equipment"
CE
FCC part 15 Class A.

ORDERING INFORMATION

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<tr>
<td>TNM645 is a TNM6E based unit including two Ethernet ports, two RS-232 ports, four RS-485 ports and one LonWorks FTT-10A port. Web User Interface and Niagara Connectivity included. oBIX Client/Server driver included. Capability to utilize a Niagara R2 based application. Upgrade RAM memory to 256 MB DDR.</td>
<td>588-606</td>
</tr>
<tr>
<td></td>
<td>588-609</td>
</tr>
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<td></td>
<td>588-663</td>
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</table>

Note: See the current price list for additional options.
TALON® Network Manager Licenses

DESCRIPTION

The TALON Network Management System is a powerful building control system able to manage an entire facility or campus. It extends control to include every aspect of a building’s needs by integrating subsystems and devices into the TALON System for operational efficiencies.

The TALON System brings together all vital parameters of a building and its subsystems such as:

– Chillers and boilers
– Power related devices
– Lighting systems
– Fire systems
– Security systems
– Automation controls and SCADA systems

Through various licensing, the TALON system provides migration options, extending the life of an investment, as well as providing a standard protocol integration platform for integrating the standard protocol building automation systems of today.
**TALON® Network Manager Licenses**

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<td>587-810</td>
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<td><strong>Note:</strong> SMART 1 is included when purchasing SMART 2</td>
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</tr>
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<td>License change fee to change an existing license at the request of a customer or partner. Applies to all license changes except when a driver, upgrade, other software is purchased or when the change involves a demo license. Demo license changes are free of charge.</td>
<td>587-820</td>
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<tr>
<td>NCRS Migration block of 5000</td>
<td>587-993</td>
</tr>
<tr>
<td>Niagara R2 application option which allows the installer to utilize a Niagara R2 based station on either the T-603 or T-645 platforms. Includes Niagara R2 station license and individual drivers transferred from original license.</td>
<td>588-609</td>
</tr>
<tr>
<td><strong>Note:</strong> Only available for active R2 platform replacement, not for new installations. No additional options, only options transferred from original R2 license</td>
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</tr>
<tr>
<td>Niagara R2 application option which allows the installer to utilize a Niagara R2 based station on either the RB-603 or RB-645 platforms. Includes Niagara R2 station license and individual drivers transferred from original license.</td>
<td>588-610</td>
</tr>
<tr>
<td><strong>Note:</strong> Only available for active R2 platform replacement, not for new installations. No additional options, only options transferred from original R2 license</td>
<td></td>
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<tr>
<td>JACE® 4 Enterprise connectivity pack</td>
<td>588-631</td>
</tr>
<tr>
<td>JACE® 5 Enterprise connectivity pack</td>
<td>588-650</td>
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<tr>
<td>Provides support for building and storing operator web pages in a JACE® 5 controller.</td>
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<tr>
<td>JACE® 2 Memory Expansion License. JACE® must have serial number 8454 or greater. Adds maxHeap feature and enables up to 48MB of JAVA Heap space</td>
<td>588-662</td>
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<tr>
<td>JACE® 3E,6,6E Memory Expansion License. Adds maxHeap feature and enables up to 96MB or JAVA Heap space.</td>
<td>588-663</td>
</tr>
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<td>Modbus RTU over RS-232 or RS-485</td>
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<td>Modbus TCP over Ethernet</td>
<td>588-812</td>
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<tr>
<td>Modbus driver that <em>serves</em> JACE® data to other Modbus Master devices.</td>
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<tr>
<td><strong>Note:</strong> Operates only over RS-485</td>
<td></td>
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<tr>
<td>BACNet® MS/TP over RS-232 or RS-485. Available on embedded devices only.</td>
<td>588-815</td>
</tr>
<tr>
<td>SNMP over Ethernet</td>
<td>588-816</td>
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<tr>
<td>AX SMART II Driver</td>
<td>588-817</td>
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<tr>
<td>BACNet® IP Client over Ethernet</td>
<td>588-825</td>
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<tr>
<td>EIB / Konnex IP Driver designed to connect to an EIB/KNX network via an IP to EIB interface</td>
<td>588-826</td>
</tr>
<tr>
<td>Flex Driver over RS-232 or RS-485</td>
<td>588-827</td>
</tr>
<tr>
<td>LON® over IP, using CEA-852, communicates through IP/IPLON® router.</td>
<td>588-828</td>
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<tr>
<td>LON® over twisted pair.</td>
<td>588-829</td>
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<tr>
<td>Designed to manage an M-Bus network via an RS-232 to M-Bus interface</td>
<td>588-830</td>
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<tr>
<td>Z-WAVE software driver allows serial communication to Z-WAVE option card or third party Z-WAVE controller Requires AX Release 3.5 or higher.</td>
<td>588-831</td>
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<td>BACNet® Server (includes BACNet® IP Client driver)</td>
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<td>American Automatrics PHP over RS-232 or RS-485</td>
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</tr>
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<td>AC256 over RS-232 or RS-485</td>
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<td>Global Cache - Enables control of IR controlled AV equipment via an RS-232 connection to a Global Cache FC module</td>
<td>588-842</td>
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<td>Helvar Lighting Control Driver</td>
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<td>Driver for European Hortsmann meters</td>
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<td>Josam Grease Trap Sensor</td>
<td>588-845</td>
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<tr>
<td>Lang Oven over RS-232 or RS-485</td>
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<td>Enables SMS alarms to be sent to any mobile phone via a GSM/GPRS modem connected to the RS-232 serial port</td>
<td>588-847</td>
</tr>
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<td>OPC Client over Ethernet</td>
<td>588-885</td>
</tr>
<tr>
<td>AX NCRS migration block of 5000 licenses</td>
<td>588-893</td>
</tr>
<tr>
<td>New release software upgrade for one JACE® controller. Upgrades JACE® controller to the current release. Price includes all applications and drivers licensed for the JACE® controller.</td>
<td>588-960</td>
</tr>
</tbody>
</table>
**TALON® Remote I/O-16 RS-485 Module**

**DESCRIPTION**

The TALON Remote I/O-16 RS-485 module is part of the TALON portfolio of hardware, software and tools for remotely monitoring and controlling applications, thereby enabling end-to-end automation and device-to-enterprise integration.

The Remote I/O-16 RS-485 allows the TALON Network Manager (TNM) to extend applications to include inputs and outputs remotely located up to 4,000 feet from the TNM. The connection is established through an industry standard RS-485 multi-drop communications bus. Up to sixteen (16) I/O-16 RS-485 devices can be utilized on a single TNM, providing a total of 256 I/O points on a single TNM.

**FEATURES**

- 16 I/O Points per device
- 8 Universal Inputs - Type 3 (10k) Thermistors, 0-100K ohm, 0-10 Vdc, 0-20 mA with external resistor
- 4 relay outputs (Form A contacts, 24 Vac @ .5 amp rated)
- 4 analog outputs (0-10 Vdc)
- Up to 16 remote I/O-16 RS-485 modules maximum per TNM (limit of 4 on a TNM-2 and TNM-2 XPR)
- Power Options
  - Direct connect (Pin compatible) with the Universal Power Supply (588-679) and the wall adapter (588-675).
  - Modules can be powered directly from select TNM models with 15 Vdc outputs.
- DIN rail or surface mounting
TALON® Remote I/O-16 RS-485 Module

SPECIFICATIONS

Inputs
8 Universal Inputs - Type 3 (10k) Thermistors, 0-100K ohms, 0-10 Vdc, 0-20 mA with external resistor

Outputs
4 relay outputs (Form A contacts, 24 Vac @ 0.5 amp rated)
4 analog outputs (0-10 Vdc)

Power Input
12-15 Vdc
All relay off: 0.75W
All relays energized: 2.0W
Refer to the TALON RemoteI/O-16 RS-485 Module Installation Guide for requirements when powering the module from a TNM.

Agency Listings
UL 916
CE
RoHS compliant

ORDERING INFORMATION

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<td>16-Point Remote I/O Module</td>
<td>588-692</td>
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<tr>
<td>Universal Power Supply, 90-263 VAC 50/60 Hz auto-sensing power supply</td>
<td>588-679</td>
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<tr>
<td>Wall adapter, 90-240 Vac, 50/60 Hz, US plug type</td>
<td>588-675</td>
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The Field Level Network or FLN equipment controls at the floor, zone or room level.

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TALON Architecture

**MANAGEMENT LEVEL**
- AX Supervisor
- Desigo CC
- Field Panel Web Server

**AUTOMATION LEVEL**
- BACnet/IP
  - TC-1000
  - TC-36
  - TC-24
  - TC-16

**FIELD LEVEL**
- LonTalk
  - 3rd Party LonTalk
  - TC-16/24
  - UEC
  - TEC
  - ATEC
  - 3rd Party BACnet MS/TP
**BACnet® VAV Actuator**

**DESCRIPTION**

The new Siemens BACnet VAV Actuator provides high performance direct digital control (DDC) of pressure-independent, variable-air-volume zone-level routines. The Siemens BACnet VAV Actuator Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

**FEATURES**

– Controller integrated with actuator for ease of installation
– Automated checkout procedure for ease of startup/commissioning and troubleshooting
– PID control of HVAC systems to minimize offset and maintain tighter setpoint control
– Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
– Siemens BACnet VAV Actuator requires only 5 VA, an advantage when sizing electrical capacity
– Suitable for installation in plenum areas
– Setpoints and control parameters assigned and changed locally or remotely
– Electrically Erasable Programmable Read Only Memory (EEPROM) used for storing setpoints and control parameters – no battery backup required
– Return from power failure without operator intervention
– No calibration required, thereby reducing maintenance costs
– Auto-discovery and auto-addressing over entire MS/TP Network
# BACnet® VAV Actuator

## SPECIFICATIONS

### Controller and Actuator

<table>
<thead>
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<th>Power Requirements</th>
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<td>Power Source</td>
<td>24 Vac ±15%</td>
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<tr>
<td>Frequency</td>
<td>50/60 Hz</td>
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<tr>
<td>Power Consumption</td>
<td>5 VA plus loads</td>
</tr>
</tbody>
</table>

### Outputs

- 4 Triacs, 12 VA each
  - (requires 24 Vac source to allow switching; phase or neutral)

### Inputs

- AI (10K Ω Thermistor)
- DI (dry contact)

### Operating Temperature Range

- +32°F to +122°F (0°C to +50°C)

### Storage Temperature Range

- -20°F to +140°F (-29°C to +60°C)

### Humidity Range

- 10% to 95% non-condensing

### Regulatory Compliance

- UL/CUL 916 PAZX/PAZX7 (Enclosed Energy Management)
- FCC Part 15, Class B
- CSA-Std. C22.2 No 205
- CE Mark; C-Tick

## Dimensions

- Dimensions: 5-9/16”H × 2-15/16”W × 4-3/16”D (142 mm × 75 mm × 106 mm)

## Weight

- 1.26 lb (.572 kg)

## Actuator Torque

- 550-430 44 lb-in. (5Nm)
- 550-431 88 lb-in (10Nm)

## Run time for 90°

- GDE: 90 sec. at 60 Hz (108 sec. at 50 Hz)
- GLB: 125 sec. at 60 Hz (150 sec. at 50 Hz)

## Nom. Angle of Rotation

- 90°

## Max. Angle of Rotation

- 95°

## Actuator Shaft Size

- 3/8” to 5/8” (8 to 16 mm) Dia
- 1/4” to 1/2” (6 to 13 mm) Sq.

## Minimum Shaft Length

- 3/4” (20 mm)

## ORDERING INFORMATION

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<td>550-430</td>
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<tr>
<td>Siemens BACnet VAV GLB Actuator</td>
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<tr>
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<tr>
<td>Siemens BACnet Actuator Owner’s Manual</td>
<td>125-5037</td>
</tr>
<tr>
<td>Room Temperature Sensors Technical Specification Sheet</td>
<td>149-312P25</td>
</tr>
</tbody>
</table>
BACnet® Terminal Box (VAV) Controller

DESCRIPTION

The new Siemens BACnet Terminal Box (VAV) Controller provides high performance direct digital control (DDC) of pressure-independent, variable-air-volume zone-level routines. The Siemens BACnet Terminal Box (VAV) Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

FEATURES

- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as B-ASC device
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications
- Reports airflow in cfm (fps)
- Setpoints and control parameters assigned and changed locally or remotely
- Electrically Erasable Programmable Read Only Memory (EEPROM) used for storing setpoints and control parameters – no battery backup required
- Returns from power failure without operator intervention
- Meets low duct static pressure requirements
- No calibration required, thereby reducing maintenance costs
- Separate minimum and maximum air volume setting for heating and cooling modes
- Applications in P/Ns 550-432 include a user-adjustable temperature offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
BACnet® Terminal Box (VAV) Controller

SPECIFICATIONS

Power Requirements

Operating Range Power
19.2 to 27.6 Vac, 50 or 60 Hz

Consumption
10 VA (plus 12 VA per DO)

Inputs

Analog
1 room temperature sensor
1 velocity sensor
1 setpoint (optional)
1 auxiliary temperature sensor

Digital
2 dry contacts

Outputs

6 DO 24 Vac optically isolated solid state switches @ 0.5 amp

Controlled Temperature Accuracy, Heating or Cooling
±1.5F (0.9C)

Dimensions
4-1/8" W × 7-3/4" L × 1-1/2" H (105 mm × 197 mm × 38 mm)

Weight
approx. 3 lbs. (1.35 kg)

Communications

Remote
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

Local
WinCIS

Ambient Conditions

Storage Temperature
-40°F to 167°F (-40°C to 75°C)

Operating Temperature
32°F to 122°F (0°C to 50°C)

Humidity Range
0% to 92% (non-condensing)

Agency Listings

UL Listing
UL 916, PAZX

cUL Listed
Canadian Standards C22.2 No. 205-M1983, PAZX7 47

FCC Compliance
CFR Part 15

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BACnet® Unit Conditioner (Fan Coil) Controller

DESCRIPTION

The BACnet Unit Conditioner (Fan Coil) Controller provides high performance direct digital control (DDC) of pressure dependent boxes, fan coil units, and induction units. The BACnet Fan Coil Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

FEATURES

- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as B-ASC
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM) — no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- Separate minimum and maximum air volume setting for heating and cooling modes
- User adjustable offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
BACnet® Unit Conditioner (Fan Coil) Controller

SPECIFICATIONS

Power Requirements
Operating Range
19.2 to 27.6 Vac, 50 or 60 Hz
Power Consumption
10 VA (plus 12 VA per DO)

Inputs
Analog
1 room temperature sensor
1 setpoint (optional)
1 auxiliary temperature sensor
2 dry contacts

Digital

Outputs
6 DO 24 Vac optically isolated solid state switches @ 0.5 amp

Controlled Temperature Accuracy, Heating or Cooling
±1.5°F (0.9°C)

Dimensions
4-1/8” W x 7-3/4” L x 1-1/2” H (105 mm x 197 mm x 38 mm)

Weight
approx. 2.5 lbs. (1.1 kg)

Communications
Remote
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN
Trunk WinCIS

Local

Ambient Conditions
Storage Temperature
-40°F to 167°F (-40°C to 75°C)
Operating Temperature
32°F to 122°F (0°C to 50°C)
Humidity Range
0% to 92% (non-condensing)

Agency Listings
UL Listing
UL 916, PAZX
cUL Listed
Canadian Standards C22.2 No. 205-M1983, PAZX7

FCC Compliance
47 CFR Part 15

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<td>550-433PA</td>
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<td>149-820</td>
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Siemens BACnet Programmable TEC Terminal Box (VAV) Controller

DESCRIPTION
The new Siemens BACnet PTEC VAV/Terminal Box Controller provides high performance Direct Digital Control (DDC) of pressure-independent, variable-air-volume zone-level routines. The Siemens BACnet PTEC VAV/Terminal Box Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

FEATURES
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks.
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM) – no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications.
- Reports airflow in cfm (lps)
- Meets low duct static pressure requirements
- Separate minimum and maximum air volume setting for heating and cooling modes
- Applications in P/N 550-495P include a user-adjustable temperature offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
Siemens BACnet Programmable TEC Terminal Box (VAV) Controller

SPECIFICATIONS

Dimensions
4-1/8” W × 11-1/4” L × 1-1/2” H

Weight
approx. 3 lbs (1.35 kg)

Controlled Temperature Accuracy, Heating or Cooling
±1.5°F (0.9°C)

Power Requirements
Operating Range
19.2 to 27.6 Vac, 50 or 60 Hz

Power Consumption
10 VA (plus 12 VA per DO)

Inputs
Analog
1 room temperature sensor
1 velocity sensor
1 setpoint (optional)
2 auxiliary temperature sensors (10K Ω thermistor)
1 selectable 0-10 Vdc/4-20 mA

Digital
2 dry contacts

Outputs
Analog
3 0-10 Vdc

Digital
8 DO 24 Vac optically isolated solid state switches @ 0.5 amp

Communications
Remote
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

Local
WCIS and PTEC Tool

Ambient Conditions
Storage Temperature
-40°F to 167°F (-40°C to 75°C)

Operating Temperature
32°F to 122°F (0°C to 50°C)

Humidity Range
0% to 92% (non-condensing)

Agency Listings
UL Listing
UL 916, PAZX

cUL Listed
Canadian Standards C22.2 No. 205-M1983, PAZX7

FCC Compliance
47 CFR Part 15

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Siemens BACnet Programmable TEC Unit Conditioner (Fan Coil) Controller

DESCRIPTION

The Siemens BACnet PTEC Fan Coil Controller provides high performance Direct Digital Control (DDC) of pressure-dependent boxes, fan coil units, and induction units. The Siemens BACnet PTEC Fan Coil Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

FEATURES

- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM)
  - no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications
- Separate minimum and maximum air volume setting for heating and cooling modes
- User adjustable offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
Siemens BACnet Programmable TEC Unit Conditioner (Fan Coil) Controller

**SPECIFICATIONS**

**Dimensions**
4-1/8” W × 11-1/4” L × 1-1/2” H

**Weight**
approx. 3 lbs (1.35 kg)

**Controlled Temperature Accuracy, Heating or Cooling**
±1.5°F (0.9°C)

**Power Requirements**

**Operating Range**
19.2 to 27.6 Vac, 50 or 60 Hz

**Power Consumption**
10 VA (plus 12 VA per DO)

**Inputs**

**Analog**
1 room temperature sensor
1 setpoint (optional)
2 auxiliary temperature sensors (10K Ω thermistor)
1 selectable 0-10 Vdc/4-20 mA

**Digital**
2 dry contacts

**Outputs**

**Analog**
3 0-10 Vdc

**Digital**
8 DO 24 Vac optically isolated solid state switches @ 0.5 amp

**Communications**

**Remote**
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

**Local**
WCIS and PTEC Tool

**Ambient Conditions**

**Storage Temperature**
-40°F to 167°F (-40°C to 75°C)

**Operating Temperature**
32°F to 122°F (0°C to 50°C)

**Humidity Range**
0% to 92% (non-condensing)

**Agency Listings**

**UL Listing**
UL 916, PAZX

**cUL Listed**
Canadian Standards C22.2 No. 205-M1983, PAZX7

**FCC Compliance**
47 CFR Part 15

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BACnet® Programmable TEC Heat Pump Controller

DESCRIPTION
The Siemens BACnet PTEC Heat Pump Controller provides high performance Direct Digital Control (DDC) technology for room temperature control of heat pumps. The BACnet Heat Pump Controller and related components provide a completely electronic control system.

