

Desigo™ TRA

Fume Hood Operating Display - Thin and Flush Mount

QMX3.P88...



Fume hoods operating display with thin side rails based on KNX PL-Link.

- OLED display for volume flow setpoint, face velocity setpoint and alarms
- Alarm and warning notifications
- Silence alarm button
- Multiple operator selectable setpoints
- Scheduler override
- Control of fume hood light
- Energy Efficiency function "Green Leaf"
- Interface KNX PL-Link (for TRA, with plug & play functionality)
- Powered by KNX PL-Link
- Optional battery backup for power loss






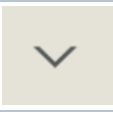
Features





- Digital display of face velocity in meters per second (mps) or feet per minute (Fpm)
- Digital display of exhaust airflow in cubic meters per hour (m³/h), cubic feet per minute (cfm) and liters per second (l/s)
- Green, yellow and red LED status lights
- Alarm horn with dedicated silence alarm button

Use

The Fume hood operating display (QMX3.P88...) includes a custom designed package for visual and audible indication of fume hood operating conditions and push-buttons for fume hood setpoint operation, alarm silence and a schedule override function. The panel is mounted on the fume hood in an easily accessible location. Two operating displays are supported per fume hood controller.

Functions

Visual Indicators	Meaning	Action
	Alarm Bell <ul style="list-style-type: none"> • High airflow alarm • Low airflow alarm • Emergency purge • Airflow measuring or sash measuring device failure • Fume hood has been decommissioned • Fire • High exhaust air temperature 	Follow lab safety procedures
	Warning Solid yellow <ul style="list-style-type: none"> • High air low warning • Low airflow warning • Sash open above maximum operating position • Stabilizing jet fan failure Flashing yellow <ul style="list-style-type: none"> • Fume hood use for lab room exceeded 	Follow lab safety procedures for high airflow warning indication Follow lab safety procedures for low airflow warning indication Close sash to safe a operating position Follow lab safety procedures for stabilizing jet fan failure Close fume hood sash to reduce fume hood exhaust
	Safe Mode Solid green <ul style="list-style-type: none"> • Normal operation, no alarms or warnings present Flashing green <ul style="list-style-type: none"> • Pending change to Low air volume flow mode • Fume hood is operating in Low airflow mode, no alarms or warning present 	None Follow lab safety procedures
	Buzzer Off Mutes audible alarm	None
	Airflow Cycle Up Cycles operating modes	None
	Airflow Cycle Down Cycles operating modes	None

Visual Indicators	Meaning	Action
	Information Switches between display pages: <ul style="list-style-type: none"> alarm condition real (average) value for exhaust volume setpoint value for exhaust volume real (average) value for face velocity setpoint value for face velocity real (average) pressure value 	None
	Manual Mode Keeps fume hood in occupied state	None
	Green Leaf Green LED <ul style="list-style-type: none"> Fume hood is operating efficiently Red LED <ul style="list-style-type: none"> Action required 	Press Green leaf button to return to energy efficient operation
	Fume Hood Light Turns on the fume hood light	None

Audible Information	Meaning	Action
Constant buzz	High airflow alarm Low airflow alarm Emergency purge Airflow measuring or sash measuring device failure Fire	Follow lab safety procedures
Long buzz	Sash open above maximum operating position	Close sash to safe operating position
Short buzz	Pending change to Low air volume flow mode	Follow lab safety procedures
Five buzz/minute	Sash opening alert	Close fume hood sash to reduce fume hood exhaust

Technical design

Mechanical design

The unit always communicates as a KNX PL-Link device. Up to two operator display units can be connected to the same controller.

The operator display unit features an optional battery charging circuit to charge the battery during normal operation.

The operating and display unit can perform the following functions without a controller:

- Monitoring of the communication to the controller. The green and yellow LEDs go off in the event of communication failure. The red alarm LED is activated.
- Emergency alarm flashing in the event of power failure (with a separately connected 9V rechargeable NiMH battery).

Note: Do not replace with a standard 9V battery, leakage or corrosion will occur.