The Siemens BACnet PTEC Heat Pump Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

FEATURES
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM)
  - no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications.
- Supports Room Sensor with relative setpoint adjustment
- Control capable of modulating floating control electronic or electric damper actuator
- Damper status can be reported in either percentage open notation with floating control or in voltage notation with 0-10 Vdc actuators
- User-adjustable offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
BACnet® Programmable TEC Heat Pump Controller

SPECIFICATIONS

Dimensions
4-1/8" W x 11-1/4" L x 1-1/2" H

Weight
approx. 3 lbs (1.35 kg)

Controlled Temperature Accuracy, Heating or Cooling
±1.5°F (0.9°C)

Power Requirements
Operating Range
19.2 to 27.6 Vac, 50 or 60 Hz

Power Consumption
10 VA (plus 12 VA per DO)

Inputs
Analog
1 room temperature sensor (10k thermistor)
1 setpoint (optional at RTS)
2 auxiliary temperature sensor (10k thermistor)
1 selectable 0-10 Vdc/4-20 mA

Digital
2 dry contacts (plus 1 override switch, optional, part of RTS)

Outputs
Analog
3 0-10 Vdc

Digital
8 DO 24 Vac optically isolated solid state switches @ 0.5 amp

Communications
Remote
BACnet MS/TP (EIA 485) 9600 bps to 76800 bps FLN Trunk

Local
WCIS and PTEC Tool

Ambient Conditions
Storage Temperature
-40°F to 167°F (-40°C to 75°C)

Operating Temperature
32°F to 122°F (0°C to 50°C)

Humidity Range
0% to 92% (non-condensing)

Agency Listings
UL Listing
UL 916, PAZX

cUL Listed
Canadian Standards C22.2 No. 205-M1983, PAZX7

FCC Compliance
47 CFR Part 15

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**BACnet® Programmable TEC Unit Vent Controller**

**DESCRIPTION**

The Siemens BACnet PTEC Unit Vent Controller provides high performance Direct Digital Control (DDC) technology for room temperature control in unit ventilators. The Unit Vent Controller and related components provide an electronic control system. The Siemens BACnet PTEC Unit Vent Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system. The electronic approach to temperature control includes the following features.

**FEATURES**

- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM) – no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications
- Control capable of modulating 0-10V valve actuators and damper actuators
- Optional Temperature Offset
- Auto-discovery and auto-addressing over entire MS/TP Network
BACnet® Programmable TEC Unit Vent Controller

SPECIFICATIONS

Dimensions
4-1/8" W x 11-1/4" L x 1-1/2" H

Weight
approx. 3 lbs (1.35 kg)

Controlled Temperature Accuracy, Heating or Cooling
±1.5°F (0.9°C)

Power Requirements
Operating Range
19.2 to 27.6 Vac, 50 or 60 Hz

Power Consumption
10 V (plus 12 VA per DO)

Inputs
Analog
1 room temperature sensor
1 setpoint (optional at RTS)
2 auxiliary temperature sensor (10k thermistor)
1 selectable 0-10 Vdc/4-20 mA

Digital
2 dry contacts

Outputs
Analog
3 0-10 Vdc

Digital
8 DO 24 Vac optically isolated solid state switches @ 0.5 amp

Communications
Remote
BACnet MS/TP (EIA 485) 9600 bps to 76800 bps FLN Trunk

Local
WCIS and PTEC Tool

Ambient Conditions
Storage Temperature
40°F to 167°F (-40°C to 75°C)

Operating Temperature
32°F to 122°F (0°C to 50°C)

Humidity Range
0% to 92% (non-condensing)

Agency Listings
UL Listing
UL 916, PAZX

cUL Listed
Canadian Standards C22.2 No. 205-M1983, PAZX7

FCC Compliance
47 CFR Part 15

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BACnet® Programmable ASC Extended I/O Controller

DESCRIPTION
The Siemens BACnet ASC Extended I/O Controller is designed to allow point expansion for other Siemens controllers and reside on any BACnet control system.

FEATURES
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM) — no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset
- Reports airflow in cfm (lps)
- Meets low duct static pressure requirements
- The application in P/N 550-491P includes a user-adjustable temperature offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
BACnet® Programmable ASC Extended I/O Controller

SPECIFICATIONS

Dimensions
4-1/8” W × 11-1/4” L × 1-1/2” H (105 mm × 197 mm × 38 mm)

Weight
approx. 3 lbs. (1.35 kg)

Controlled Temperature Accuracy, Heating or Cooling
±1.5°F (0.9°C)

Power Requirements

Operating Range
19.2 to 27.6 Vac, 50 or 60 Hz

Power Consumption
10 VA (plus 12 VA per DO)

Inputs

Analog
1 room temperature sensor
1 setpoint (optional)
2 auxiliary temperature sensors (10K thermistor)
1 selectable 0-10 Vdc/4-20 mA

Digital
2 dry contacts

Outputs

Analog
3 0-10 Vdc

Digital
8 DO 24 Vac optically isolated solid state switches @ 0.5 amp

Communications

Remote
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

Local
WCIS and PTEC Tool

Ambient Conditions

Storage Temperature
-40°F to 167°F (-40°C to 75°C)

Operating Temperature
32°F to 122°F (0°C to 50°C)

Humidity Range
0% to 92% (non-condensing)

Agency Listings

UL Listing
UL 916, PAZX

cUL Listed
Canadian Standards C22.2 No. 205-M1983, PAZX7

FCC Compliance
47 CFR Part 15

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**BACnet® Programmable VAV BACnet ASC Controller – Series Fan and 3-Stage Electric Heat**

**DESCRIPTION**

The new Siemens VAV BACnet ASC Controller – Series Fan and 3-Stage Electric Heat provides high performance direct digital control (DDC) of pressure-independent, variable-air-volume zone-level routines. The Siemens VAV BACnet ASC Controller – Series Fan and 3-Stage Electric Heat can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

**FEATURES**

- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM) – no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications
- Reports airflow in cfm (lps)
- Meets low duct static pressure requirements
- Separate minimum and maximum air volume setting for heating and cooling modes
- Applications in P/N 550-492P include a user-adjustable temperature offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
BACnet® Programmable VAV BACnet ASC Controller – Series Fan and 3-Stage Electric Heat

SPECIFICATIONS

Dimensions
4-1/8” W × 11-1/4” L × 1-1/2” H

Weight
approx. 3 lbs (1.35 kg)

Controlled Temperature Accuracy
±1.5°F (0.9°C)

Power Requirements
Operating Range
19.2 to 27.6 Vac 50 or 60 Hz
Power Consumption
5.3 VA (Nominal) to 8.5 VA (Peak) @ 24 Vac (plus loads, up to 12 VA per DO)

Inputs
Analog
1 room temperature sensor
1 velocity sensor
1 setpoint (optional at RTS)
2 auxiliary temperature sensors
2 10K thermistor
1 selectable 0-10 Vdc/4-20 mA

Digital
2 dry contacts

Outputs
Analog
3 0-10 Vdc

Digital
8 DO 24 Vac optically isolated solid state switches @ 0.5 amp

Communications
Remote
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

Local
WCIS and PTEC Tool

Ambient Conditions
Storage Temperature
-40°F to 167°F (-40°C 75°C)
Operating Temperature
32°F to 122°F (0°C to 50°C)

Humidity Range
0% to 92% (non-condensing)

Agency Listings
UL Listing
UL 916, PAZX

cUL Listed
Canadian Standards C22.2 No.205-M1983, PAZX7

FCC
47 CFR Part 15

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Siemens BACnet Actuating Terminal Equipment Controller for Smoke Control

DESCRIPTION
The Siemens BACnet VAV Actuating Terminal Equipment Controller (ATEC) provides high performance direct digital control (DDC) of pressure-independent, variable-air-volume zone-level routines. The BACnet ATEC can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

FEATURES
- UL864 Listed for Smoke Control
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM) — no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications
- Controller integrated with actuator for ease of installation
- Automated checkout procedure for ease of startup/commissioning and troubleshooting
- Siemens BACnet VAV Actuator requires only 5 VA, an advantage when sizing electrical capacity
- Suitable for installation in plenum areas
Siemens BACnet Actuating Terminal Equipment Controller for Smoke Control

**SPECIFICATIONS**

**Dimensions**
5-9/16" H × 2-15/16" W × 4-3/16" D (142 mm × 75 mm × 106 mm)

**Weight**
1.26 lb (.572 kg)

**Power Requirements**

- **Power Source**
  24 Vac ±15%

- **Frequency**
  50/60 Hz

- **Power Consumption**
  5.3 VA

- **ATEC**
  5 VA max

- **DOs**
  5 VA per DO, 20 VA max

**Inputs**

- **Analog**
  10K Ω thermistor

- **Digital**
  Dry Contact

**Outputs**

- **4 Triacs, 12 VA each**
  Requires 24 Vac source to allow switching; phase or neutral

**Communications**

**Remote**
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

**Local**
WCIS and PTEC Tool

**Ambient Conditions**

- **Storage Temperature**
  -20°F to +140°F (-29°C to +60°C)

- **Operating Temperature**
  +32°F to +122°F (0°C to +50°C)

- **Humidity Range**
  10% to 95% non-condensing

**Agency Listings**

- **UL Listing**
  UL 864, UUKL, PAZX

- **cUL Listed**
  Canadian Standards C22.2 No. 205-M1983, PAZX7

- **FCC Compliance**
  FCC Part 15, Class B , CE Mark, C-Tick

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<tr>
<td>Large enclosure for electronic controller without damper actuator (8 DO board).</td>
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Siemens BACnet Programmable TEC Terminal Box (VAV) Controller for Smoke Control

DESCRIPTION
The new Siemens BACnet PTEC VAV/Terminal Box Controller provides high performance Direct Digital Control (DDC) of pressure-independent, variable-air-volume zone-level routines. The Siemens BACnet PTEC VAV/Terminal Box Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

FEATURES
- UL Listed for Smoke Control
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM)
- No battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications.
- Reports airflow in cfm (lps)
- Meets low duct static pressure requirements
- Separate minimum and maximum air volume setting for heating and cooling modes
- Applications in P/N 550-495PK include a user-adjustable temperature offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
Siemens BACnet Programmable TEC Terminal Box (VAV) Controller for Smoke Control

**SPECIFICATIONS**

**Dimensions**  
4-1/8” W × 11-1/4” L × 1-1/2” H

**Weight**  
approx. 3 lbs (1.35 kg)

**Controlled Temperature Accuracy, Heating or Cooling**  
±1.5°F (0.9°C)

**Power Requirements**

**Operating Range**  
19.2 to 27.6 Vac, 50 or 60 Hz

**Power Consumption**  
10 VA (plus 5 VA per DO), 60 VA max

**Inputs**

**Analog**
- 1 room temperature sensor
- 1 velocity sensor
- 1 setpoint (optional)
- 2 auxiliary temperature sensors
  (10K Ω thermistor)
- 1 selectable 0-10 Vdc/4-20 mA

**Digital**
- 2 dry contacts

**Outputs**

**Analog**
- 3 0-10 Vdc

**Digital**
- 8 DO 24 Vac optically isolated solid state switches @ 0.2 amp

**Communications**

**Remote**  
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

**Local**  
WCIS and PTEC Tool

**Ambient Conditions**

**Storage Temperature**  
-40°F to 167°F (-40°C to 75°C)

**Operating Temperature**  
32°F to 122°F (0°C to 50°C)

**Humidity Range**  
0% to 92% (non-condensing)

**Agency Listings**

**UL Listing**  
UL 864, UUKL, PAZX

**cUL Listed**  
Canadian Standards C22.2 No. 205-M1983, PAZX7

**FCC Compliance**  
47 CFR Part 15

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<td>Large enclosure for electronic controller without damper actuator (long board).</td>
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</table>
Siemens BACnet Programmable TEC – VAV with Series Fan and 3-Stage Electric Heat for Smoke Control

DESCRIPTION

The Siemens BACnet PTEC VAV with Series Fan and 3-Stage Electric Heat provides high performance Direct Digital Control (DDC) of pressure-independent, variable-air-volume zone-level routines. The Siemens BACnet PTEC VAV with Series Fan and 3-Stage Electric Heat can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

FEATURES

- UL864 Listed for Smoke Control
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM) – no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications
- Reports airflow in cfm (lps)
- Meets low duct static pressure requirements
- Separate minimum and maximum air volume setting for heating and cooling modes
- Applications for 550-492PK include a user-adjustable temperature offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
Siemens BACnet Programmable TEC – VAV with Series Fan and 3-Stage Electric Heat for Smoke Control

SPECIFICATIONS

**Dimensions**
4-1/8” W × 11-1/4” L × 1-1/2” H

**Weight**
approx. 3 lbs (1.35 kg)

**Controlled Temperature Accuracy, Heating or Cooling**
±1.5°F (0.9°C)

**Power Requirements**

**Operating Range**
19.2 to 27.6 Vac, 50 or 60 Hz

**Power Consumption**
10 VA (plus 5 VA per DO), 60 VA max

**Inputs**

**Analog**
1 room temperature sensor
1 velocity sensor
1 setpoint (optional)
2 auxiliary temperature sensors (10K Ω thermistor)
1 selectable 0-10 Vdc/4-20 mA

**Digital**
2 dry contacts

**Outputs**

**Analog**
3 0-10 Vdc

**Digital**
8 DO 24 Vac optically isolated solid state switches @ 0.2 amp

**Communications**

**Remote**
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

**Local**
WCIS and PTEC Tool

**Ambient Conditions**

**Storage Temperature**
-40°F to 167°F (-40°C to 75°C)

**Operating Temperature**
32°F to 122°F (0°C to 50°C)

**Humidity Range**
0% to 92% (non-condensing)

**Agency Listings**

**UL Listing**
UL 864, UUKL, PAZX

**cUL Listed**
Canadian Standards C22.2 No. 205-M1983, PAZX7

**FCC Compliance**
47 CFR Part 15

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Siemens BACnet Programmable TEC Unit Conditioner (Fan Coil) Controller for Smoke Control

DESCRIPTION

The Siemens BACnet PTEC Fan Coil Controller provides high performance Direct Digital Control (DDC) of pressure-dependent boxes, fan coil units, and induction units. The Siemens BACnet PTEC Fan Coil Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

FEATURES

- UL 864 Listed for Smoke Control
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM)
  - no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications.
- Separate minimum and maximum air volume setting for heating and cooling modes
- User adjustable offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
Siemens BACnet Programmable TEC Unit Conditioner (Fan Coil) Controller for Smoke Control

SPECIFICATIONS

Dimensions
4-1/8" W × 11-1/4" L × 1-1/2" H

Weight
approx. 3 lbs (1.35 kg)

Controlled Temperature Accuracy, Heating or Cooling
±1.5°F (0.9°C)

Power Requirements

Operating Range
19.2 to 27.6 Vac, 50 or 60 Hz

Power Consumption
10 VA (plus 5 VA per DO), 60 VA max

Inputs

Analog
1 room temperature sensor
1 setpoint (optional)
2 auxiliary temperature sensors (10K Ω thermistor)
1 selectable 0-10 Vdc/4-20 mA

Digital
2 dry contacts

Outputs

Analog
3 0-10 Vdc

Digital
8 DO 24 Vac optically isolated solid state switches @ 0.2 amp

Communications

Remote
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

Local
WCIS and PTEC Tool

Ambient Conditions

Storage Temperature
-40°F to 167°F (-40°C to 75°C)

Operating Temperature
32°F to 122°F (0°C to 50°C)

Humidity Range
0% to 92% (non-condensing)

Agency Listings

UL Listing
UL 864, UUKL, PAZX

cUL Listed
Canadian Standards C22.2 No. 205-M1983, PAZX7

FCC Compliance
47 CFR Part 15

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Siemens BACnet Programmable TEC Heat Pump Controller – Multi-Stage for Smoke Control

DESCRIPTION
The Siemens BACnet PTEC Heat Pump Controller provides high performance Direct Digital Control (DDC) technology for room temperature control of heat pumps. The BACnet Heat Pump Controller and related components provide a completely electronic control system.

The Siemens BACnet PTEC Heat Pump Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system.

FEATURES
- UL864 Listed for Smoke Control
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM) – no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications.
- Supports Room Sensor with relative setpoint adjustment
- Control capable of modulating floating control electronic or electric damper actuator
- Damper status can be reported in either percentage open notation with floating control or in voltage notation with 0-10 Vdc actuators
- User-adjustable offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
Siemens BACnet Programmable TEC Heat Pump Controller – Multi-Stage for Smoke Control

**SPECIFICATIONS**

**Dimensions**

4-1/8” W x 11-1/4” L x 1-1/2” H

**Weight**

approx. 3 lbs (1.35 kg)

**Controlled Temperature Accuracy, Heating or Cooling**

±1.5°F (0.9°C)

**Power Requirements**

**Operating Range**

19.2 to 27.6 Vac, 50 or 60 Hz

**Power Consumption**

.75 VA @ 24 Vac max.

**Inputs**

**Analog**

1 room temperature sensor (10k thermistor)
1 setpoint (optional at RTS)
2 auxiliary temperature sensor (10k thermistor)
1 selectable 0-10 Vdc/4-20 mA

**Digital**

2 dry contacts (plus 1 override switch, optional, part of RTS)

**Outputs**

**Analog**

3 0-10 Vdc

**Digital**

8 DO 24 Vac optically isolated solid state switches @ 0.2 amp

**Communications**

**Remote**

BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

**Local**

WCIS and PTEC Tool

**Ambient Conditions**

**Storage Temperature**

-40°F to 167°F (-40°C to 75°C)

**Operating Temperature**

32°F to 122°F (0°C to 50°C)

**Humidity Range**

0% to 92% (non-condensing)

**Agency Listings**

**UL Listing**

UL 864, UUKL, PAZX

**cUL Listed**

Canadian Standards C22.2 No. 205-M1983, PAZX7

**FCC Compliance**

47 CFR Part 15

**Dimensions**

2” W x 1.51” H x 1.89” D (58 mm x 78 mm x 29 mm)

**Weight**

1.3 oz. (36.9 g)

**ORDERING INFORMATION**

**Description**

Smoke Control Listed Siemens BACnet PTEC Heat Pump Controller, UUKL

Large enclosure for electronic controller without damper actuator (8 DO board).

**Product Number**

550-490PKA

550-002K

**Documentation**

**Room Temperature Sensors – Series 2200 Datasheet**

149-820

**Room CO₂ Sensors – Series 2200 Datasheet**

149-601

**Duct Temperature Sensor**

149-134P25

**Low Limit Detection Thermostat**

155-016P25

**Analog Sensors – 10 K Ohm Thermistor**

149-912, 149-915, and 149-916

**Siemens Valves and Electronic Actuators**

155-034

**599 Series Zone Valves 2-Way, 3-Way Zone Valve Electric and Thermic Actuators**

155-063

**599 Series Zone Valves and Actuators – Modulating, On/Off Spring Return, 2-Position Control**

149-912, 149-915, and 149-916
Siemens BACnet Programmable TEC Unit Vent Controller for Smoke Control

DESCRIPTION

The Siemens BACnet PTEC Unit Vent Controller provides high performance Direct Digital Control (DDC) technology for room temperature control in unit ventilators. The Unit Vent Controller and related components provide an electronic control system. The Siemens BACnet PTEC Unit Vent Controller can operate stand-alone or can be networked to perform complex HVAC control, monitoring and energy management functions and is designed to reside on any BACnet control system. The electronic approach to temperature control includes the following features.