Components

The operating and display unit is made up of the following two components:

- A high-quality aluminum front panel with an affixed sealed keypad and screwed-on printed circuit board.
- A plastic cover for surface-mounted units and for protection of the electronic circuitry (the cover can be omitted in certain cases of in-wall mounting).
- "Green Leaf" energy efficiency function.
- Three ring indicating lights (5 LEDs each).
- Seven push buttons to support light switch, horn silence, setpoint adjustment and manual mode.
- Display field with backlighting.
- Alarm buzzer.

The details of the functions of the elements are specified by the application of the connected controller.

Type summary

Type	Stock number	Designation
QMX3.P88	QMX3.P88-1WSC	Fume hood operating display – thin and flush mounted

Delivery

The following items are packaged with product:

- Installation instructions
- Installation accessories (2 pcs)
- Screws (6 pcs)

Product documentation


Topic	Title	Document ID:
Installation, mounting	Installation Instruction	A6V10859253
Engineering and commissioning, workflow	ABT online help	n.a.
Commissioning	User's guide: Setup & Service Assistant (SSA)	CA111050

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:

<http://siemens.com/bt/download>

Notes

Security

	▲ CAUTION
	National safety regulations Failure to comply with national safety regulations may result in personal injury and property damage <ul style="list-style-type: none">• Observe national provisions and comply with the appropriate safety regulations.

Fume hood automation

The slim design of the operator display unit enables it to be mounted in a laboratory fume hood post or in a door frame.

The unit complies with the requirements for a fume hood operating device (see Conformity). Volume flow control, monitoring and light control can be implemented and automated for a fume hood together with a fume hood controller.

Flexible use

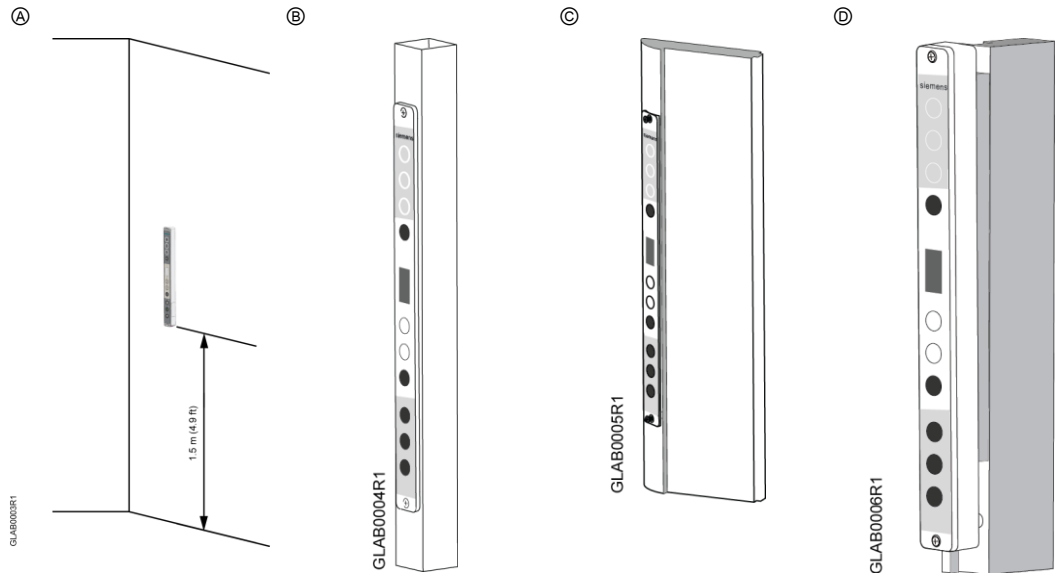
The functionality of the buttons, LEDs and alarm buzzer is defined by the application in the controller that controls the operator display unit. This ensures that the unit can be flexibly used.

Mounting

The operating and display unit is used for fume hood and room automation. It can be mounted on a surface or in the wall. The back cover can be removed and is not needed in the case of in-wall mounting.

Mounting options

See the QMX3.P88-1WSC installation instruction (A6V10859253) for detailed information.