FEATURES

- UL864 Listed for Smoke control
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM) – no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset and maintain tighter setpoint control
- Unique control algorithms for specific applications.
- Control capable of modulating 0-10V valve actuators and damper actuators
- Optional Temperature Offset
- Auto-discovery and auto-addressing over entire MS/TP Network
Siemens BACnet Programmable TEC Unit Vent Controller for Smoke Control

**SPECIFICATIONS**

**Dimensions**
4-1/8" W × 11-1/4" L × 1-1/2" H

**Weight**
approx. 3 lbs (1.35 kg)

**Controlled Temperature Accuracy, Heating or Cooling**
±1.5°F (0.9°C)

**Power Requirements**

**Operating Range**
19.2 to 27.6 Vac, 50 or 60 Hz

**Power Consumption**
10 VA (plus 5 VA per DO), 60 VA max

**Inputs**

**Analog**
1 room temperature sensor
1 setpoint (optional at RTS)
2 auxiliary temperature sensor (10k thermistor)
1 selectable 0-10 Vdc/4-20 mA

**Digital**
2 dry contacts

**Outputs**

**Analog**
3 0-10 Vdc

**Digital**
8 DO 24 Vac optically isolated solid state switches @ 0.2 amp

**Communications**

**Remote**
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

**Local**
WCIS and PTEC Tool

**Ambient Conditions**

**Storage Temperature**
-40°F to 167°F (-40°C to 75°C)

**Operating Temperature**
32°F to 122°F (0°C to 50°C)

**Humidity Range**
0% to 92% (non-condensing)

**Agency Listings**

**UL Listing**
UL 864, UUKL, PAZX

**cUL Listed**
Canadian Standards C22.2 No. 205-M1983, PAZX7

**FCC Compliance**
47 CFR Part 15

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<td>Large enclosure for electronic controller without damper actuator (long board).</td>
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</table>
Siemens BACnet Programmable TEC
Extended I/O Controller for Smoke Control

DESCRIPTION
The Siemens Extended I/O Controller is designed to allow point expansion for other Siemens controllers and reside on any BACnet control system.

FEATURES
- UL864 Listed for Smoke Control
- Communicates using BACnet MS/TP protocol for open communications on BACnet MS/TP networks
- BTL listed as a B-ASC device
- Programmable using PPCL
- Setpoints and control parameters assigned and changed locally or remotely
- Setpoints and control parameters stored in Electrically Erasable Programmable Read Only Memory (EEPROM) – no battery backup required
- Returns from power failure without operator intervention
- No calibration required, thereby reducing maintenance costs
- PID control of HVAC systems to minimize offset
- Unique control algorithms for specific applications.
- Reports airflow in cfm (lps)
- Meets low duct static pressure requirements
- Separate minimum and maximum air volume setting for heating and cooling modes
- The application in P/N 550-491PK include a user-adjustable temperature offset for the room temperature reading when required for validation purposes
- Auto-discovery and auto-addressing over entire MS/TP Network
Siemens BACnet Programmable TEC
Extended I/O Controller for Smoke Control

SPECIFICATIONS

Dimensions
4-1/8” W × 11-1/4” L × 1-1/2” H

Weight
approx. 3 lbs (1.35 kg)

Controlled Temperature Accuracy, Heating or Cooling
±1.5°F (0.9°C)

Power Requirements

Operating Range
19.2 to 27.6 Vac, 50 or 60 Hz

Power Consumption
10 VA (plus 5 VA per DO), 60 VA max

Inputs

Analog
1 room temperature sensor
1 setpoint (optional)
2 auxiliary temperature sensors (10k thermistor)
1 selectable 0-10 Vdc/4-20 mA

Digital
2 dry contacts

Outputs

Analog
3 0-10 Vdc

Digital
8 DO 24 Vac optically isolated solid state switches @ 0.2 amp

Communications

Remote
BACnet MS/TP (EIA 485), 9600 bps to 76800 bps FLN Trunk

Local
WCIS and PTEC Tool

Ambient Conditions

Storage Temperature
-40°F to 167°F (-40°C to 75°C)

Operating Temperature
32°F to 122°F (0°C to 50°C)

Humidity Range
0% to 92% (non-condensing)

Agency Listings

UL Listing
UL 864, UUKL, PAZX

cUL Listed
Canadian Standards C22.2 No. 205-M1983, PAZX7

FCC Compliance
47 CFR Part 15

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<td>149-820</td>
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<td>Series 2200 CO₂ Room Units for TEC Datasheet</td>
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<td>Low Limit Detection Thermostat</td>
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<tr>
<td>Analog Sensors – 10 K Ohm Thermistor</td>
<td>149-912, 149-915, and 149-916</td>
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<tr>
<td>Siemens Valves and Electronic Actuators</td>
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<tr>
<td>599 Series Zone Valves 2-Way, 3-Way Zone Valve Electric and Thermic Actuators</td>
<td>155-063</td>
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</table>

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This catalog is organized to follow the architecture of the TALON® Building Automation System: Sensors tie into controllers to sense temperature, humidity, CO2 and more.

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RDY2000 Commercial Room Thermostat

DESCRIPTION

The Siemens Series RDY2000 Room Comfort Controller is designed for light commercial HVAC systems that utilize 24VAC control circuitry. It is compatible with forced air, hydronic, or steam systems fired by gas, oil or electricity. The thermostat can control up to 3 stages of heating and 3 stages of cooling in a conventional system and heat pumps systems with up to 2 compressors and 2 stages of auxiliary/emergency heat. The RDY2000 is capable of interfacing with remote sensors and devices to completely manage all aspects of room comfort, including temperature, humidity, and air quality.

HARDWARE FEATURES

- Compatible with conventional and heat pump applications
- Controls conventional systems with up to 3 stages of heating and 3 stages of cooling
- Controls heat pump systems with 1 or 2 compressors and up to 2 stages of auxiliary heat
- On-board temperature & humidity sensors
- Standard HVAC relay outputs
  - Compressor 1 (Y1)
  - Compressor 2 (Y2)
  - Fan (G)
  - Heating 1 (W1)
  - Heating 2 (W2)
  - Reversing Valve (O/B)
- 3 Configurable relay outputs
  (configurable via installer set-up menu)
  - Humidification
  - De-humidification
  - Economizer Enable
  - Occupancy
  - ERV/HRV activation
- Configurable input #3 is a dry contact – can be powered with 24VAC via jumper
- 4 Configurable inputs
  (configurable via installer set-up menu)
- Remote temperature sensor
  - Outdoor temperature
  - Supply / return temperature(s)
  - Indoor temperature (remote or averaging)
- Remote humidity sensor
- CO2 sensor
- Occupancy sensor

Sensors – Temperature
RDY2000 Commercial Room Thermostat

CONTROL FEATURES
- Set-up Wizard enables rapid system configuration
- Fully programmable scheduling function
  • 5+2 / 5+1+1 / 7-day capability
  • 2 or 4 periods per day
- Multiple options for determining occupancy
  • Scheduled occupancy
  • Occupancy / motion detection*
- Real time clock retains time & date for up to 48 hours upon loss of input power
- System configuration data is stored indefinitely upon loss of input power
- Interlocks and timers specifically designed for equipment protection
- Password protected installer set-up menu deters unauthorized changes
- Programmable fan enables fresh air circulation when not in heating/cooling mode
- Selectable lockout levels to minimize tampering with setpoints and schedule
- Programmable service reminders for humidifier pad, UV lamp, and air filter

GENERAL FEATURES
- Sleek, unobtrusive design with backlit 5” LCD resistive touch screen
- Separable backplate with wiring terminals and mounting holes configured to match most conduit box configurations (screws and anchors included for drywall mounting).
- Designed for horizontal layout
  • 5-1/2”W x 4-1/3”H x 1-1/6”D
  • 11.5 oz.
*Requires purchase of external sensor

ORDERING INFORMATION

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<thead>
<tr>
<th>Description</th>
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Sensors – Temperature
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### HUMIDITY SENSORS

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Series 2300 Temperature Room Sensors

DESCRIPTION

The Series 2300 Temperature Room Sensors from Siemens Industry, Inc. offer a wide range of features and functionality that work in concert with the Building Automation System to deliver exceptional occupant comfort in even the most demanding application environments. All room units incorporate precision temperature sensing elements to accurately and reliably measure room temperature. Their compact, low profile design results in an attractive, inconspicuous installation. Strategically placed ventilation slots in the housing optimize airflow through the cover for fast measurement response and superior control.

These room units provide accurate, reliable sensing of room temperature. Various models can be used with the Terminal Equipment Controllers (TECs), field panels or with other controllers that accept 0-10V/4-20mA signals.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Temperature Range Operating – Refer to Chart</th>
<th>Cover</th>
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<tbody>
<tr>
<td>Output Signals – Refer to Chart</td>
<td>Dimensions</td>
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<tr>
<td>Sensing Element Type – Refer to Chart</td>
<td>4.5” × 2.75” × 1.18” (115 mm × 70 mm × 30 mm)</td>
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<tr>
<td>Accuracy – Refer to Chart</td>
<td>Color</td>
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<tr>
<td>Installation Adjustments None required</td>
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### Series 2300 Temperature Room Sensors

#### ORDERING INFORMATION

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Set point range is 55-95°F (13-35°C).

#### Accessories

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<td>Passkey</td>
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<td>25 ft. RJ-11 Cable with connectors for models ending in .xWxC</td>
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<td>50 ft. RJ-11 Cable with connectors for models ending in .xWxC</td>
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</tr>
<tr>
<td>100 ft. RJ-11 Cable with connectors for models ending in .xWxC</td>
<td>588-100C</td>
</tr>
</tbody>
</table>
Series 2300 Style Wireless TEC Room Temperature Sensors (Point to Point)

DESCRIPTION

The Wireless Room Sensor (WRS) eliminates the need to run wire between the Terminal Equipment Controller (TEC) and its associated room temperature sensor. The WRS communicates directly with the Room Sensor Transceiver (RSX) mounted at the TEC.

The WRS and RSX can be ordered as a factory bound pair so that startup at the job site consists of simply powering up the devices. Field binding can be done either by connecting the WRS and RSX with a binding cable or using the HMI on the RSX.

FEATURES

- Five years of battery life with most applications.
- Frequency channel automatically changes as required to avoid interference from other RF devices.
- Liquid Crystal Display (optional) – Displays room temperature value, setpoint value (momentarily), override condition, and diagnostic information.
- Digital Setpoint Adjustment (optional) – The sensor’s keypad provides error-free digital setpoint adjustments in one-degree increments. Setpoint values are momentarily displayed as changes are made.
- Occupancy Override button (optional) – Enables an occupant to revert to an occupied control schedule during the unoccupied cycle for a period of time determined by the system operator.
Series 2300 Style Wireless TEC Room Temperature Sensors (Point to Point)

SPECIFICATIONS

**Wireless Room Sensor (WRS)**

- **Monitoring range**: 55° to 95°F (13° to 35°C)
- **Sensing element**: 10K Negative Temperature Coefficient (NTC) Thermistor
- **Sensor Accuracy**: ±0.5°F (0.3°C)
- **Power**: Battery
  - 3.6 Volts Lithium AA (Tadiran Part Number TL-4903/S [standard] or SAFT Part Number LS14500BA)
- **Battery Life**: Typical 5-year life (Actual time varies based on operating environment, WRS model, and settings.)

**Wireless Room Sensor (WRS) and Room Sensor Transceiver (RSX)**

- **Modulation**: O-QPSK Direct Sequence Spread Spectrum radio in accordance with IEEE 802.15.4 specification
- **Frequency**: 15 channels of operation in the 2.4 GHz international license free ISM band (IEEE 802.15.4 radio channels 11 through 25)
  - 2405 to 2475 MHz - 5 MHz channel spacing
  - Channel hops as necessary to avoid interference (If desired, the hopping feature can be disabled to remain on one channel.)

**Agency Listings**

- UL 916
- CSA (267AS-5630002)
- CE
- Australian C-Tick
- Complies with FCC Part 15.247 (Regulations for Low Power Unlicensed Transmitters) FCC ID: TKD-5630002

**Certification**

- Designed for ZigBee®

**Range**

- Typical indoor range of 25 to 100 ft (8 to 30 m)
- (Actual range varies based on environmental conditions.)

**Operating Temperature**

- 32° to 122°F (0° to 50°C)

**Operating Relative Humidity**

- 20% to 90% relative humidity (non-condensing)

**Dimensions**

- **WRS**: L 4.50” × W 2.75” × D 1.21”
  - (114 mm × 70 mm × 31 mm)
- **RSX**: L 4.50” × W 3.5” × D 1.35”
  - (114 mm × 89 mm × 34 mm)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSX Only</td>
<td></td>
</tr>
<tr>
<td>RSX (Siemens Logo)</td>
<td>563-069</td>
</tr>
<tr>
<td>WRS Only (White Housing, Battery Included)</td>
<td></td>
</tr>
<tr>
<td>WRS Sensing Only (TALON Logo)</td>
<td>QAA2391.EWTC</td>
</tr>
<tr>
<td>WRS Sensing with Display*, Override, and Setpoint (TALON Logo)</td>
<td>QAA2391.FWTC</td>
</tr>
<tr>
<td>WRS Sensing Only (No Logo)</td>
<td>QAA2391.EWNC</td>
</tr>
<tr>
<td>WRS Sensing with Display* (No Logo)</td>
<td>QAA2391.DWNC</td>
</tr>
<tr>
<td>WRS Sensing with Display*, Override, and Setpoint (No Logo)</td>
<td>QAA2391.FWNC</td>
</tr>
<tr>
<td>Accessories</td>
<td></td>
</tr>
<tr>
<td>Replacement Battery</td>
<td>See Specifications</td>
</tr>
<tr>
<td>WRS/RSX Auto-Binding Cable</td>
<td>563-207</td>
</tr>
<tr>
<td>RSX/TEC Connection Cable (3 ft)</td>
<td>563-210-01</td>
</tr>
<tr>
<td>RSX/TEC Connection Cable (10 ft)</td>
<td>563-210-02</td>
</tr>
<tr>
<td>RTS Passkey (to change display to DIAG mode)</td>
<td>544-643A</td>
</tr>
</tbody>
</table>

* Field selectable to display either Fahrenheit or Celsius units.
Flush Mount and Button Room Temperature Sensors

**DESCRIPTION**

The Flush Mount and Button Room Temperature Sensors provide accurate, reliable sensing of room temperature to the Siemens controller products. The sensor’s resistance varies proportionally to the actual room temperature being measured. The Flush Mount Room Temperature Sensor incorporates a temperature-sensing element (10k ohm thermistor, 100k ohm thermistor, or 1000 ohm RTD) under the cover. This room sensor is designed for those applications where a covered room temperature sensor is not acceptable. The tamper proof screws used to install the sensor protect the sensor from removal by unauthorized personnel. If desired after installation, the sensor can be painted to match the wall. The Flush Mount Room Temperature Sensor is designed to be mounted to a 2 x 4 electrical box. Sensors are available in the following styles:

– Beige and white plastic
– Brushed stainless steel
– Button style with brushed stainless steel cover
– Button style without wall plate

**SPECIFICATIONS**

**1000 Ohm Platinum RTD Temperature Monitor Range**

- Operating (MBC/RBC)
  
  -40°F to 275°F (-40°C to 125°C)

- Output Signal
  
  Changing resistance

- Accuracy at Calibration Point
  
  ±0.54°F at 32°F

- Elements
  
  Platinum or equivalent

- Reference Resistance at 32°F (0°C)
  
  1000 ohm (375 alpha)

- Calibration Adjustments
  
  None required

- Cover Dimensions
  
  4-1/2" H x 2-3/4" W x 1-1/36" D (114 mm x 70 mm x 27 mm)

**10k Ohm NTC Thermistor Temperature Monitor Range**

- Operating
  
  55°F to 95°F (13°C to 35°C)

- Output Signal
  
  Changing resistance

- Accuracy at Calibration Point
  
  ±0.4°F at 77°F

- Element
  
  Thermistor

- Reference Resistance at 77°F (25°C)
  
  10,000 ohm

- Calibration Adjustments
  
  None required

- Cover Dimensions
  
  4-1/2" H x 2-3/4" W x 1-1/36" D (114 mm x 70 mm x 27 mm)
Flush Mount and Button Room Temperature Sensors

SPECIFICATIONS (Continued)

**100k Ohm NTC Thermistor Temperature Monitor Range**

<table>
<thead>
<tr>
<th>Element</th>
<th>Reference Resistance at 77°F (25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermistor</td>
<td>100,000 ohm</td>
</tr>
</tbody>
</table>

**Operating**

<table>
<thead>
<tr>
<th>MBC/RBC</th>
<th>-40°F to +257°F (-40°C to +125°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEC (auxiliary input)</td>
<td>37.4°F to 165°F (3°C to 74°C)</td>
</tr>
</tbody>
</table>

**Output Signal**

Changing resistance

**Accuracy at Calibration Point**

±0.5°F at 77°F

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flush Mount Sensor – ABS Plastic</td>
<td></td>
</tr>
<tr>
<td>10k Ohm NTC Thermistor (TEC compatible)</td>
<td>540-520(^1)</td>
</tr>
<tr>
<td>1000 Ohm Platinum (375) RTD</td>
<td>544-374(^1)</td>
</tr>
<tr>
<td>10k Ohm NTC Thermistor</td>
<td>536-784(^1)</td>
</tr>
<tr>
<td>Flush Mount Sensor – Brushed Stainless Steel</td>
<td></td>
</tr>
<tr>
<td>10k Ohm NTC Thermistor</td>
<td>540-984</td>
</tr>
<tr>
<td>10k Ohm NTC Thermistor (with RJ-11 jack)</td>
<td>540-995</td>
</tr>
<tr>
<td>100k Ohm NTC Thermistor</td>
<td>536-984</td>
</tr>
<tr>
<td>1000 Ohm Platinum (375) RTD</td>
<td>544-973</td>
</tr>
<tr>
<td>Button Sensor</td>
<td></td>
</tr>
<tr>
<td>10k Ohm NTC (TEC compatible)</td>
<td>QAA1031.AASU</td>
</tr>
<tr>
<td>10k Ohm NTC with brushed stainless wall plate (TEC compatible)</td>
<td>QAA1031.AATU</td>
</tr>
<tr>
<td>1000 Ohm Platinum (375) RTD</td>
<td>QAA1011.AASU</td>
</tr>
<tr>
<td>1000 Ohm Platinum (375) RTD with brushed stainless wall plate</td>
<td>QAA1011.AATU</td>
</tr>
<tr>
<td>Accessories</td>
<td></td>
</tr>
<tr>
<td>Drywall Rough-in Kit (package of 5)</td>
<td>182-683</td>
</tr>
<tr>
<td>Electrical Box (2 x 4) Adapter Plate Kit (package of 5)</td>
<td>192-506</td>
</tr>
<tr>
<td>Electrical Box (2 x 4) Adapter Base (package of 5)</td>
<td>192-507</td>
</tr>
<tr>
<td>Adapter Base</td>
<td>192-307(^2)</td>
</tr>
<tr>
<td>Adapter Frame</td>
<td>192-308(^2)</td>
</tr>
</tbody>
</table>

\(^1\) Add ketter suffix to indicate desired color. A=Desert Beige; B=White, (e.g. 540-520B)

\(^2\) Add "W" for white.
4-20 mA Temperature Sensors

DESCRIPTION
These sensors provide an accurate temperature input signal to the any controller that accepts a 4-20 mA input signal. The sensor assembly includes a platinum RTD sensing element, transmitter, and mounting enclosure for various applications.

An 18 AWG twisted, shielded cable pair provides power to the sensor assembly and also transmits an industry-standard signal from the sensor back to the field panel.
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Temperature Monitoring Range</th>
<th>Accuracy at Calibration Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Ordering Information</td>
<td>See Ordering Information</td>
</tr>
</tbody>
</table>

| Output Signal | 4-20 mA |

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Temperature Range</th>
<th>Accuracy</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room (sensing only)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use QAA2355 or QFA3355 Series Sensors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Mount – Pipe (2” x 4” metal box with clamps)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>—</td>
<td>30°F to 250°F (-1°C to +121°C)</td>
<td>±1.0°F (±0.5°C)</td>
<td>536-780</td>
</tr>
<tr>
<td>Outdoor Air (through the wall)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>—</td>
<td>-58°F to +122°F (-50°C to +50°C)</td>
<td>±1.3°F (±0.7°C)</td>
<td>536-768</td>
</tr>
<tr>
<td>Duct Point</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4” (10 cm)</td>
<td>-4°F to +122°F (-20°C to +50°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>544-560-4</td>
</tr>
<tr>
<td>8” (20 cm)</td>
<td>-4°F to +122°F (-20°C to +50°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>544-560-8</td>
</tr>
<tr>
<td>18” (45 cm)</td>
<td>-4°F to +122°F (-20°C to +50°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>544-560-18</td>
</tr>
<tr>
<td>4” (10 cm)</td>
<td>20°F to 120°F (-7°C to +49°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>533-376-4</td>
</tr>
<tr>
<td>8” (20 cm)</td>
<td>20°F to 120°F (-7°C to +49°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>533-376-8</td>
</tr>
<tr>
<td>18” (45 cm)</td>
<td>20°F to 120°F (-7°C to +49°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>533-376-18</td>
</tr>
<tr>
<td>4” (10 cm)</td>
<td>70°F to 220°F (21°C to 104°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>533-377-4</td>
</tr>
<tr>
<td>8” (20 cm)</td>
<td>70°F to 220°F (21°C to 104°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>533-377-8</td>
</tr>
<tr>
<td>18” (45 cm)</td>
<td>70°F to 220°F (21°C to 104°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>533-377-18</td>
</tr>
<tr>
<td>Flexible Duct Averaging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8’ (2.5 m)</td>
<td>20°F to 120°F (-6°C to +49°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>533-380-8</td>
</tr>
<tr>
<td>16’ (5.0 m)</td>
<td>20°F to 120°F (-6°C to +49°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>533-380-16</td>
</tr>
<tr>
<td>24’ (7.6 m)</td>
<td>20°F to 120°F (-6°C to +49°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>533-380-24</td>
</tr>
<tr>
<td>Rigid Duct Averaging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18” (45 cm)</td>
<td>20°F to 120°F (-6°C to +49°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>535-490-18</td>
</tr>
<tr>
<td>24” (60 cm)</td>
<td>20°F to 120°F (-6°C to +49°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>535-490-24</td>
</tr>
<tr>
<td>36” (90 cm)</td>
<td>20°F to 120°F (-6°C to +49°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>535-490-36</td>
</tr>
<tr>
<td>48” (1.2 m)</td>
<td>20°F to 120°F (-6°C to +49°C)</td>
<td>±1.2°F (±0.7°C)</td>
<td>535-490-48</td>
</tr>
<tr>
<td>Immersion Well</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5” (05 cm)</td>
<td>30°F to 250°F (-1°C to +121°C)</td>
<td>±1.0°F (±0.5°C)</td>
<td>536-767-25</td>
</tr>
<tr>
<td>4.0” (10 cm)</td>
<td>30°F to 250°F (-1°C to +121°C)</td>
<td>±1.0°F (±0.5°C)</td>
<td>536-767-40</td>
</tr>
<tr>
<td>6.0” (15 cm)</td>
<td>30°F to 250°F (-1°C to +121°C)</td>
<td>±1.0°F (±0.5°C)</td>
<td>536-767-60</td>
</tr>
<tr>
<td>2.5” (05 cm)</td>
<td>20°F to 70°F (-7°F to +21°C)</td>
<td>±0.6°F (±0.3°C)</td>
<td>536-774-25</td>
</tr>
<tr>
<td>4.0” (10 cm)</td>
<td>20°F to 70°F (-7°F to +21°C)</td>
<td>±0.6°F (±0.3°C)</td>
<td>536-774-40</td>
</tr>
<tr>
<td>6.0” (15 cm)</td>
<td>20°F to 70°F (-7°F to +21°C)</td>
<td>±0.6°F (±0.3°C)</td>
<td>536-774-60</td>
</tr>
<tr>
<td>2.5” (05 cm)</td>
<td>32°F to 212°F (0°C to 100°C)</td>
<td>±1.0°F (±0.5°C)</td>
<td>544-562-25</td>
</tr>
<tr>
<td>4.0” (10 cm)</td>
<td>32°F to 212°F (0°C to 100°C)</td>
<td>±1.0°F (±0.5°C)</td>
<td>544-562-40</td>
</tr>
<tr>
<td>6.0” (15 cm)</td>
<td>32°F to 212°F (0°C to 100°C)</td>
<td>±1.0°F (±0.5°C)</td>
<td>544-562-60</td>
</tr>
</tbody>
</table>
1000 Ohm Platinum RTD Temperature Sensors

DESCRIPTION

These platinum RTD sensors provide input for cost-effective, accurate temperature sensing (detecting) for any controller that accepts a 1000 Ohm platinum input. The sensor resistance varies according to the temperature being measured. Several models are available for specific mounting and sensing applications.
1000 Ohm Platinum RTD Temperature Sensors

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Temperature Monitoring Range</th>
<th>See Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Signal</td>
<td></td>
</tr>
<tr>
<td>Changing resistance</td>
<td></td>
</tr>
<tr>
<td>Accuracy at Calibration Point at 32°F (0°C)</td>
<td></td>
</tr>
<tr>
<td>±0.54</td>
<td></td>
</tr>
</tbody>
</table>

Elements

Platinum or equivalent wire resistance type

Reference Resistance at 32°F (0°C)
1000 Ohm

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Temperature Range</th>
<th>Accuracy (375 ALPHA)</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Mount – Pipe (2” x 4” metal box with clamps)</td>
<td>-40°F to 240°F (-40°C to +116°C)</td>
<td>544-089</td>
<td>QAD2012U</td>
</tr>
<tr>
<td>Outdoor Air (through the wall)</td>
<td>-40°F to +240°F (-40°C to +116°C)</td>
<td>544-578</td>
<td>QAC2012U</td>
</tr>
<tr>
<td>Duct – Single Point</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4” (10 cm) rigid</td>
<td>40°F to +240°F (-40°F to +116°C)</td>
<td>544-339-4</td>
<td>QAM2012.010</td>
</tr>
<tr>
<td>8” (20 cm) rigid</td>
<td>40°F to +240°F (-40°F to +116°C)</td>
<td>544-339-8</td>
<td>QAM2012.020</td>
</tr>
<tr>
<td>18” (45 cm) rigid</td>
<td>40°F to +240°F (-40°F to +116°C)</td>
<td>544-339-18</td>
<td>QAM2012.045</td>
</tr>
<tr>
<td>Duct – Averaging</td>
<td>-40°F to +240°F (-40°F to +116°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8’ (2.5 m) flexible</td>
<td></td>
<td>544-342-8</td>
<td>QAM2012.250</td>
</tr>
<tr>
<td>16’ (5.0 m) flexible</td>
<td></td>
<td>544-342-16</td>
<td>QAM2012.500</td>
</tr>
<tr>
<td>24’ (7.6 m) flexible</td>
<td></td>
<td>544-342-24</td>
<td>QAM2012.750</td>
</tr>
<tr>
<td>18” (45 cm) rigid</td>
<td></td>
<td>544-343-18</td>
<td></td>
</tr>
<tr>
<td>24” (60 cm) rigid</td>
<td></td>
<td>544-343-24</td>
<td></td>
</tr>
<tr>
<td>36” (90 cm) rigid</td>
<td></td>
<td>544-343-36</td>
<td></td>
</tr>
<tr>
<td>48” (1.2 m) rigid</td>
<td></td>
<td>544-343-48</td>
<td></td>
</tr>
<tr>
<td>Liquid Immersion Stainless Steel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5” (6.4 cm) well</td>
<td>-40°F to +240°F (-40°C to +116°C)</td>
<td>544-577-25</td>
<td>QAE2012.005</td>
</tr>
<tr>
<td>4” (10 cm) well</td>
<td>-40°F to +240°F (-40°C to +116°C)</td>
<td>544-577-40</td>
<td>QAE2012.010</td>
</tr>
<tr>
<td>6” (15 cm) well</td>
<td></td>
<td>544-577-60</td>
<td>QAE2012.015</td>
</tr>
</tbody>
</table>
1000 Ohm Nickel RTD Temperature Sensors

DESCRIPTION

These nickel RTD sensors provide input for cost-effective, accurate temperature sensing for any controller that accepts 1000 Ohm nickel input. They are used in HVAC installations to measure room, outside air, duct or liquid temperature. They can also be used to provide changeover from heating or cooling. The sensor resistance varies according to the temperature being measured. Several models are available for specific mounting and sensing applications.
1000 Ohm Nickel RTD Temperature Sensors

SPECIFICATIONS

**QAx2020 types**

Range of use – Refer to Chart

Sensing element
LG Ni1000 at 32°F (0°C)
JCI Ni 1000 at 70°F

Accuracy
±0.75°F at 75°F (±.04°C at 24°C)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Probe Length</th>
<th>Product Number 1k Ω Ni @ 32°F (Siemens - LG)</th>
<th>Product Number 1k Ω Ni @ 70°F (JCI)</th>
<th>Measuring Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Temperature Sensor</td>
<td>—</td>
<td>QAC2020U</td>
<td>QAC2021U</td>
<td>-40° to 150°F (-40° to 65°C)</td>
</tr>
<tr>
<td>Pipe Surface Temperature Sensor</td>
<td>—</td>
<td>QAC2020U</td>
<td>QAD2021U</td>
<td>-40° to 240°F (-40° to 121°C)</td>
</tr>
<tr>
<td>Immersion Temperature Sensor</td>
<td>2.5 inches (thermowell included)</td>
<td>QAE2020.005</td>
<td>QAE2021.005</td>
<td>0° to 250°F (-18° to 121°C)</td>
</tr>
<tr>
<td>Immersion Temperature Sensor</td>
<td>4 inches (thermowell included)</td>
<td>QAE2020.010</td>
<td>QAE2021.010</td>
<td>—</td>
</tr>
<tr>
<td>Immersion Temperature Sensor</td>
<td>6 inches (thermowell included)</td>
<td>QAE2020.015</td>
<td>QAE2021.015</td>
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<tr>
<td>Immersion Temperature Sensor</td>
<td>4 inches (rigid)</td>
<td>QAM2020.010</td>
<td>QAM2021.010</td>
<td>—</td>
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<tr>
<td>Duct Point Temperature Sensor</td>
<td>8 inches (rigid)</td>
<td>QAM2020.020</td>
<td>QAM2021.020</td>
<td>-40° to 180°F (-40° to 82°C)</td>
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<td>Duct Point Temperature Sensor</td>
<td>18 inches (rigid)</td>
<td>QAM2020.045</td>
<td>QAM2021.045</td>
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<tr>
<td>Duct Averaging Sensor</td>
<td>16 feet (flexible)</td>
<td>QAM2020.500</td>
<td>QAM2021.500</td>
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<td>Duct Averaging Sensor</td>
<td>24 feet (flexible)</td>
<td>QAM2020.750</td>
<td>QAM2021.750</td>
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</table>
100,000 Ohm NTC Thermistor Temperature Sensors

DESCRIPTION

Thermistor temperature sensors provide input for cost-effective, accurate temperature sensing to any controller that accepts a 100k ohm NTC input. The sensor resistance varies proportionally to the temperature being measured. Several models are available for specific mounting arrangements and applications.
100,000 Ohm NTC Thermistor Temperature Sensors

SPECIFICATIONS

Output Signal
Changing resistance

Accuracy at Calibration Point
±0.5°F at 77°F

Element
Thermistor

Reference Resistance at 77°F (25°C)
100,000 ohms

Measuring Range
-40°F (-40°C) to 257°F (125°C)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
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</thead>
<tbody>
<tr>
<td>Surface Mount – Pipe</td>
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<tr>
<td>1.25” (3.8 cm) sensor with clamps</td>
<td>540-258</td>
</tr>
<tr>
<td>Outdoor Air</td>
<td></td>
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<tr>
<td>With weathershield</td>
<td>536-778</td>
</tr>
<tr>
<td>Duct – Single Point</td>
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</tr>
<tr>
<td>4” (10 cm)</td>
<td>535-741-4</td>
</tr>
<tr>
<td>8” (20 cm)</td>
<td>535-741-8</td>
</tr>
<tr>
<td>18” (45 cm)</td>
<td>535-741-18</td>
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<tr>
<td>Duct Point Temperature Sensor</td>
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<tr>
<td>4” (10 cm) rigid</td>
<td>536-811</td>
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<tr>
<td>Duct Averaging</td>
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<tr>
<td>18” (45 cm) rigid</td>
<td>540-244-18</td>
</tr>
<tr>
<td>36” (90 cm) flexible</td>
<td>540-245-36</td>
</tr>
<tr>
<td>72” (180 cm) flexible</td>
<td>540-246-72</td>
</tr>
<tr>
<td>Liquid Immersion stainless steel</td>
<td></td>
</tr>
<tr>
<td>2.5” (6.4 cm) well</td>
<td>536-777-25</td>
</tr>
<tr>
<td>4” (10 cm) well</td>
<td>536-777-40</td>
</tr>
<tr>
<td>6” (15 cm) well</td>
<td>536-777-60</td>
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TEC Commissioning Temperature Sensor

DESCRIPTION
The TEC Commissioning Sensor is a cost effective discharge air sensor used with Terminal Equipment Controllers. It is designed to be installed quickly into metal ductwork and to connect to the TEC auxiliary sensor port to provide a discharge air temperature point for use with automated TEC commissioning tools. The sensor’s resistance varies proportionally to the actual duct air temperature being measured.

FEATURES
- 8’ plenum rated cable
- NTC 10K type II or 100K sensing element
- Termination block for easy connection to TEC
- 1½” to 2” self-tapping screw to penetrate duct
- Visual indication of 10K element to distinguish from existing 100K Ohm commissioning sensor.
- 10K NTC versions of this product will support the needs of the Siemens Zone Control Unit and the Siemens BACnet controllers
TEC Commissioning Temperature Sensor

SPECIFICATIONS

Temperature Monitoring Range
100,000 ohms
39.2°F to 158°F (4°C to 70°C)

Sensor Element
100K ohm Thermistor

Output Signal
Changing Resistance

Installation Adjustment
None Required

Calibration Adjustment
None Required

Factory Calibration Point
77°F (25°C)

Mid-Range Accuracy
100,000 ohms
± 5°F (± 3°C)

Thermistor Resistance @ Calibration Point
100,000 ohms

Installation (cable length)
6-ft (1.82 m) nominal

Dimensions
Probe Length
1.5-in. (38.1 mm)
overall length including sensor well 2.5-in. (63mm)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duct Temperature Sensor, NTC 10K Ohm Type 2, 3” probe, for Commissioning Only, 50-Pack, (Orange wire)</td>
<td>QAM1030.008P50</td>
</tr>
<tr>
<td>Duct Temperature Sensor, NTC 100K Ohm Type 2, 3” probe, for Commissioning Only, 50-Pack, (Brown wire)</td>
<td>QAM1035.008P50</td>
</tr>
</tbody>
</table>
Outdoor Air Temperature Sensors – Analog Output

DESCRIPTION
The Outdoor Air Temperature Sensors monitor and transmit changes in outdoor air temperature to the building control system. All sensors incorporate precision temperature sensing elements to accurately and reliably measure temperatures.

FEATURES
- Sensor includes sun shield, conduit elbow connection, and sensing element
- Robust design for outdoor environments
- Responsive to temperature change
- Accurate and reliable indication of outdoor air temperature
- Familiar installation requires no special tools
Outdoor Air Temperature Sensors – Analog Output

SPECIFICATIONS

**Temperature Range**
-58°F to 122°F (-50°C to 50°C)

**Output Signals**
- 4-20 mA (QAC3171)
- 0-10V (QAC3161)

**Accuracy:**
±1.6°F (±0.89°C)

**Installation:**

- **Wiring**
  2-conductor: 18 to 22 AWG twisted pair (per code requirements)

**Material**

- **Housing**
  ASA Luran S

- **Cover Plate**
  ASA Luran S, RAL 9003

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Air Temp Sensor, Plastic Housing, 4 to 20 MA Output</td>
<td>QAC3171</td>
</tr>
<tr>
<td>Outdoor Air Temp Sensor, Plastic Housing, 0 to 10 Volt Output</td>
<td>QAC3161</td>
</tr>
</tbody>
</table>
QFM81 Series

DESCRIPTION
On/off hygrostat with microswitch, and temperature-compensated humidity sensor for temperature-independent humidity measurements.

FEATURES
- Stabilized sensing strip (good linearity, very stable even at high humidity, insensitive to dust and contaminated air).
- Can be mounted in ventilating ducts or rooms
QFM81 Series

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duct Hygrostats, with external setpoint</td>
<td>QFM81.2</td>
</tr>
<tr>
<td>Duct Hygrostats, with internal setpoint</td>
<td>QFM81.21</td>
</tr>
</tbody>
</table>

**Degree of protection**
- QFM81.2 IP 30 to EN 60 529
- QFM81.21 IP 55 to EN 60 529

**Safety class**
- II to EN 60 730

**CE conformity to low-voltage directive**
- 73/23/EEC
- UL UL873
- cUL Canadian Standard C22.2 No. 24-93

**Connection terminals for**
- 20 AWG, minimum
- 2 x 16 AWG, maximum

**Materials**
- Sensing element: Polymer
- Casing with stem: PPS, Fortron 1140L6, fiberglass reinforced
- Cover: PC Lexan 940
- Transparent cover: PC Makrolon 2014R, transparent (only with QFM81.21)

**Weight**
- Approximately 12 ounces (0.34 kg)

**Maintenance**
- Maintenance-free, can be recalibrated.
QFA1000, QFA1001 Room Hygrostats

**DESCRIPTION**

The room hygrostats are used for controlling and monitoring relative humidity in ventilation or air conditioning facilities. They ensure room humidity control within the selectable range of 30 to 90% relative humidity by controlling humidification or dehumidification equipment. They can also be used for monitoring minimum or maximum humidity levels.

**FEATURES**

- Hygrostat with single-pole microswitch
- Humidity measuring element made of stabilized plastic
- Setpoint knob for the upper switching point
- Mounts directly on the wall or on a recessed conduit box
QFA1000, QFA1001 Room Hygrostats

SPECIFICATIONS

Setpoint range
30 to 90% rh

Temperature operating range
32°F to 122°F (0°C to 50°C)

Functional Data

Humidity measuring element
Stabilized plastic band

Control mode
Two-position

Time constant \( (v = 0.2 \text{ m/s}) \)
Approximately 5 minutes

Switching differential
See Product Numbers

Setting accuracy
+5% rh

Temperature influence
+0.5% rh/K

Humidity calibration at
55% rh, 73°F (23°C)

Long-term stability
Approximately -1.5% rh/a

Type of switch
Potential-free microswitch (SPDT)

Contact rating
Maximum 5 (3) A, 24 Vac/Vdc
Minimum 100 mA, 24 Vac/Vdc

Protective data

Degree of housing protection
P 20 to EN 60 529

Safety class
II to EN 60 730

Electrical connection Screw terminals for
Maximum 2 × 16 AWG

Materials and colors

Base
PPS, Fortron, fiberglass reinforced, Black

Cover
PC Lexan 940, pure-white

Humidity measuring element
Plastic

Standards

EMC directive 89/336/EEC
UL UL873
cUL Canadian Standard C22.2 No. 24-93

Weight
QFA1001 3.17 ounces (0.090 kg)
QFA1000 3.17 ounces (0.090 kg)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room Hygrostats, with internal setpoint</td>
<td>QFA1000</td>
</tr>
<tr>
<td>Room Hygrostats, with external setpoint</td>
<td>QFA1001</td>
</tr>
</tbody>
</table>
QXA2600 Condensation Sensor

DESCRIPTION

The QXA Series Condensation Sensors are used to avoid damage due to condensation on chilled ceilings and in HVAC installations.