Installation

- For KNX PL-Link wiring (topology, allowed cables and cable length), see the Desigo TRA installation guide, CM111043.
- Use the correct cables for the KNX PL-Link bus
- Do not interchange the wires of the KNX PL-Link cable. – The red terminal is for KNX PL-Link + – The gray terminal is for KNX PL-Link –
- Observe all local installation regulations.

	⚠ CAUTION
	The devices are not protected against accidental connection to AC 230 V.

The fume hood operating display unit is optically and functionally divided into the three following sections:

- Monitoring and alarms
- Local operation
- Universal functions

Monitoring and alarms

The functions described are examples and application dependent.



The monitoring and alarms section comprises of three LED rings, 1 alarm buzzer and 1 button with its own LED.

The Alarm LED ring is divided into 2 groups.

The Warning and Safe mode LED rings have one group each.

These can be controlled separately from one another.

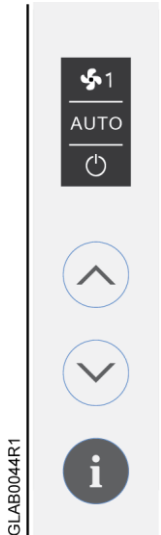
- Alarm = Red LEDs, symbol: alarm bell
- Warning = Yellow LEDs, symbol: exclamation mark in a warning triangle
- Safe mode = Green LEDs, symbol: OK

The LED rings can be switched on permanently, flash briefly or flash continuously.

The alarm buzzer can emit an acoustic signal. The signal can be switched on permanently or switched on and off in intervals.

The button with the symbol of an alarm horn with strike-through line is provided for muting the alarm buzzer in alarm cases.

Local Operation



The local operation section comprises one display that shows the operating mode and 3 buttons.

The OLED indicates setpoint and current values as well as alarm icons to the user or technical staff. It facilitates function checks.

Two buttons with arrow symbols for up and down are available for switching between the setpoint selection. The laboratory fume hood controller enables the user to block individual setpoint selection for local configuration.

The button with the i symbol allows switching between display values: real exhaust volume, exhaust volume setpoint, real face velocity or face velocity setpoint.

Universal Functions



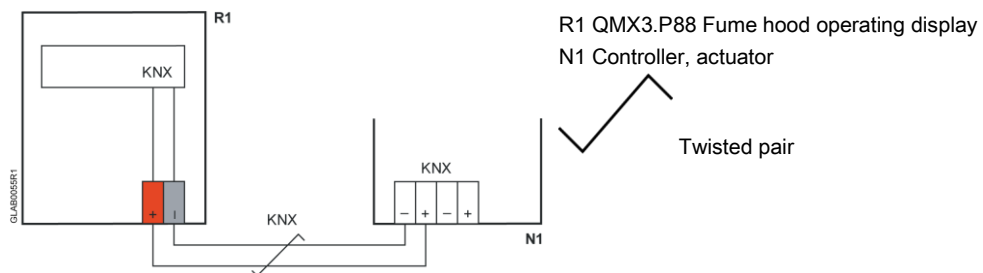
The universal functions section comprises of three buttons.

The button with the hand symbol allows switching between manual override or normal operation of the schedule.

The LED next to the button with the leaf symbol indicates efficient operation when the leaf is green and turns red when operation is not optimal. The button will return the fume hood to energy efficient operation.

The button with the light bulb turns the fume hood light on or off.

Connecting KNX

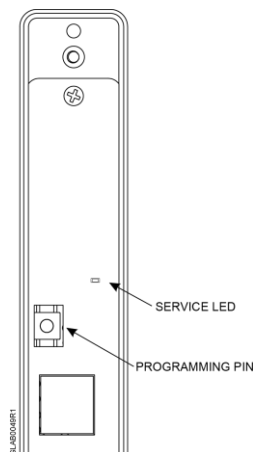


Note

The device is protected against faulty wiring but communications will not work on interchanged wires.

Commissioning KNX

When only one device is connected to the KNX PL-Link bus, the operator display panel automatically establishes communications with the Fume hood controller, from where the functions are downloaded to the room operator unit (plug & play).



Addressing:

1. Short press the programming pin (<0.5 sec).
The device goes into programming mode; the service LED is continuously on.
The tool identifies the current operator display panel that is operated and assigns it.
2. After the device is commissioned, deactivate the programming mode by shortly pressing the programming pin (<0.5 s). The service LED goes off.

Note: Programming mode resets to "disabled" each time the device restarts.

Factory reset:

1. Long press the programming pin (>20 s). The device is locked and reboots within 10 seconds. The Fume hood controller deletes it from its device list. During this time, it is safe to remove the device from the network.
If the bus plug remains connected, the device acts like a newly inserted device requiring again automated or manual configuration.

Note: This operation resets all user preference data and configuration settings to factory default. This operation is irreversible.

Disposal



The device is considered an electronics device for disposal in terms of European Directive 2012/19/EU and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Warranty

Technical data on specific applications are valid only together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

Dimensions and Weight	
Dimensions	280mm x 30mm x 26mm (11.02in x 1.18in x 1.02in)
Weight	105 g (3.7 oz.)

Specifications	
Face Velocity Display Range	0 ...3937 Fpm (0.01 ... 20 m/s)
Face Velocity Display Resolution	1 fpm adjustable up to 255 fpm (0.01 m/s)
Exhaust Air Volume Flow Display Range	0 ...126400 cfm (0 ...214748 m³/h)
Exhaust Air Volume Flow Display Resolution	1 cfm, adjustable (1 m³/h)
Push-Buttons/Switch inputs	1 Horn Silence 3 Local Operation 3 Universal Functions
Alarm Horn	85 dB @ 10 cm (4 in)

Power supply

Power supply	
Supply voltage	Operating voltage range KNX / PL-Link 21...30 VDC
Power consumption	Max 8 mA at DC 24 V
Optional Backup battery	Nickel Metal Hydride (NiMH) Operating voltage: 7...9.5V Operating temp: -10 ...50°C (-14...122°F) Rated capacity: 170 mAh

Interfaces

Interfaces	
KNX PL-Link	Type: KNX TP1, galvanic isolation. Baud rate: 9.6 kbps. Short-circuit proof. Protection against faulty wiring at max.

Wiring connections

Wiring connections	
Connector socket	2-pin PL-Link connector
Cable type	TP-1 Twisted Pair Min. 0.8 mm (AWG20) Max. 1.0 mm (AWG18)
Slotted screws	Size 1, tightening torque 0.6 Nm (0.44 lb-ft).
Wiring lengths for signals.	KNX PL-Link 80 m (262.5 ft) with internal bus power or 300 m (984.3 ft) with external power supply.

Environmental compatibility

Ambient conditions and protection classification	
Classification as per EN 60730 Function of automatic control devices Degree of contamination Overvoltage category	Type 1 2 III.
Design type	Device suited for use with equipment of safety class III.
Degree of protection of housing to EN 60529	IP20 (integrated) IP40
Climatic ambient conditions <ul style="list-style-type: none"> Transport (packaged for transport) as per EN 60721-3-2 Operation as per EN 60721-3-3. 	<ul style="list-style-type: none"> Class 2K3 Temperature -20...60 °C (-4... 140°F) Air humidity < 85%. Class 3K5 Temperature 0...45 °C (32... 113°F) Air humidity < 85%.
Mechanical ambient conditions Transport as per EN 60721-3-2 Operation as per EN 60721-3-3	Class 2M2. Class 3M2.