The QXA2602 provides the same performance and features as the QXA2601 but includes a remote sensing element for mounting in tight spaces. The QXA2602 includes a 60" cable for connecting the sensing element to the main body.

It operates on AC/DC 24V and has a NO/NC changeover dry contact relay output capable of switching AC/DC loads from 1 to 48V, 1.0 amp.

The QXA2601 and QXA2602 Condensation Monitors are used to avoid damage due to condensation on chilled ceilings and in HVAC installations. They are equipped with an SPDT dry contact capable of switching 1 amp @ 24 Vac or 0.5 amp @ 24 Vdc. A two-color LED provides visual status indication. The QXA2601 includes hardware for installation on pipes with outside diameters from 0.39 to 3.94 inches (10 to 100 mm). The QXA2602 includes hardware for surface mounting on walls or ceilings.
QXA2600 Condensation Sensor

SPECIFICATIONS

Power supply G (G+), G0 (G-)

Operating voltage
AC/DC 24V ± 20%

Frequency
50/60 Hz

Power consumption
Maximum 1 VA

Functional data

Switching point on humidity increase
92% ± 4% rh

Switching differential (fixed)
Approximately 5% rh

Response time in static air
From 80 to 99% rh  Maximum 3 minutes
From 99 to 80% rh  Maximum 3 minutes
Condensation  Maximum 30 minutes

Output Q11, Q12, Q14

Relay output
NO/NC changeover dry contact

Current range at AC/DC 24V
0.02 to 1 (1) A

Starting current at AC/DC 24V
< 10 A for < 20 ms

Switching capacity
Minimum AC/DC 1V, 1 mA
Maximum A/DC, 48V, 0.5 A

Protection data

Degree of protection of housing
IP 40 to EN 60529

Safety class
III to EN 60 730

Connections

Mechanical
Wrap-on band for pipe diameter
0.39 to 3.94 inches (10 to 100 mm)

Electrical connections
Screw terminals for (2) 16 AWG or (1) 14 AWG
(max 2 x 1.5 mm2 or 1 x 2.5 mm2)

Environmental conditions

Operation to
IEC 60721-3-3

Climatic conditions
Class 3K5

Temperature (housing & electronics)
-23°F to 122°F (-5°C to 50°C)

Humidity
5 to 95% rh (non-condensing)

Mechanical conditions
Class 3M2

Transport to
IEC 60721-3-2

Climatic conditions
Class 2K2

Temperature
-13°F to 150°F (-25°C to 60°C)

Humidity
< 95% rh

Mechanical conditions
Class 3M2

Materials and colors

Housing
Thermoplastics, pure-white

Norms and standards

Product safety
Automatic electrical controls for domestic use and similar applications  EN 60730-1

Electromagnetic compatibility
Immunity  EN 61000-6-2
Emissions  EN 61000 6-3

Conformity

Australian EMC Framework
Radio Communication Act 1992
Radio Interference Emission Std
AS/ZN CISPR22:2006

Weight Including packaging
5.0 ounces (0.142 kg)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condensation Sensor</td>
<td>QXA2601</td>
</tr>
<tr>
<td>Condensation Sensor with remote sensing element</td>
<td>QXA2602</td>
</tr>
</tbody>
</table>
Series 3300 Relative Humidity and Temperature Room Sensors with Analog Output

DESCRIPTION

The Series 2300 TEC Room Humidity Sensors from Siemens Building Technologies, Inc. offer a wide range of features and functionality that work in concert with the TALON® Automation System to deliver exceptional occupant comfort in even the most demanding application environments. The product family includes plain sensing-only variants, and fully interactive types with a graphical OLED (Organic Light Emitting Diode) displays. Certain models also permit viewing and modifying controller points locally from the sensor. All sensors incorporate precision humidity and temperature sensing elements to accurately and reliably measure room temperature. Their compact, low profile design results in an attractive, inconspicuous installation. Strategically placed ventilation slots in the housing optimize airflow through the cover for fast measurement response and superior control.

These room sensors provide accurate, reliable sensing of room humidity and temperature. Various models can be used with currently available or legacy TALON Controllers for either zone or primary control, respectively.

FEATURES (Display Models Only)

– Organic Light Emitting Diode Display: A 96 × 64 pixel graphical OLED allows simultaneous digital display of room temperature, a user-selected critical point, and day/night operation status.
– Digital setpoint adjustment: The sensor’s keypad allows error-free digital setpoint adjustments in one-degree increments. Setpoint values momentarily display as changes are made.
– Override button: The override button allows an occupant to change to an occupied control schedule during the unoccupied cycle for a predetermined time period. Occupancy graphic is shown on the display during occupied time periods.
– Maintenance-free: These sensors draw a small amount of power directly from the controller.
– Passkey security: A special hardware passkey plugs into the sensor’s MMI port to allow access to the display configuration menu.

Standard Display Features:

– Display of operating mode: Graphic symbols are displayed to indicate the controller’s operating mode. A person in the house indicates occupied mode operation and a person outside the house indicates unoccupied mode.
– Easy-to-read room temperature value
– Digital display

Configurable Display Features:

– Degrees Fahrenheit or Celsius
– Graphical or alpha numeric setpoint display
– Room temperature display on or off
– Bias adjustment of reading
## SPECIFICATIONS

### Temperature Specifications – Refer to Chart

### Output Signal/Accuracy – Refer to Chart

### Humidity Specifications – Refer to Chart

### Calibration Features (Units with display)

**Temperature**
- Adjustable to ±5°F

**Humidity**
- Adjustable to ±5% rh

### Cover

**Dimensions**
- 4.5” × 2.75” × 1.18”
  (115 mm × 70 mm × 30 mm)

**Color**
- White

### Regulatory Agencies
- UL 916

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Logo</th>
<th>Temperature Set Point Adjustment &amp; Override</th>
<th>Display</th>
<th>Connection Type</th>
<th>Humidity Measurement</th>
<th>Temperature Measurement</th>
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<tbody>
<tr>
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<tr>
<td>QFA3330.FWTN</td>
<td>TALON</td>
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<td>QFA3355.FWTN</td>
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<td>QFA3380.EWNC</td>
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<td>RJ-11</td>
<td>Digital (P1)</td>
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<tr>
<td>QFA3380.FWNC</td>
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<td>RJ-11</td>
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<tr>
<td>QFA3380.EWTC</td>
<td>TALON</td>
<td>•</td>
<td>•</td>
<td>RJ-11</td>
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<td></td>
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<tr>
<td>QFA3380.FWTC</td>
<td>TALON</td>
<td>•</td>
<td>•</td>
<td>RJ-11</td>
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<td></td>
</tr>
</tbody>
</table>

**Humidity Measurement**
- ±2% (10% to 90%)
- 0 to 100%

**Temperature Measurement**
- 4-20mA / 0-10V
- Digital (P1)

Set point range is 55-95°F (13-35°C). On non-P1 models the setpoint output is 0-10/4-20A and the override is a momentary contact.
## Sensors – Humidity

### Series 3300 Relative Humidity and Temperature Room Sensors with Analog Output

#### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Product Number</th>
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<tbody>
<tr>
<td>Mounting Plate (Goof Plate) 10 Pack</td>
<td>AQA2200-INTL</td>
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<tr>
<td>Replacement Temp + Humidity Sensing Element</td>
<td>AQF3060</td>
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<tr>
<td>Passkey</td>
<td>544-643A</td>
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<tr>
<td>Replacement Sensor Base for models ending in .xWxC</td>
<td>563-102-1</td>
</tr>
<tr>
<td>Replacement Sensor Base for models ending in .EWxN</td>
<td>563-102-03</td>
</tr>
<tr>
<td>Replacement Sensor Base for models ending in .FWxN</td>
<td>563-102-04</td>
</tr>
<tr>
<td>25 ft. RJ-11 Cable with connectors for models ending in .xWxC</td>
<td>588-100A</td>
</tr>
<tr>
<td>50 ft. RJ-11 Cable with connectors for models ending in .xWxC</td>
<td>588-100B</td>
</tr>
<tr>
<td>100 ft. RJ-11 Cable with connectors for models ending in .xWxC</td>
<td>588-100C</td>
</tr>
</tbody>
</table>
EASY ORDERING

- By phone, fax or email
  Our knowledgeable customer support teams can assist you with questions about products, ordering, fulfillment, and shipping information.

  **Call us at 1-800-516-9964** from 7 am to 5:30 pm (CST) Monday through Friday.

  **Fax 877-765-4295**
  We'll send an order confirmation to let you know that your fax was received.

  **Send an email to your dedicated Customer Service professional.**

- Online 24/7
  An exclusive site that only Siemens Partners can access! Quickly get the Siemens control products and systems you rely on.
  [www.usa.siemens.com/buildingtechnologiesonlineordering](http://www.usa.siemens.com/buildingtechnologiesonlineordering)
Q-Series Duct Relative Humidity and Relative Humidity & Temperature Sensors

DESCRIPTION

The Q-Series Duct Relative Humidity and Relative Humidity & Temperature Sensors monitor and transmit changes in humidity and temperature to the building control systems. These units are especially suited for applications where precise, stable humidity sensing is required. Certified units are also available where certification is required. Several models are available for humidity only (in 5%, 2% and 2% certified versions) or for humidity and temperature sensing (also in 5%, 2% and 2% certified versions). The humidity-only units are available in either 4-20 mA or 0-10 volt signal versions. Combination humidity and temperature units are also available in either dual current or voltage versions, transmitting proportional signals back to the controller.

GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Installation</th>
<th>Voltage requirement</th>
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</thead>
<tbody>
<tr>
<td>18 AWG cable length shared in conduit with other sensor wiring 750 ft. (229 m) max</td>
<td>13.5 to 35 Vdc</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screw terminals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duct Probe: 0.6”O.D x 7.2”L (15 mm x 183 mm)</td>
</tr>
<tr>
<td>Duct Housing: 3.1”L x 2.3”W x 1.5”D (80 mm x 60 mm x 40 mm)</td>
</tr>
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<table>
<thead>
<tr>
<th>Material Type</th>
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<tbody>
<tr>
<td>Polycarbonate plastic</td>
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<table>
<thead>
<tr>
<th>CE and UL listed</th>
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</thead>
<tbody>
<tr>
<td>UL 873 standard for Temperature Indicating and Regulating Equipment</td>
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SPECIFICATIONS – HUMIDITY ELEMENT

<table>
<thead>
<tr>
<th>Operating range</th>
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</thead>
<tbody>
<tr>
<td>0 to 100% RH</td>
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</table>

<table>
<thead>
<tr>
<th>Measurement range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 95% RH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accuracy at room temperature 73°F (20°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>±5% RH, 0-95% RH</td>
</tr>
<tr>
<td>±3% RH, 30-70% RH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>-31°F to +158°F (-35°C to +70°C)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 0.1% per degree C</td>
</tr>
</tbody>
</table>

Sensing element

Capacitive humidity sensing element

<table>
<thead>
<tr>
<th>Output signal – RH only units</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-20 mA or 0-10 Vdc, 0-100% linear, proportional</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output signal – RH/T units</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10 Vdc, 0-100% linear, proportional</td>
</tr>
</tbody>
</table>

Polarity protection

Yes
Q-Series Duct Relative Humidity and Relative Humidity & Temperature Sensors

SPECIFICATIONS – TEMPERATURE ELEMENT (FOR COMBINATION RH/T UNITS ONLY)

<table>
<thead>
<tr>
<th>Product Number</th>
<th>% Accuracy</th>
<th>Humidity Signal Output</th>
<th>Humidity Range</th>
<th>Temperature</th>
<th>Temperature Signal Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>QFM2100</td>
<td>5</td>
<td>0-10 Vdc</td>
<td>-40°F to +158°F (-40°C to +70°C) or -31°F to +95°F (-35°C to +35°C)</td>
<td>0-10 Vdc</td>
<td>0-10 Vdc</td>
</tr>
<tr>
<td>QFM2160U</td>
<td>5</td>
<td>4-20 mA</td>
<td>32°F to 122°F (0°C to 50°C) or -31°F to +95°F (-35°C to +35°C) or -40°F to +158°F (-40°C to +70°C)</td>
<td>4-20 mA</td>
<td>4-20 mA</td>
</tr>
<tr>
<td>QFM2171</td>
<td>5</td>
<td>4-20 mA</td>
<td>32°F to 122°F (0°C to 50°C) or -31°F to +95°F (-35°C to +35°C) or -40°F to +158°F (-40°C to +70°C)</td>
<td>4-20 mA</td>
<td>4-20 mA</td>
</tr>
<tr>
<td>QFM3100</td>
<td>2</td>
<td>0-10 Vdc</td>
<td>-40°F to +158°F (-40°C to +70°C) or -31°F to +95°F (-35°C to +35°C)</td>
<td>0-10 Vdc</td>
<td>0-10 Vdc</td>
</tr>
<tr>
<td>QFM3160</td>
<td>2</td>
<td>0-10 Vdc</td>
<td>-40°F to +158°F (-40°C to +70°C) or -31°F to +95°F (-35°C to +35°C) or -40°F to +158°F (-40°C to +70°C)</td>
<td>0-10 Vdc</td>
<td>0-10 Vdc</td>
</tr>
<tr>
<td>QFM3171</td>
<td>2</td>
<td>4-20 mA</td>
<td>-40°F to +158°F (-40°C to +70°C) or -31°F to +95°F (-35°C to +35°C) or -40°F to +158°F (-40°C to +70°C)</td>
<td>4-20 mA</td>
<td>4-20 mA</td>
</tr>
<tr>
<td>QFM3101</td>
<td>2</td>
<td>4-20 mA</td>
<td>-40°F to +158°F (-40°C to +70°C) or -31°F to +95°F (-35°C to +35°C) or -40°F to +158°F (-40°C to +70°C)</td>
<td>4-20 mA</td>
<td>4-20 mA</td>
</tr>
<tr>
<td>QFM4160</td>
<td>2, certified</td>
<td>0-10 Vdc</td>
<td>-40°F to +158°F (-40°C to +70°C) or -31°F to +95°F (-35°C to +35°C) or -40°F to +158°F (-40°C to +70°C)</td>
<td>0-10 Vdc</td>
<td>0-10 Vdc</td>
</tr>
<tr>
<td>QFM4171</td>
<td>2, certified</td>
<td>4-20 mA</td>
<td>-40°F to +158°F (-40°C to +70°C) or -31°F to +95°F (-35°C to +35°C) or -40°F to +158°F (-40°C to +70°C)</td>
<td>4-20 mA</td>
<td>4-20 mA</td>
</tr>
</tbody>
</table>

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duct humidity sensor, (5%) 0-10 Vdc</td>
<td>QFM2100</td>
</tr>
<tr>
<td>Duct humidity sensor, (5%) 4-20 mA</td>
<td>QFM2101</td>
</tr>
<tr>
<td>Duct humidity sensor, (5%) 0-10 Vdc / Temp 0-10 Vdc</td>
<td>QFM2160U</td>
</tr>
<tr>
<td>Duct humidity sensor, (5%) 4-20 mA / Temp 4-20 mA</td>
<td>QFM2171</td>
</tr>
<tr>
<td>Duct humidity sensor, (2%) 0-10 Vdc</td>
<td>QFM3100</td>
</tr>
<tr>
<td>Duct humidity sensor, (2%) 4-20 mA</td>
<td>QFM3160</td>
</tr>
<tr>
<td>Duct humidity sensor, (2%) 0-10 Vdc / Temp 0-10 Vdc</td>
<td>QFM3101</td>
</tr>
<tr>
<td>Duct humidity sensor, (2%) 0-10 Vdc / Temp 4-20 Vdc</td>
<td>QFM3160D</td>
</tr>
<tr>
<td>Duct humidity sensor, (2%) 4-20 mA / Temp 4-20 mA, LCD</td>
<td>QFM3171</td>
</tr>
<tr>
<td>Duct humidity sensor, (2%) 4-20 mA / Temp 4-20 mA, LCD</td>
<td>QFM3171D</td>
</tr>
<tr>
<td>Duct humidity sensor, (2%) 4-20 mA (certified)</td>
<td>QFM4101</td>
</tr>
<tr>
<td>Duct humidity sensor, (2%) 0-10 Vdc / Temp 0-10 Vdc (certified)</td>
<td>QFM4160</td>
</tr>
<tr>
<td>Duct humidity sensor, (2%) 4-20 mA / Temp 4-20 mA (certified)</td>
<td>QFM4171</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor filter cap (3-pack)</td>
<td>AQF3101</td>
</tr>
<tr>
<td>Replaceable 2% certified sensor tip</td>
<td>AQF4150</td>
</tr>
<tr>
<td>Replaceable 2% sensor tip</td>
<td>AQF3150</td>
</tr>
<tr>
<td>Cable for remote tip mounting, 10’</td>
<td>AQY2010</td>
</tr>
<tr>
<td>Cable for remote tip mounting, 30’</td>
<td>AQY2030</td>
</tr>
</tbody>
</table>
Q-Series Room/Outdoor Air Relative Humidity and Relative Humidity & Temperature Sensors

DESCRIPTION

The Q-Series Room/Outdoor Air Relative Humidity and Relative Humidity & Temperature Sensors monitor and transmit changes in humidity and temperature to the building control systems. These units are especially suited for applications where precise, stable humidity sensing is required. Standard models available are 2% and 2% certified for both humidity only and combination humidity with temperature sensing. Sensors are offered with either 4-20 mA or 0-10 volt output signals.

GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation</td>
<td>18 AWG cable length shared in conduit with other sensor wiring 750 ft. (229 m) max</td>
</tr>
<tr>
<td>Connections</td>
<td>Screw terminals</td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
</tr>
<tr>
<td>Outdoor Air Probe</td>
<td>0.6” O.D. x 3.3” L (15 mm x 84 mm)</td>
</tr>
<tr>
<td>Outdoor Air Housing</td>
<td>3.1” L x 2.3” W x 1.5” D (80 mm x 60 mm x 40 mm)</td>
</tr>
<tr>
<td>Shield (mounted)</td>
<td>3.43” H x 3.5” W x 4.1” D (87 mm x 89 mm x 104 mm)</td>
</tr>
<tr>
<td>Voltage requirement</td>
<td>13.5 to 35 Vdc</td>
</tr>
<tr>
<td>Material Type</td>
<td>Polycarbonate plastic</td>
</tr>
<tr>
<td>CE and UL listed</td>
<td>UL 873 standard for Temperature Indicating and Regulating Equipment</td>
</tr>
</tbody>
</table>

SPECIFICATIONS – HUMIDITY ELEMENT

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating range</td>
<td>0 to 100% RH</td>
</tr>
<tr>
<td>Measurement range</td>
<td>0 to 95% RH</td>
</tr>
<tr>
<td>Accuracy at room temperature</td>
<td>±2% RH, 0-95% RH</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>31°F to +158°F (-35°C to +70°C)</td>
</tr>
<tr>
<td>Temperature effect</td>
<td>Less than 0.1% per degree C</td>
</tr>
<tr>
<td>Sensing element</td>
<td>Capacitive humidity sensing element</td>
</tr>
<tr>
<td>Output signal – RH only units</td>
<td>4-20 mA or 0-10 Vdc, 0-100% linear, proportional</td>
</tr>
<tr>
<td>Output signal – RH/T units</td>
<td>4-20 mA or 0-10 Vdc, 0-100% linear, proportional</td>
</tr>
<tr>
<td>Polarity protection</td>
<td>Yes</td>
</tr>
</tbody>
</table>
## Q-Series Room/Outdoor Air Relative Humidity and Relative Humidity & Temperature Sensors

### SPECIFICATIONS – TEMPERATURE ELEMENT (FOR COMBINATION RH/T UNITS ONLY)

<table>
<thead>
<tr>
<th>Product Number</th>
<th>% Accuracy</th>
<th>Humidity Signal Output</th>
<th>Humidity Measuring Range</th>
<th>Temperature</th>
<th>Temperature Signal Output</th>
<th>Operating Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>QFA3100</td>
<td>2%</td>
<td>Active, 0 to 10 Vdc</td>
<td></td>
<td>None</td>
<td>None</td>
<td>24 Vac or 13.5 to 35 Vdc</td>
</tr>
<tr>
<td>QFA3101</td>
<td>2%</td>
<td>Active, 4 to 20 mA</td>
<td></td>
<td>None</td>
<td>Active, 0 to 10 Vdc</td>
<td>13.5 to 35 Vdc</td>
</tr>
<tr>
<td>QFA3160</td>
<td>2%</td>
<td>Active, 0 to 10 Vdc</td>
<td>32°F to 122°F (0°C to 50°C), -31°F to +95°F (-35°C to +35°C) or -40°F to +158°F (-40°C to +70°C)</td>
<td>Active, 4 to 20 mA</td>
<td>Active, 0 to 10 Vdc</td>
<td>24 Vac or 13.5 to 35 Vdc</td>
</tr>
<tr>
<td>QFA3171</td>
<td>2%</td>
<td>Active, 4 to 20 mA</td>
<td></td>
<td>None</td>
<td>Active, 4 to 20 mA</td>
<td>13.5 to 35 Vdc</td>
</tr>
<tr>
<td>QFA4160</td>
<td>2% certified</td>
<td>Active, 0 to 10 Vdc</td>
<td></td>
<td>None</td>
<td>Active, 0 to 10 Vdc</td>
<td>24 Vac or 13.5 to 35 Vdc</td>
</tr>
<tr>
<td>QFA4171</td>
<td>2% certified</td>
<td>Active, 4 to 20 mA</td>
<td></td>
<td>None</td>
<td>Active, 4 to 20 mA</td>
<td>13.5 to 35 Vdc</td>
</tr>
</tbody>
</table>

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor air humidity sensor (2%), 0-10vdc</td>
<td>QFA3100</td>
</tr>
<tr>
<td>Outdoor air humidity sensor (2%), 4-20 mA</td>
<td>QFA3101</td>
</tr>
<tr>
<td>Outdoor air humidity sensor (2%), 0-10vdc / Temp 0-10 Vdc</td>
<td>QFA3160</td>
</tr>
<tr>
<td>Outdoor air humidity sensor (2%), 0-10vdc / Temp 0-10 Vdc, LCD</td>
<td>QFA3160D</td>
</tr>
<tr>
<td>Outdoor air humidity sensor (2%), 4-20mA / Temp 4-20 mA</td>
<td>QFA3171</td>
</tr>
<tr>
<td>Outdoor air humidity sensor (2%), 4-20mA / Temp 4-20 mA, LCD</td>
<td>QFA3171D</td>
</tr>
<tr>
<td>Outdoor air humidity sensor (2%), 0-10 Vdc / Temp 0-10 Vdc (certified version)</td>
<td>QFA4160</td>
</tr>
<tr>
<td>Outdoor air humidity sensor (2%), 0-10 Vdc / Temp 0-10 Vdc (certified version), LCD</td>
<td>QFA4160D</td>
</tr>
<tr>
<td>Outdoor air humidity sensor (2%), 4-20 mA / Temp 4-20 mA (certified version)</td>
<td>QFA4171</td>
</tr>
<tr>
<td>Outdoor air humidity sensor (2%), 4-20 mA / Temp 4-20 mA (certified version), LCD</td>
<td>QFA4171D</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun Shield (must always be ordered separately)</td>
<td>AQF3100</td>
</tr>
<tr>
<td>Sensor filter cap (3-pack)</td>
<td>AQF3101</td>
</tr>
<tr>
<td>Replaceable 2% sensor tip</td>
<td>AQF3150</td>
</tr>
<tr>
<td>Replaceable 2% certified sensor tip</td>
<td>AQF4150</td>
</tr>
<tr>
<td>Cable for remote tip mounting, 10’</td>
<td>AQY2010</td>
</tr>
<tr>
<td>Cable for remote tip mounting, 30’</td>
<td>AQY2030</td>
</tr>
</tbody>
</table>
QLS60 Solar Impact Sensor

The solar impact sensor is used as an outdoor reference sensor in heating, ventilation and air conditioning facilities where compensation of solar radiation is required. Solar compensation is necessary where buildings or building sections with large window areas are subjected to strong solar radiation, especially in installations where thermostatic radiator valves cannot be used.

**FEATURES**
- Sensor for acquiring the impact of solar radiation
- Output signal 0 to 10 Vdc or 4 to 20mA
- Two-wire current output 4 to 20 mA
QLS60 Solar Impact Sensor

SPECIFICATIONS

**Power Supply (G+, M)**
- Rated frequency at 24 Vac
  ± 50/60Hz
- Rated voltage range
  24 Vac + 20% SELV
  24 Vdc (18 to 30V)
- Rated power consumption
  Max. 2.5 VA (1 W)

**Range of use**
- Measuring range: 0 to 1000 W/m²

**Functional Data**
- Time constant t₆₃ < 2 seconds

**Measured value outputs (U, I)**
- Voltage signal output (U)
  0 to 10 Vdc
  0 to 1000 W/m² (0 to 93 w/ft²)
- Current signal output (I)
  4 to 20 mA
  0 to 1000 W/m² (0 to 93 w/ft²)

**Permissible cable lengths with copper cable:**
- 18 AWG: 164 feet (50 m)
- 16 AWG: 492 feet (150 m)
- 12 AWG: 984 feet (300 m)

**Electrical connections**
- Screw terminals for
  2 × 16 AWG or 1 × 12 AWG

**Protective data**
- Degree of protection of housing
  IP 65 to IEC 60 529
- Insulation class
  Ill to EN 60 730

**Environmental conditions**
- Operation to
  IEC 60 721-3-3
- Climatic conditions
  Class 3K5
- Temperature
  -13°F to 131°F (-25°C to 55°C)
- Humidity
  5 to 95% rh

**Agency standards**
- Product safety
  EN 61010-1, EN 61010-031
- Electromagnetic compatibility
  Immunity
  EN 61 326
  Emissions
  Class B to EN 61 326

**CE conformity to EMC directive**
- 2004/108/EC
- UL Listing
  UL873
- cUL Listing
  Canadian Standard C22.2 No. 24-93

**Materials and colors**
- Housing
  Polycarbonate/RAL 9002 (gray-white)
- Housing cover
  Polycarbonate (transparent),
  solar Panel molded in silicone/RAL 9010

**Packaging**
- Cardboard

**Weight Without packaging**
- Approx. 4.37 ounces (0.124 kg)

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar Impact Sensor</td>
<td>QLS60</td>
</tr>
</tbody>
</table>
Series 2300 Carbon Dioxide Room Sensors for Programmable BACnet™ TEC

DESCRIPTION

The Series 2300 CO2 Room Sensors from Siemens Industry, Inc. offer a wide range of features and functionality that work in concert with the TALON® Automation System to deliver exceptional occupant comfort in even the most demanding application environments. The product family includes plain, sensing-only variants, and fully interactive types with a graphical OLED (Organic Light Emitting Diode) displays. All room units incorporate precision CO2 and temperature sensing elements to accurately and reliably measure room temperature and carbon dioxide. Their compact, low profile design results in an attractive, inconspicuous installation. Strategically placed ventilation slots in the housing optimize airflow through the cover for fast measurement response and superior control.

These room units provide accurate, reliable sensing of room carbon dioxide and temperature. Some models also sense humidity. They can be used with all Programmable BACnet Terminal Equipment Controllers (PTECs).

Note: Standard P1 TECs do not have the ability to handle CO2 or relative humidity data. Room units connected to a P1 TEC will only display CO2 and humidity values locally in the controlled space.

FEATURES

- OLED Display: A 96 × 64 pixel graphical OLED display allows simultaneous digital display of room CO2 or temperature, and day/night operation status. The unit alternately displays measured CO2, Temperature, and relative humidity value (if present).

Standard Display Features:
- Display of operating mode: Graphic symbols are displayed to indicate the controller’s operating mode. A symbol of a person in the house indicates occupied mode operation and a symbol of a person outside the house indicates unoccupied mode.
- Easy-to-read room CO2 value
- Easy-to-read room temperature value to 1 decimal place
- Easy-to-read room humidity value
- Digital display

Configurable Display Features:
- Degrees Fahrenheit or Celsius
- Graphical or alpha numeric setpoint display
- Room temperature display on or off
- Room CO2 display on or off
- Room humidity display on or off
- Digital setpoint adjustment: The room unit’s keypad allows error-free digital temperature setpoint adjustments in one-degree increments. Setpoint values momentarily display as changes are made.
- Override button: The override button allows an occupant to change to an occupied control schedule during the unoccupied cycle for a predetermined time period as defined by the controller. Occupancy graphic is shown on the display during occupied time periods.
- Maintenance-free
- Compatibility: These room units are compatible with all PTECs. The room units are wired with six-conductor phone cables and standard RJ 11 connectors.
- HMI port: RJ-11 connection allows laptop connection for commissioning and servicing the controller.
Series 2300 Carbon Dioxide Room Sensors for Programmable BACnet™ TEC

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Temperature Specifications</th>
<th>Calibration Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature Range</strong></td>
<td><strong>Temperature</strong></td>
</tr>
<tr>
<td>Setpoint</td>
<td>Adjustable to ±5°F</td>
</tr>
<tr>
<td>Operating</td>
<td>Humidity</td>
</tr>
<tr>
<td></td>
<td>Adjustable to ±5% rh</td>
</tr>
<tr>
<td>Output Signal</td>
<td>CO2</td>
</tr>
<tr>
<td></td>
<td>Adjustable to ±25 ppm</td>
</tr>
<tr>
<td>Sensing Element Type</td>
<td></td>
</tr>
<tr>
<td>Digital Temperature Sensor IC (QPA2384.E types)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Temperature Sensor IC element</td>
</tr>
<tr>
<td>32°F to 122°F (0°C to 50°C)</td>
</tr>
<tr>
<td>±0.9°F (±0.5°C)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Humidity Specifications (available on QPA2384 types only)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Humidity Range</strong></td>
</tr>
<tr>
<td>0% to 100% rh</td>
</tr>
<tr>
<td><strong>Output Signal</strong></td>
</tr>
<tr>
<td>Proprietary digital protocol</td>
</tr>
<tr>
<td><strong>Sensing Element Type</strong></td>
</tr>
<tr>
<td>Digital Sensor IC</td>
</tr>
<tr>
<td><strong>Humidity Accuracy</strong></td>
</tr>
<tr>
<td>10% - 90% rh</td>
</tr>
<tr>
<td>±2% rh</td>
</tr>
<tr>
<td>&lt;10% rh; &gt;90% rh</td>
</tr>
<tr>
<td>±4% rh</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CO2 Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carbon Dioxide Range (PPM)</strong></td>
</tr>
<tr>
<td>0 to 2000 parts per million</td>
</tr>
<tr>
<td><strong>Sensing Element Type</strong></td>
</tr>
<tr>
<td>Digital Sensor IC</td>
</tr>
<tr>
<td><strong>CO2 Accuracy</strong></td>
</tr>
<tr>
<td>±50 PPM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TEC</strong></td>
</tr>
<tr>
<td>100 ft. Maximum cable length. 6C #24 AWG, Belden 1228A or equal, NEC Class 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Installation Adjustments</th>
</tr>
</thead>
<tbody>
<tr>
<td>None required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cover</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
</tr>
<tr>
<td>4.5” x 2.75” x 1.18”</td>
</tr>
<tr>
<td>(115 mm x 70 mm x 30 mm)</td>
</tr>
<tr>
<td><strong>Color</strong></td>
</tr>
<tr>
<td>White</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Power Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply</strong></td>
</tr>
<tr>
<td>AQM2200 Power Dongle (1 required per sensor)</td>
</tr>
<tr>
<td><strong>Power Dongle</strong></td>
</tr>
<tr>
<td>Input: 24 Vac ±20% 50-60Hz.</td>
</tr>
<tr>
<td>Output: 24 Vdc @300 mA Max</td>
</tr>
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</table>
### Series 2300 Carbon Dioxide Room Sensors for Programmable BACnet™ TEC

#### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Output Signal</th>
<th>Logo</th>
<th>Display</th>
<th>Temperature Setpoint Adjustment &amp; Override</th>
<th>CO₂</th>
<th>Temp</th>
<th>Humidity</th>
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<tbody>
<tr>
<td>QPA2382.EWNC</td>
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<td>QPA2382.EWTC</td>
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<td>TALON</td>
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<td>TALON</td>
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<td>QPA2384.FWTC</td>
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#### Accessories

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<tr>
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<tbody>
<tr>
<td>25-foot (7.6 m) RJ-11 cable with connectors</td>
<td>588-100A</td>
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<tr>
<td>50-foot (15.2 m) RJ-11 cable with connectors</td>
<td>588-100B</td>
</tr>
<tr>
<td>100-foot (30.5 m) RJ-11 cable with connectors</td>
<td>588-100C</td>
</tr>
<tr>
<td>Replacement rh 2% + Temperature Element</td>
<td>AQF3060</td>
</tr>
<tr>
<td>Passkey Tool (Used to set room unit parameters)</td>
<td>544-643A</td>
</tr>
<tr>
<td>Power Module (One required per QPA2300)</td>
<td>AQM2200</td>
</tr>
<tr>
<td>Replacement Housing Base</td>
<td>563-120</td>
</tr>
<tr>
<td>Room Unit Back Plate (10-pack)</td>
<td>AQA2200-INTL</td>
</tr>
</tbody>
</table>
EASY ORDERING

• By phone, fax or email
  Our knowledgeable customer support teams can assist you with questions about products, ordering, fulfillment, and shipping information.

  Call us at 1-800-516-9964 from 7 am to 5:30 pm (CST) Monday through Friday.

  Fax 877-765-4295
  We’ll send an order confirmation to let you know that your fax was received.

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  www.usa.siemens.com/buildingtechnologiesonlineordering

Sensors – Air Quality
**Room Air Quality Sensors – QPA20...**

**DESCRIPTION**

In ventilation and air conditioning plants, QPA20... Room Air Quality Sensors enhance room comfort and optimize energy consumption by providing demand-controlled ventilation. The sensor acquires CO₂ concentrations as an indication of occupancy in rooms where smoking is prohibited; volatile organic compound (VOC) concentrations as an indication of odors in the room, such as tobacco smoke, body odor, or material fumes; room temperature; and room relative humidity. The QPA20... can be used as a control sensor or as a transmitter for building automation and control systems and/or display units.

**FEATURES**

- Maintenance-free CO₂ sensing element and, depending on the type of sensor, VOC sensing element, based on a heated tin dioxide semiconductor
- CO₂ temperature and CO₂ humidity-temperature multisensor
- No recalibrations required
- Operating voltage 24 Vac or 13.5 - 35 Vdc
- Signal outputs 0-10 Vdc/0-5 Vdc
Room Air Quality Sensors – QPA20...

SPECIFICATIONS

General

Power Supply
Operating voltage (SELV)
24 Vac ± 20% or 13.5-35 Vdc

Frequency
50/60 Hz at 24 Vac

Power consumption
≤ 2 VA

Ambient operating environment
Temperature (housing incl. electronics)
32°F to 122°F (0°C to 50°C)

Humidity
0 to 95% RH (non-condensing)

Transport environment
Temperature
-13°F to +158°F (-25°C to +70°C)

Humidity
< 95% RH

CO₂

Measuring range
0-2000 ppm

Measuring accuracy at 68°F
≤ ± (20 ppm + 1.5% measured value)
(20°C), 40% RH and 970 hPa

RH (QPA2062 and QPA2062D only)

Measuring range
0 to 100% RH

Measuring accuracy at 73°F (23°C) and 24 Vac
0-95% RH ±5% RH
30-70% RH ±3% RH (typically)

Temperature with QPA206...

Measuring range
32°F to 122°F (0°C to 50°C) (R2, R3) or
-31°F to +95°F (-35°C to +35°C) (R1)

Measuring elements
PT1000 / QPA2060
NTC 10k ohm / QPA2062

Measuring accuracy
59°F to 95°F (15°C to 35°C) ± 0.8 K
-31°F to +122°F (-35 to +50°C) ± 1 K

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
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<tbody>
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<td>Sensor, CO₂, Room, 0-5 / 0-10 V, Sensing Only</td>
<td>QPA2000</td>
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<tr>
<td>Sensor, CO₂ and VOC, Room, 0-5 / 0-10 V, Sensing Only</td>
<td>QPA2002</td>
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<td>Sensor, CO₂ and VOC, Room, 0-5 / 0-10 V, Sensing with Display</td>
<td>QPA2002D</td>
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<tr>
<td>Sensor, CO₂ and Temp, Room, 0-5 / 0-10 V, Sensing Only</td>
<td>QPA2060</td>
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<tr>
<td>Sensor, CO₂ and Temp, Room, 0-5 / 0-10 V, Sensing with Display</td>
<td>QPA2060D</td>
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<tr>
<td>Sensor, CO₂, Temp and RH, Room, 0-5 / 0-10 V, Sensing Only</td>
<td>QPA2062</td>
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<td>Sensor, CO₂, Temp and RH, Room, 0-5 / 0-10 V, Sensing with Display</td>
<td>QPA2062D</td>
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<td>CO₂/T passive, Display</td>
<td>QPA2080D</td>
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</table>

Note: T passive includes Platinum 100, Platinum 1000, LG-Ni1000, NTC 10K sensing elements
Duct Air Quality Sensors – QPM21...

DESCRIPTION
In air ducts of ventilation and air conditioning plants, QPM21... Duct Air Quality Sensors enhance room comfort and optimize energy consumption by providing demand-controlled ventilation. The sensor acquires CO2 concentrations; volatile organic compound (VOC) concentrations as an indication of odors in the duct air, such as tobacco smoke, body odor, or material fumes; the relative humidity of the duct air; and the duct air temperature. The QPM21... can be used as a control sensor in the supply or extract air duct or transmitter for building automation and control systems and/or display units.

FEATURES
- Maintenance-free CO2 sensing element and, depending on the type of sensor, VOC sensing element, based on a heated tin dioxide semiconductor
- CO2 temperature and CO2 humidity-temperature multisensor
- No recalibrations required
- Operating voltage 24 Vac or 13.5-35 Vdc
- Signal outputs 0-10 Vdc /0-5 VDC
Duct Air Quality Sensors – QPM21...