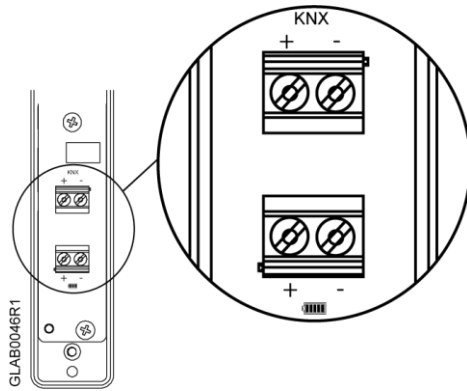
Standards, directives and approvals	
Product standard - Automatic electrical controls for household and similar use	IEC/UL/EN 60730-1 , part H.23 Emission and H.26 Immunity
Product Standard - General requirements for Home and Building Electronic Systems (HBES)	EN 50491-5-1, EN 50491-5-2, EN 50491-5-3
Electromagnetic compatibility – generic immunity standard, Industrial environment	Immunity IEC/EN 61000-6-2
Electromagnetic compatibility – generic emission standard, Domestic, commercial, light industry.	Emission IEC/EN 61000-6-3
EU conformity (CE)	DoC Document number: A5W90001444
EAC compliance	Eurasien compliance for all QMX3.P... variants
RCM conformity	AS/NZS 61000-6-3 : 2012 DoC Document number: A5W90001445
UL Approbation	UL 916 PAZX Energy Management Equipment, http://database.ul.com
Federal Communications Commission*	FCC CFR 47 Part 15 Subpart B Class B
CSA and cUL	C22.2 No. 205 Signal Equipment
ICES-003	CAN ICES-3 (B) / NMB-3 (B)
Environmental compatibility	The product environmental declaration contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).


* This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

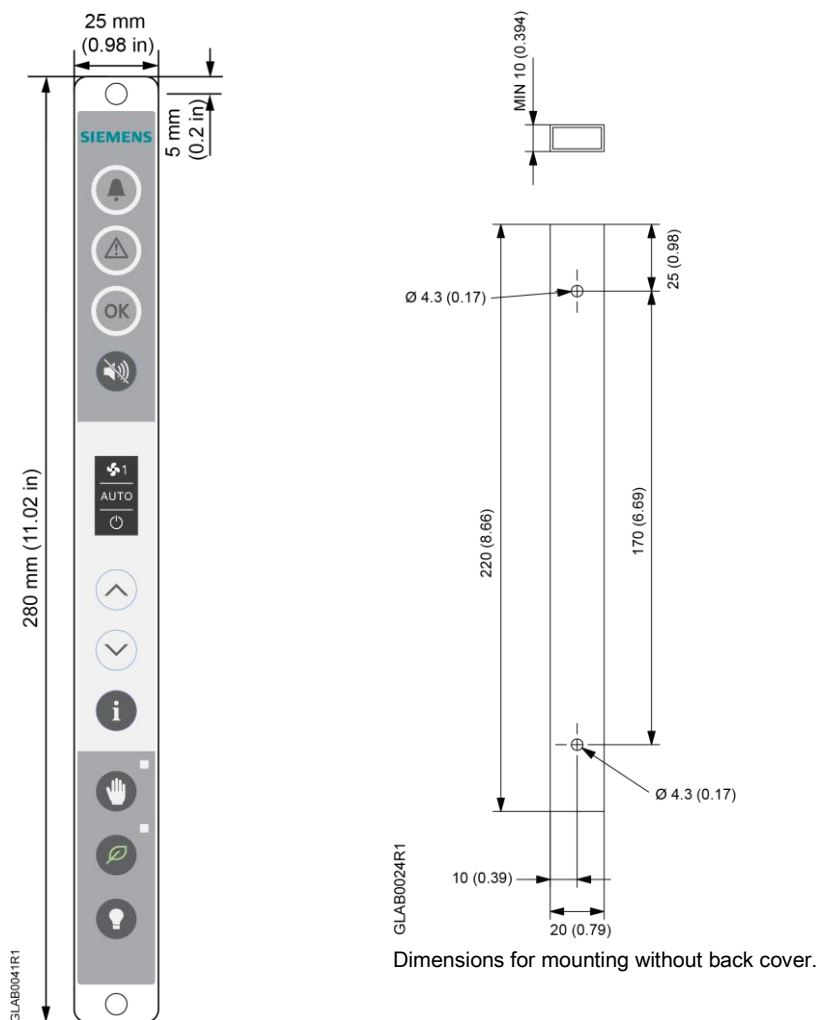
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Connection terminals



Pin	Description
KNX	KNX PL-Link communication connection
	Optional Battery/power connection

Dimensions



Issued by
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