SPECIFICATIONS

Power Supply
Operating voltage (SELV)
24 Vac ± 20% or 13.5-35 Vdc
Frequency
50/60 Hz at 24 Vac
Power consumption
≤ 2 VA

Ambient operating environment
Temperature (housing incl. electronics)
32°F to 122°F (0°C to 50°C)
Humidity
0 to 95% RH (non-condensing)

Transport environment
Temperature
-13°F to +158°F (-25°C to +70°C)
Humidity
< 95% RH

CO₂
Measuring range
0-2000 ppm
Measuring accuracy at 68°F (20°C), 40% RH and 970 hPa
≤ ± (20 ppm + 1.5% measured value)

Temperature
Measuring range
32°F to 122°F (0°C to 50°C) (R2, R3) or
31°F to +95°F (-35°C to +35°C) (R1)
Measuring accuracy
59°F to 95°F (15°C to 35°C) ± 0.8 K
-31°F to +122°F (-35°C to +50°C) ± 1 K

RH (QPM2162 only)
Measuring range
0 to 100% RH
Measuring accuracy at 73°F (23°C) and 24 Vac
0-95% RH ±5% RH
30-70% RH ±3% RH (typically)

Temperature with QPM2160 and QPM2162
Measuring range
32°F to 122°F (0°C to 50°C) (R2, R3) or
31°F to +95°F (-35°C to +35°C) (R1)
Measuring elements
QPM2160 / PT1000
QPM2162 / NTC 10k ohm
Measuring accuracy
59°F to 95°F (15°C to 35°C) ± 0.8 K
-31°F to +122°F (-35°C to +50°C) ± 1 K

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
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<tbody>
<tr>
<td>Sensor, CO₂, Duct, 0-5 / 0-10 V, Sensing Only</td>
<td>QPM2100</td>
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<tr>
<td>Sensor, CO₂ and VOC, Duct, 0-5 / 0-10 V, Sensing Only</td>
<td>QPM2102</td>
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<tr>
<td>Sensor, CO₂ and VOC, Duct, 0-5 / 0-10 V, Sensing Only, LCD</td>
<td>QPM2102D</td>
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<tr>
<td>Sensor, CO₂ and Temp, Duct, 0-5 / 0-10 V, Sensing Only</td>
<td>QPM2160</td>
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<tr>
<td>Sensor, CO₂ and Temp, Duct, 0-5 / 0-10 V, Sensing Only, LCD</td>
<td>QPM2160D</td>
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<tr>
<td>Sensor, CO₂, Temp and RH, Duct, 0-5 / 0-10 V, Sensing Only</td>
<td>QPM2162</td>
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<td>QPM2162D</td>
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<td>QPM2180</td>
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Note: T passive includes Platinum 100, Platinum 1000, LG-Ni1000, NTC 10K sensing elements

March 2015 – Siemens Building Automation Products Catalog
Gas and Liquid Pressure Sensors – 7MF1565...

DESCRIPTION
The 7MF1565 Series Pressure Sensors are for use with liquids and gaseous media, and cover the full spectrum of pressure sensing requirements used in HVAC applications. The sensor measures the gauge and absolute pressure, as well as the level of liquid.

FEATURES
- High measuring accuracy
- Sturdy stainless steel housing
- For aggressive and non-aggressive media
- For measuring the pressure of liquids, gases and vapor
- Temperature-compensated measuring cell
- Compact design
Gas and Liquid Pressure Sensors – 7MF1565...

SPECIFICATIONS

Wetted materials
Ceramic/Viton

Process connection(s)
1/4” MNPT and 1/2” FNPT

Process temperature limits
22°F to +248°F (-30°C to 120°C)

Output signal
4-20 mA and 0-10 Vdc

Accuracy
0.25%

Temperature coefficient
0.5% per 18°F (-8°C)

Stability per year
0.5% per year

Power Supply

<table>
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<tr>
<th>Current output</th>
<th>Voltage output</th>
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<tbody>
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<td>DC 10...36 V</td>
<td>DC 15...36 V</td>
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ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Pressure Range (PSI)</th>
<th>Output Signal</th>
<th>Product Number</th>
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<tbody>
<tr>
<td>0 to 15 PSI</td>
<td>4-20 mA</td>
<td>7MF15654BB005EA1</td>
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<td></td>
<td>0-10 V</td>
<td>7MF15654BB105EA1</td>
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<tr>
<td>0 to 30 PSI</td>
<td>4-20 mA</td>
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<tr>
<td></td>
<td>0-10 V</td>
<td>7MF15654BE105EA1</td>
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<tr>
<td>0 to 60 PSI</td>
<td>4-20 mA</td>
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<td>0-10 V</td>
<td>7MF15654BF105EA1</td>
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<tr>
<td>0 to 100 PSI</td>
<td>4-20 mA</td>
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<td>0 to 300 PSI</td>
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<td>0-10 V</td>
<td>7MF15654CD105EA1</td>
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</table>
QBM Series – Air Differential Pressure Sensors

DESCRIPTION
The Siemens QBM Series Air Differential Pressure Sensors use a proven sensing technology to deliver accurate and repeatable data in applications that require monitoring of differential pressure.

FEATURES
- Loop powered 4 to 20 mA output signal
- Compact construction
- Integral mounting bracket and snap-on cover with a single screw for fast and easy installation
- Resettable zero point for different mounting positions
- Ultra-low susceptibility to temperature
- No mechanical aging

APPLICATIONS
QBM Series Differential Pressure Devices can be used in a wide range of HVAC and general building management applications where differential air pressure monitoring is required.

Typical applications for the QBE3100 include control of variable speed fans in VAV systems and monitoring of pressure differentials in clean room applications.
QBM Series – Air Differential Pressure Sensors

SPECIFICATIONS

Input Power
8 to 33 Vdc

Accuracy
±1% Full Scale

Maximum Pressure
TBD

Permitted Media
Air and other non-corrosive gases

Process/Ambient Operating Temp.
32°F to 160°F (0°C to 71°C)

Ambient Humidity
Non-condensing

Enclosure
Polycarbonate

Diaphragm
Silicone

Measuring Element
Ceramic

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Output Signal</th>
<th>Differential Pressure Range</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air DP Sensor</td>
<td>4-20 mA</td>
<td>-0.25 to +0.25 inches</td>
<td>QBM3100U025U</td>
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<tr>
<td></td>
<td>4-20 mA</td>
<td>0 to 1 inch</td>
<td>QBM3100U1</td>
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<tr>
<td></td>
<td>4-20 mA</td>
<td>0 to 2.5 inches</td>
<td>QBM3100U2.5</td>
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<tr>
<td></td>
<td>4-20 mA</td>
<td>0 to 5 inches</td>
<td>QBM3100U5</td>
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<td></td>
<td>4-20 mA</td>
<td>0 to 10 inches</td>
<td>QBM3100U10</td>
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</table>
QBE Series – Wet Differential Pressure Sensors

DESCRIPTION

QBE Series Wet Differential Pressure Sensors utilize a well-proven ceramic technology making them an ideal choice across a broad spectrum of applications. These sensors can be ordered individually or pre-assembled with an optional three-valve manifold.

FEATURES

– Loop powered 4 to 20 mA output signal
– Compatible with water and water/glycol mixtures
– Ultra-low susceptibility to temperature
– Maintenance free

APPLICATIONS

The QBE Sensor is particularly suitable for use in HVAC systems where continuous monitoring of flow rate or differential pressure across a control valve is required.
QBE Series – Wet Differential Pressure Sensors

SPECIFICATIONS

Input Power
7.5V to 33 Vdc

Output Signal
4 to 20 mA

Long-Term Stability
±0.5% Full Scale

Resolution
0.1% Full Scale

Suitable Process Media
Air, water, water and glycol mixtures

Process Temperature (Sensor)
5°F to 185°F (-15°C to 85°C)

Process Temperature (Manifold)
40°F to 185°F (5°C to 85°C)

Ambient Operating Temperature
5°F to 185°F (-15°C to 85°C)

Enclosure
IP65/NEMA 4

Electrical Connections
1/2” FNPT conduit (kit included for non-conduit installations)

Process Connections
1/4” FNPT

Mounting Orientation
Any orientation is allowable
(avoid orientations that may be susceptible to air pockets)

Maximum Working Pressure (Sensor)
540 PSIG

Maximum Working Pressure (Manifold)
250 PSIG

Manifold
Aluminum (6061-T6511)

Tubing
Copper (UNS C12200)

Fitting
Brass (C36000)

Valve Stem
High-performance thermoplastic polymer

O-rings
Ethylene Propylene Rubber (EPS, EPDM)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Output Signal</th>
<th>Differential Pressure Range</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet DP Sensor</td>
<td>4-20 mA</td>
<td>0-25 PSID</td>
<td>QBE3100UD25</td>
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<tr>
<td></td>
<td>4-20 mA</td>
<td>0-50 PSID</td>
<td>QBE3100UD50</td>
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<tr>
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<td>4-20 mA</td>
<td>0-100 PSID</td>
<td>QBE3100UD100</td>
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<tr>
<td>Wet DP Sensor with 3-Valve Manifold</td>
<td>4-20 mA</td>
<td>0-25 PSID</td>
<td>QBE3190UD25</td>
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<tr>
<td></td>
<td>4-20 mA</td>
<td>0-50 PSID</td>
<td>QBE3190UD50</td>
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<tr>
<td></td>
<td>4-20 mA</td>
<td>0-100 PSID</td>
<td>QBE3190UD100</td>
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</tbody>
</table>
Very Low Differential Pressure Transducer

DESCRIPTION

The Very Low Differential Pressure Transducers sense differential or gauge (static) pressures and convert pressure difference to a proportional electrical output. The 590 Series is offered with a 0-10 Vdc output.

Used in Building Energy Management Systems, these transducers are capable of measuring pressures with the accuracy necessary for proper building pressurization and airflow control.

The 590 Series Transducers are available in many different air pressure ranges. Static accuracy is in percentage of full scale in normal ambient temperature environments. The units are temperature compensated to less than ±0.033% FS/°F of thermal error over the temperature range of 0°F to +150°F. The 590 Series uses an improved all stainless steel micro-tig welded sensor.
Very Low Differential Pressure Transducer

SPECIFICATIONS

Environmental Data
Temperature
Operating*  
0°F to 150°F (-18°C to +65°C)
Storage  
-40°F to +185°F (-40°C to +85°C)

Physical Description
Case
Fire retardant glass filled polyester

Electrical Connection
Screw terminal strip

Pressure Fitting
1/4” fitting

Weight
3 ounces

Electrical Data (Voltage)
Circuit
3-Wire (Com, Out, Exc)

Excitation/Output**
12 to 30 Vac to 10 Vdc***

Bi-directional output at zero pressure
2.5 Vdc (±50 mV)

Output impedance
100 ohms

* Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher or lower.
** Calibrated into a 50k ohm load, operable into a 5000 ohm load or greater.
*** Zero output factory set to within ±50 mV (±25 mV) for optional accuracies.

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
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</thead>
<tbody>
<tr>
<td>Conduit Assembly Kit For Differential Pressure Sensors</td>
<td>590-500</td>
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<tr>
<td>Differential Pressure Sensor, 5” WC</td>
<td>590-501</td>
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<tr>
<td>Differential Pressure Sensor, 2” WC</td>
<td>590-502</td>
</tr>
<tr>
<td>Differential Pressure Sensor, 1” WC</td>
<td>590-503</td>
</tr>
<tr>
<td>Differential Pressure Sensor, ±0.25” WC</td>
<td>590-505</td>
</tr>
<tr>
<td>Differential Pressure Sensor in Conduit Box, 5” WC</td>
<td>590-506</td>
</tr>
<tr>
<td>Differential Pressure Sensor in Conduit Box, 2” WC</td>
<td>590-507</td>
</tr>
<tr>
<td>Differential Pressure Sensor in Conduit Box, 1” WC</td>
<td>590-508</td>
</tr>
<tr>
<td>Differential Pressure Sensor in Conduit Box, ±0.25” WC</td>
<td>590-510</td>
</tr>
<tr>
<td>Differential Pressure Sensor in Conduit Box, 0.4% FS, 1” WC, 4 to 20 mA</td>
<td>590-780</td>
</tr>
<tr>
<td>Differential Pressure Sensor in Conduit Box, 0.4% FS, 0.65” WC, 4 to 20 mA</td>
<td>590-781</td>
</tr>
<tr>
<td>Differential Pressure Sensor in Conduit Box, 0.4% FS, 0.5” WC, 4 to 20 mA</td>
<td>590-782</td>
</tr>
</tbody>
</table>

* No longer offered by Fall 2009
QVE1900U Flow Switch

DESCRIPTION

The QVE1900U Flow Switch is used in HVAC installations to monitor the flow of fluids in hydraulic systems, especially in refrigeration, heat pump and heating installations (for example, for use with condensers, boilers, heat exchangers, etc.).
QVE1900U Flow Switch

SPECIFICATIONS

Field of use
Suitable media
All liquids (not suitable for ammonia)

Piping diameter
1.25-inch to 8" (32 to 200)

Type of switch
Micro switch with single-pole changeover, potential free

Contact rating
24 Vac, 15 (8) A

Adjustment of switching point
manual, supplied with minimum switch-on/off values

Setting range
See Switching Value Table

Permissible medium temperature
-4°F to 248°F (-20°C to 120°C)
(medium must be antifreeze)

Permissible operating pressure
160 PSI

Protective data
Degree of protection
IP 65 per EN 60 529

Safety class
I per EN 60 730

Environmental conditions
General environmental conditions
Operation and storage
-4°F to 180°F (-20°C to 82°C)

Norms and standards
CE conformity to
Low-voltage directive 2006/95/EEC
Product norm EN 60335-1
UL UL 873 XAPX
cUL Canadian Standard C22.2 No. 24-93 XAPX7

Materials and colors
Housing base
Bayblend T85/color RAL 7015

Cover
ABS/color RAL 5007

Screw-in body R1"
Brass

Paddle
High-grade steel (V2A)

Flow switch, overall
Silicone-free

Weight Without packaging
16.0 (ounces) (0.454 kg)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Switch</td>
<td>QVE1900U</td>
</tr>
</tbody>
</table>
Air Velocity Sensor

DESCRIPTION
This sensor is used to control the air velocity to a constant value, or to balance out pressure fluctuations (supply or extract air control), or to monitor the flow in air ducts. It primarily is used for modulating fan control in primary plants to set the basic volume flow.

FEATURES
- Three measuring ranges are available: 0 to 16.4 ft/s (0 to 5 m/s), 0 to 32.8 ft/s (0 to 10 m/s), and 0 to 49.2 ft/s (0 to 15 m/s)
- Adjustable insertion dept to 12”
- Flex cable connection
Air Velocity Sensor

SPECIFICATIONS

Power supply
Operating voltage  AC 24 V ±20%
Frequency  50/60 Hz
Power consumption  ≤5 VA (max. 200 mA)

Measuring data
Measuring ranges, adjustable
0 to 16.4 ft/s (0 to 5 m/s)
0 to 32.8 ft/s (0 to 10 m/s)(factory setting)
0 to 49.2 ft/s (0 to 15 m/s)

Measuring accuracy at 20°C, 45% rh, 14.7 psi (1013 hPa)
0 to 16.4 ft/s (0 to 5 m/s: 0.2 m/s + 3% of measured value)
0 to 32.8 ft/s (0 to 10 m/s: 0.2 m/s + 3% of measured value)
0 to 49.2 ft/s (0 to 15 m/s: 0.2 m/s + 3% of measured value)

Permissible air velocity
65.6 ft/s (20 m/s)

Direction dependence
<0.3% of measured value at <± 68°F (10°C)

Time constant t90 at 32.8 ft/s (10 m/s)
ca. 4 s

Signal output U1
Voltage  DC 0 to 10 V or 4-20mA (selectable)
Current  1 mA

Line length
Perm. line length to controller
0.224” (0.6 mm) diameter copper cable: 164 ft (50 m)
~17 AWG (1 mm2) copper cable: 492 ft (150 m)
~16 AWG (1.5 mm2) copper cable: 984 ft (300 m)

Line length to the sensor head
3.28 ft (1 m, prewired)

Connections
Mechanical  Screw connection
Electric  Screw terminal, max. 2 x 16 AWG (2 x 1.5 mm²)

Degree of protection
Transducer:  IP 42
Sensor head:  IP 20

Environmental conditions
Operation
IEC 721-3-3
Temperature  -13°F to 122°F (-25°C to +50°C)
Humidity (non-condensing)  <95% rh

Storage
IEC 721-3-1
Temperature  -13°F to 122°F (-25°C to +50°C)
Humidity (non-condensing)  95% rh

Transport
IEC 721-3-2
Temperature  -13°F to +158°F (-25°C to +70°C)
Humidity (non-condensing)  95% rh

Materials and colours
Housing bottom  Polycarbonate, RAL 7001 (silver-grey)
Housing cover  Polycarbonate, RAL 7035 (light-grey)
Sensor pipes  Polycarbonate, RAL 7001 (silver-grey)
Sensor head, extension, end  Polycarbonate, RAL 7035 (light-grey)
Connecting flange  Polycarbonate, RAL 7001 (silver-grey)
Sensor, total  Silicon-free

Weight with packaging
0.78 lb (0.352 kg)

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
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<tbody>
<tr>
<td>Air velocity sensor</td>
<td>QVM62.1</td>
</tr>
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</table>
Electric to Pneumatic Transducer and Enclosures

DESCRIPTION

The electronic to pneumatic transducer converts an electronic signal into a linear pneumatic signal for the accurate positioning of valve and damper actuators typically used in heating and air conditioning systems.

The transducer is available in two different mounting styles: Remote Mount for mounting with its own integral enclosure and conduit connection; or Panel Mount for mounting in control cabinet applications. The transducer includes provisions for manual override and does not require calibration.
Electric to Pneumatic Transducer and Enclosures

SPECIFICATIONS

Supply Voltage
19 to 26 Vac (24 Vac typical)

Input Signal
0-10 Vdc (20k ohm input resistance)

Output Signal
0 to 20 psig (0 to 138 kPa)

Overall Dimensions
Remote Mount
4.25" H x 7.25" W x 3.06" D (108 mm x 184 mm x 78 mm)
Panel Mount
4.25" H x 5.75" W x 3.06" D (108 mm x 146 mm x 78 mm)

Air Supply Pressure
30 psig (207 kPa) max. safe pressure
(clean, dry, instrument air required)

Operating Temperature
32°F to 185°F (0°C to 85°C)

ORDERING INFORMATION

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<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
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<tbody>
<tr>
<td>AO-P Transducer – Remote Mount</td>
<td>545-208</td>
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<tr>
<td>AO-P Transducer – Panel Mount</td>
<td>545-113</td>
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</tbody>
</table>
MD-BMS and MD-BMED Model Power Meters

DESCRIPTION
Siemens Industry’s MD-BMS and MD-BMED Model Power Meters are submetering devices designed to provide real time, accurate electricity metering to enable proper control over energy costs. The meter can capture kWh/kW energy and demand data, as well as virtually all relevant energy parameters for diagnostics and monitoring on three-phase or single-phase circuit installations. The meters’ flexibility, size, and ease-of-use make them ideal tools for gathering detailed consumption information in commercial, industrial, governmental, and retail environments.

The meters use direct connections to each phase of the voltage and various interchangeable current transformer (CT) options such as split-core CTs or flexible Rogowski Coils (for large loads or large cables and bussbars) to monitor current on each phase. All of Siemens’ current transformers are internally shunted for intrinsically safe operation on energized conductors.

The power meters make over 75 total electrical measurements which are derived from the voltage and current inputs. Electrical load diagnostic parameters such as power factor and line frequency are captured in addition to energy and demand values.

The Siemens MD-BMS and MD-BMED Power Meters require no external power and the power supplies can accommodate service voltages ranging from 80 to 600V (phase-to-phase). The simple installation is accomplished by connecting the color-coded voltage leads and clearly labeled CTs. A three-LED indicator display confirms proper CT-to-phase installation. The meters automatically adjust for CT orientation—greatly reducing set-up time and all but eliminating installation errors.

The display model (MD-BMED), features an integrated 2 × 16-character backlit display which cycles through key configuration data along with voltage, current, power, and power factor, by phases.

FEATURES
- Communications flexibility to integrate with most control systems, utilizing RS485 BACnet MS/TP or Modbus RTU. MD-BMED model adds Ethernet BACnet IP or Modbus TCP capability.
- Measures over 75 electrical parameters on single- and three-phase electrical systems.
- Bundled meter and three CTs with ranges from 100 Amps to 4000 Amp Rogowski Coils.
- ANSI C12.20-2010 Class 0.2 accuracy supports submetering and cost allocation applications.
- Direct connection up to 600V line-to-line eliminates need for separate power transformers.
- New USB port allows for meter data monitoring to support startup or servicing.
- MD-BMED model supports backlit LCD display.
- One digital pulse output port for energy monitoring.
- UL, cUL and CE Mark
- Siemens MD-BMS and MD-BMED Model Power Meters use interchangeable CT options such as split-core or flexible Rogowski-style CTs. The meters have embedded Rogowski Coil CT amplifier/integrator circuitry, so there is no need to provide external power to the CTs.
- Advanced configuration can be completed by using ViewPoint™ software (obtained from your Siemens office).
- Up to 20+ meters can be connected to a single RS-485 network for monitoring and recording power usage at multiple locations within a single site.

APPLICATIONS
- Tenant submetering
- Data Center monitoring
- Commercial
- Retail
- Industrial Power Reporting
MD-BMS and MD-BMED Model Power Meters

SPECIFICATIONS

Technical

Service types
Single Phase, Three Phase-Four Wire (WYE), Three Phase-Three Wire (Delta)

Meter Power
From L1 Phase to L2 Phase, 80 to 600 Vac CAT III 50/60 Hz, 90 mA maximum. Non-user replaceable 0.5A internal fuse protection

3 Voltage channels
80 to 346V AC Line-to-Neutral, 600V Line-to-Line, CAT III

Current channels
3 channels, 0.525 VAC max, 333 mV CTs, 0 to 4,000+ Amps, depending on current transducer.

Maximum current input
158% of current transducer rating (mv CTs) to maintain accuracy. Measure up to 4000 Amps RoCoil CTs.

Measurement rating
True RMS using high-speed digital signal processing (DSP)

Line frequency
50/60 Hz

Waveform sampling
12 kHz voltage and current

Parameter update rate
5 seconds

Measurements
Volts, Amps, kW, kVAR, kVARh, kVA, kVAh, and Power Factor (PF). Many parameters for each phase and for system total.

Accuracy
Rated to ANSI, C12-20-2010 Class 0.2. Better than 0.2% (<0.1% typical) for V, A, kW, kVAR, kVA, and PF, excluding sensor

Resolution
0.01 Amp, 0.1 Volt, 0.01 watt, 0.01 VAR, 0.01 VA, 0.01 Power Factor depending on scalar setting

LED indicators
Bi-color LEDs (red and green): 1 LED to indicate communication, 3 LEDs for correct phasing (PhaseChek: Green when voltage and current are on the same phase; Red when incorrectly wired.) Pulse output LED.

Pulse output
Open Collector, 5 mA maximum current, 30V maximum open voltage. Optically isolated.

Digital Display (MD-BMED only)
Optional 2 x 16-character display, which auto-cycles between data screens every 2 to 3 sec, with real-time values updated every second.

Communications

RS-485 data format (all models)
BACnet MS/TP (default) or Modbus RTU protocol over a RS-485 Network. BACnet Testing Labs certified smart sensor (B-SS).

Ethernet data format (MD-BMED only)
BACnet IP or Modbus TCP, all IP settings set with ViewPoint software. (MD-BMED only)

Baud rates
Modbus: 9600 (default), 19200, 38400, 57600, 76800,
BACnet: 9600, 19200, 38400, 76800 (default)

Data bits
8

Parity
None, Even, Odd

Stop bit
1, 2

Mechanical

Operating temperature
20°F to 140°F (-7°C to 60°C)

Humidity
5% to 95% non-condensing

Enclosure
ABS Plastic, 94-V0 flammability rating

Weight
12 ounces (340 g) exclusive of CTs

Dimensions
9.5” × 3.3” × 1.6” (24.2 cm × 8.5 cm × 4.0 cm)

Color
Dark blue, PMS289

Ingress Protection (IP Rating)
IP20

DIN rail compatibility
Compatible with TS35/7 DIN Rail Channel
MD-BMS and MD-BMED Model Power Meters

SPECIFICATIONS (Continued)

**ViewPoint Software**

**Operating system**
Windows® 8, Windows® 7 (32/64-bit), Windows® Vista (32/64 bit) or Windows® XP

**Communications port**
One USB port and type "AB" cable required.

**Hard drive**
50 MB minimum available

**Processor**
Pentium Class 1 GHz or better recommended.

**Note:** Contact your Siemens Representative to download free ViewPoint Service Software

**Safety**

**Certifications**
UL Listed to UL Standard 61010-1
IEC 61010-2-030
cUL certified to CAN/CSA Standard C22.2 No. 61010-1
Certified to CSA Std. C22.2, No. 61010-1

**CE Conformity**
CE Low Voltage and EMC Directives

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
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<tbody>
<tr>
<td><strong>MD-BMS Power Meter Bundled Kits</strong></td>
<td></td>
</tr>
<tr>
<td>Meter bundled with three 100-Amp, 333mV midi hinged CTs with 1” window</td>
<td>MD-BMS-3-CTSC-100A</td>
</tr>
<tr>
<td>Meter bundled with three 200-Amp, 333mV midi hinged CTs with 1” window</td>
<td>MD-BMS-3-CTSC-200A</td>
</tr>
<tr>
<td>Meter bundled with three 400-Amp, 333mV medium split-core CTs with 1.25” window</td>
<td>MD-BMS-3-CTSC-400A</td>
</tr>
<tr>
<td>Meter bundled with three 600-Amp, 333mV large split-core CTs with 2” window</td>
<td>MD-BMS-3-CTSC-600A</td>
</tr>
<tr>
<td>Meter bundled with three 4000-Amp, 131mV 16” Rogowski coils with 5” diameter window</td>
<td>MD-BMS-3-RC-16</td>
</tr>
<tr>
<td>Meter bundled with three 4000-Amp, 131mV 36” Rogowski coils with 10.4” diameter window</td>
<td>MD-BMS-3-RC-36</td>
</tr>
<tr>
<td><strong>MD-BMED Power Meter, with Ethernet and Backlit Display, Bundled Kits</strong></td>
<td></td>
</tr>
<tr>
<td>Meter bundled with three 100-Amp, 333mV midi hinged CTs with 1” window</td>
<td>MD-BMED-3-CTSC-100</td>
</tr>
<tr>
<td>Meter bundled with three 200-Amp, 333mV midi hinged CTs with 1” window</td>
<td>MD-BMED-3-CTSC-200</td>
</tr>
<tr>
<td>Meter bundled with three 400-Amp, 333mV medium split-core CTs with 1.25” window</td>
<td>MD-BMED-3-CTSC-400</td>
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<tr>
<td>Meter bundled with three 600-Amp, 333mV large split-core CTs with 2” window</td>
<td>MD-BMED-3-CTSC-600</td>
</tr>
<tr>
<td>Meter bundled with three 4000-Amp, 131mV 16” Rogowski coils with 5” diameter window</td>
<td>MD-BMED-3-RC-16</td>
</tr>
<tr>
<td>Meter bundled with three 4000-Amp, 131mV 36” Rogowski coils with 10.4” diameter window</td>
<td>MD-BMED-3-RC-36</td>
</tr>
</tbody>
</table>
EASY ORDERING

• By phone, fax or email
  Our knowledgeable customer support teams can assist you with questions about products, ordering, fulfillment, and shipping information.

  Call us at 1-800-516-9964 from 7 am to 5:30 pm (CST) Monday through Friday.

  Fax 877-765-4295
  We’ll send an order confirmation to let you know that your fax was received.

  Send an email to your dedicated Customer Service professional.

• Online 24/7
  An exclusive site that only Siemens Partners can access! Quickly get the Siemens control products and systems you rely on.
  www.usa.siemens.com/buildingtechnologiesonlineordering
Rogowski Coil Flexible Current Transformers

DESCRIPTION
Siemens Industry's Rogowski Coil Flexible Current Transformers have been designed for accurate, non-intrusive measurement of AC current, pulsed DC or distorted waveforms. This type of sensor may be used to measure AC current over a wide dynamic range and from 40 Hz to 5 kHz.

Note:
The Rogowski Coil may require use of an integrator/amplifier.

FEATURES
- Available in two lengths: 16-inch (40 cm) and 36-inch (90 cm)
- Available with two window sizes: 5-inch (13 cm) and 10-inch (26 cm)
- Accuracy is 1.2%*
- 131 mVAC/1000A @ 60Hz/110 mVAC/1000A @ 50 Hz
- May be used with Siemens BACnet/Modbus Energy Meter

* Rogowski Coil CTs is UL rated to 100 KA AC. The Siemens MD meter is rated for 50 to 4000A.

APPLICATIONS
May be used with Siemens BACnet/Modbus Energy Meter.

Note:
Rogowski Coil Current Transformers are sold as a kit consisting of three coils and a MD Power Meter. Please refer to pages 4-65 for kit ordering information.
Rogowski Coil Flexible Current Transformer

SPECIFICATIONS

**Electrical**
(All accuracies specified at 20°C [± 2°C] with Rogowski Coil resting on the conductor at 180° from the locking connector.)

**Output Signal**
131 mV/1000A @ 60 Hz
110 mV/1000A @ 50 Hz

**Current Range**
5 to 4000A AC

**Wire Colors**
White = (+) positive
Brown = (-) negative
Bare wire = shield

**Phasing**
Arrow points towards load

**Frequency Range**
20 Hz to 5 Hz

**Linearity**
± 0.2%

**Conductor Position Sensitivity**
± 2% maximum

**Influence of External Field**
± 1.5% maximum

**Temperature Sensitivity**
0.07% per °C

**Phase Error**
< -0.5°

**Ratio Error**
< 0.5%

**Mechanical**

**Coil Materials**
Blue thermoplastic rubber, flame-retardant
UL 94 V-0 rated

**Coupling Materials**
Polypropylene UL 94 V-0 rated

**Shielding**
85% transducer, 100% output lead

**Operating temperature**
-4°F to 176°F (-20°C to 80°C)

**Safety**

**Working Voltage**
1000 Vrms, maximum

**Dielectric Strength**
7400 Vac around coil
1000 Vac rated leads

**Certifications**
UL Recognized to UL Standard 61010-1
CUL Recognized to CAN/CSA Standard C22.2 No 61010-1

**CE Conformity**
CE Low Voltage Directive 2006/95/EC

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>16” Rogowski Coil Current Transformer (5” opening)</td>
<td>SCT-R16-A4-U</td>
</tr>
<tr>
<td>24” Rogowski Coil Current Transformer (7” opening)</td>
<td>SCT-R24-A4-U</td>
</tr>
<tr>
<td>36” Rogowski Coil Current Transformer (10.5” opening)</td>
<td>SCT-R36-A4-U</td>
</tr>
</tbody>
</table>

1 Included in MD Model Meter Kit numbers MD-xxx-3-RC-16.
2 Included in MD Model Meter Kit numbers MD-xxx-3-RC-36.
Split-Core Current Transformers
Small, Medium and Large Sizes

DESCRIPTION
Siemens Split-Core Current Transformers (CTs) provide linear output voltage that is directly proportional to the input current. These transformers are safely and easily installed over existing electrical power lines without disconnecting the lines or interrupting service.

Siemens energy monitoring components are used for a variety of applications including building automation, tenant submetering, performance verification, energy management, and new technology assessment. These devices are targeted for use with the Siemens MD Series Power Meters.

FEATURES
– Available with three window sizes:
  - Small: 0.75" (1.9 cm)
  - Medium: 1.25" (3.2 cm)
  - Large: 2.0" (5.1 cm)

– Available in six current ranges:
  - Model | Current Range
  - 50A, Small | 5 to 65A AC
  - 100A, Small | 2 to 130A AC
  - 100A, Medium | 5 to 130A AC
  - 200A, Medium | 4 to 260A AC
  - 400A, Medium | 8 to 520A AC
  - 600A, Medium | 12 to 780A AC
  - 600A, Large | 30 to 780A AC
  - 1000A, Large | 20 to 1300A AC

– Output: 333 mV at rated current

APPLICATIONS
CTs designed to work with MD Series Power Metering units. Please refer to page 4-65 for kit ordering information.
Split-Core Current Transformers
Small, Medium and Large Sizes

SPECIFICATIONS

Electrical
Output Signal
333 mV at rated current

Wire Colors
White = (+) Hi, positive
Black = (-) Low, negative

Frequency Range
50 Hz to 400 Hz

Phasing Orientation
Arrow points towards load

Ratio Error
<1% at rated current (typical)

Phase Error
<2° at rated current (typical)

Mechanical
Case Material
Epoxy encapsulated housing

Leads
8 feet (2.7 m), twisted pair, 20 AWG

Operating temperature
Maximum 105°F (220°C)

Weight
SCS 4.8 oz (136 g)
SCM 12.0 oz (340 g)
SCL 26.0 oz (748 g)

Safety
Working Voltage
600 Vac, Category III

Dielectric Strength
5000 Vac around case
600 Vac rated leads

Certifications
ETL certified to UL Standard 61010-1
cETL certified to CAN/CSA Standard C22.2 No. 61010-1

CE Conformity
CE Low Voltage Directive 2006/95/EC

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Product Number</th>
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<tbody>
<tr>
<td>Small Split-Core CT; 0.75” (19 mm) Opening; 50A</td>
<td>SCT-SCS-0050-U</td>
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<tr>
<td>Small Split-Core CT; 0.75” (19 mm) Opening; 100A</td>
<td>SCT-SCS-0100-U</td>
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<tr>
<td>Medium Split-Core CT; 1.25” (32 mm) Opening; 100A</td>
<td>SCT-SCM-0100-U</td>
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<tr>
<td>Medium Split-Core CT; 1.25” (32 mm) Opening; 200A</td>
<td>SCT-SCM-0200-U</td>
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<tr>
<td>Medium Split-Core CT; 1.25” (32 mm) Opening; 400A</td>
<td>SCT-SCM-0400-U</td>
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<tr>
<td>Medium Split-Core CT; 1.25” (32 mm) Opening; 600A</td>
<td>SCT-SCM-0600-U</td>
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<tr>
<td>Large Split-Core CT; 2.00” (51 mm) Opening; 600A</td>
<td>SCT-SCL-0600-U</td>
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<tr>
<td>Large Split-Core CT; 2.00” (51 mm) Opening; 1000A</td>
<td>SCT-SCL-1000-U</td>
</tr>
</tbody>
</table>

1 Included in MD Model Power Meter Kit numbers MD-xxx-3-CTSC-400A.
2 Included in MD Model Power Meter Kit numbers MD-xxx-3-CTSC-600A.
Midi and Mini Hinged Split-Core Current Transformer

DESCRIPTION
Siemens Midi and Mini Hinged Split-Core Current Transformers (CTs) are small, low-cost devices with high accuracy over a wide dynamic range with excellent phase shift. These current transformers are ideal where space is limited such as when metering multiple loads within a panel board. Use for current measurement, energy metering, load surveys, demand metering, energy research, and sub-metering. These devices are targeted for use with the Siemens MD Series Power Meters.

APPLICATIONS
For use with MD Series Power Meters. Please refer to page 4-65 for kit ordering information.

FEATURES
- Window sizes:
  0.4" (10 mm) for 50A (Mini)
  1.0" (25 mm) for 100A, 200A (Midi)
- Available in three current ranges*:
  0.25 to 80A AC (for 50A)
  1.0 to 200A AC (for 100A)
  1.0 to 300A AC (for 200A)
- Output:
  333 mV @ 50A AC (6.66 mV/A AC) (for 50A)
  333 mV @ 100A AC (3.33 mV/A AC) (for 100A)
  333 mV @ 200A AC (1.67 mV/A AC) (for 200A)
- Ratio Error:
  <0.5% from 1.0A to 80A AC (typical) (for 50A)
  <0.3% from 1.0A to 200A AC (typical) (for 100A)
  <1.0% from 1.0A to 300A AC (typical) (for 200A)
- Phase Error:
  <1.5° from 1.0A to 80A AC (for 50A)
  <2° from 0.2A to 1A AC (for 50A)
  <0.5° from 1.0A to 200A AC (for 100A)
  <0.5° from 1.0A to 300A AC (for 200A)

*May depend on meter compatibility. See associated Meter Specifications for details.
Midi and Mini Hinged Split-Core Current Transformer

SPECIFICATIONS

Electrical

Output Signal
333 mV @ rated current

Wire Colors
White = (+) Hi, positive
Black = (-) Low, negative

Phasing Orientation
Arrow on case points towards load

Frequency Range
50 Hz to 400 Hz

Mechanical

Case Material
White Nylon, UL 94 V-0

Leads
8 feet (2.4 m), 600V, 20 AWG, crimp ferrules on leads

Operating temperature
5°F to 140°F (-15°C to 60°C)

Storage Temperature
-4°F to 185°F (-20°C to 85°C)

Weight
Mini 3.2 oz (91 g)
Midi 7.8 oz (221 g)

Safety

Working Voltage
600 Vac, Category III

Dielectric Strength 100A, 200A
5200 Vac for 1 minute

Certifications
UL Recognized to UL Standard 61010-1
UL certified to CAN/CSA Standard C22.2 No. 61010-1

CE Conformity
CE Low Voltage Directive 2006/95/EC

ORDERING INFORMATION

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<tr>
<th>Description</th>
<th>Product Number</th>
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<tbody>
<tr>
<td>Mini Hinged Split-Core Current Transformer, 0.4&quot; (10 mm) Opening; 50A</td>
<td>SCT-HSC-0050-U</td>
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<tr>
<td>Midi Hinged Split-Core Current Transformer, 1&quot; (25 mm) Opening; 100A</td>
<td>SCT-HMC-0100-U</td>
</tr>
<tr>
<td>Midi Hinged Split-Core Current Transformer, 1&quot; (25 mm) Opening; 200A</td>
<td>SCT-HMC-0200-U</td>
</tr>
</tbody>
</table>

1 Included in MD Model Meter Kit numbers MD-xxx-3-CTSC-100A.
2 Included in MD Model Meter Kit numbers MD-xxx-3-CTSC-200A.
Notes:
Notes:
Check out our HVAC Components and Controls Catalog.

Explore our product offering and you’ll see why you should specify Siemens.

Siemens offers the broadest range of HVAC valves, actuators, sensors, thermostats, controllers, and variable frequency drives in the industry.

Featuring BT300™ Variable Frequency Drives with Optional Bypass
Latest technology with world class quality and reliability, designed to handle today’s demanding HVAC environments.

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• Increased up-time with drive’s real-time diagnostic alert function
• Flexibility and easy network integration with today’s open protocols, including BACnet
• Control a wide range of HVAC applications, driving up to 250 hp
• Helps ensure that equipment at mission critical facilities runs continuously and efficiently, with BT300 VFD Bypass options

> To learn more, please visit www.usa.siemens.com/hvac

> Download a copy of the catalog today at www.usa.siemens.com/hvac