SIEMENS

9724

UNIGYR®

Interface module PTM59.20V1
I/O OPEN ALBATROS

Integration of ALBATROS™ and SIGMAGYR® controllers

An interface module enabling communications between controllers from the ALBATROS™ and SIGMAGYR® product ranges and a Siemens Landis & Staefa building management system. Connecting a single controller via the interface module.

Use

Using the interface module(s), individual ALBATROS™ controllers or an entire ALBATROS™ system can be integrated into UNIGYR EMS or UNIGYR VISONIK.

Also individual SIGMAGYR® controllers can be integrated into UNIGYR EMS or UNIGYR VISONIK.

Functions

Interface between the Local Process Bus (LPB) and the process bus (P-Bus).

The interface module is used to integrate ALBATROS™ and SIGMAGYR® controllers into UNIGYR controllers with P-Bus connection (PRU2, PRU10, PRS10, RMP30, RWM82) and BPS controllers (PRV2).

Note UNIGYR controllers with P-Bus connection will be refered to as UNIGYR controllers throughout this document.

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Siemens Building Technologies
Landis & Staefa Division

System Topology

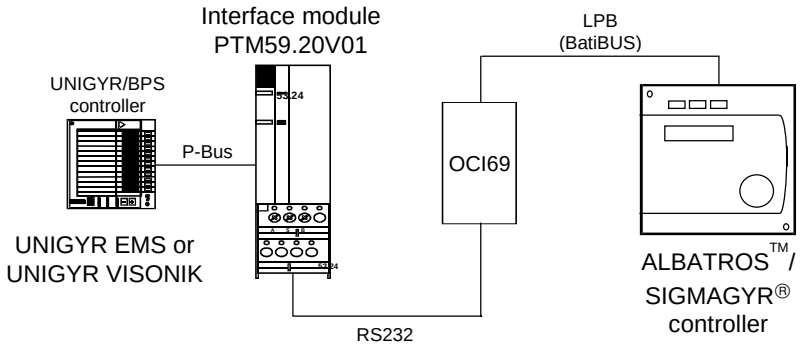


Table 1

The table below shows the types of controllers which can be integrated using the interface module:

Controller types	Description	Product range
RVA43.223	Boiler and heating circuit controller	ALBATROS™
RVA46.531	Heating circuit controller	ALBATROS™
RVA47.320	Cascade controller for gas fired boilers	ALBATROS™
RVA63.242	Boiler and heating circuit controller	ALBATROS™
RVA63.280	Boiler and heating circuit controller	ALBATROS™
RVA66.540	Heating circuit or DHW controller	ALBATROS™
RVL470 Serie B	Heating controller	SIGMAGYR®
RVL471	Heating controller	SIGMAGYR®
RVL472	Boiler, heating circuit and DHW controller	SIGMAGYR®

Table 2

The table below shows the data-point types of the controllers which can be integrated using the interface module:

Datapoint name	Range	Data point type	Data direction
Device mode	0…4	AI	A > S
Device mode	0…4	AO	S > A
System time	-	3xAI	A > S
System time	-	3xAO	S > A
Error message	0… 255	2xAI	A > S
Boiler temperature	0…140 °C	AI	A > S
DHW temperature	0…140 °C	AI	A > S
Heat generation status	-	AO	S > A
Heat generation reduction signal	0…100 %	2xAO	S > A
Heat generation increase signal	0…100 %	2xAO	S > A
Heating demand signal	0…140 °C	2xAI or 2xAO	A > S or S > A
DHW temperature setpoint	0…100 °C	AI or AO	A > S or S > A
Outside air temperature	–50…+50 °C	AI or AO	A > S or S > A
Wind speed	0… 20 m/s	AI or AO	A > S or S > A
Solar intensity	0…1000 W/m^2	AI or AO	A > S or S > A

The shaded area indicates data-points which may have the data direction determined by the user :
A > S indicates ALBATROS controller to SYSTEM data direction.

S > A indicates SYSTEM to ALBATROS controller data direction.

Access

This data can be accessed as follows :
- locally at the process unit and
- centrally via the user interface on a PC.

Functions relating to application

The interface module represents a consecutive combination of several virtual I/O-modules starting from a base address which can be individually addressed. The controller data-points are mapped internally in the interface module to normal I/O-points which can then be integrated into the process stations.

Communication between a controller and the process unit serves to link the key data of the local process bus which can be centrally interrogated and set via the building management system.

Common resources can be utilised between the building management system and subsystems (e.g. outside air temperature, wind and solar sensors).

Display functions on the interface module

The interface module offers one LED for power supply status and one LED for communications consistency.

Operational safety

All safety and precautionary measures regarding function and system safety are listed under "Technical design".

Type summary

I/O OPEN ALBATROS interface module **PTM59.20 V01**

Ordering

The I/O OPEN ALBATROS interface module must be ordered from logistics with the ASN number **PTM1.RS232**.

Delivery

Base and electronic module are delivered together, however in separate boxes that are attached to each other.

Accessories

Refer to Data sheet 8105 for general I/O accessories which must be ordered seperately.

Equipment combinations

Process units

The interface module can be connected to Siemens Landis & Staefa process units with P-Bus that, in terms of software, support the required functions for the special module types. Currently, the only process units supporting the special module types are UNIGYR controllers with P-bus connection and the BPS.

Controllers

Used with ALBATROS™ and SIGMAGYR® controllers that are capable of being incorporated into the local process bus (LPB) system. Refer to table 1 in "Functions".

OCI69

The OCI69 interface is used to perform the conversion between the interface module RS232 and BatiBUS. The local process bus (LPB) is based on the BatiBUS protocol standard with company specific extensions.

Technical design

General

The interface module allows for mapping controller datapoints on to the P-Bus so that the process unit is able to read each data-point via assigned addresses and channels. The module periodically reads the data-points from the controller and updates its internal database with the actual values. Upon read requests from the process unit the data-point values are tranferred from the interface module to the process unit. In the opposite direction, values written from the process unit to the interface module over the P-Bus are transferred to the controller.

Generating a program

In terms of function, the interface module contains 16 I/O module addresses (8 x 2Y10 and 7 x 2R1K), which are “virtual”, meaning they do not exist as physical individual modules. The sixteenth module address is left vacant, this address is used for the production tests of the modules. The LPB object values and attributes from these module addresses must be re-scaled and decoded. Colbas tasks (Task188 & 189) for the BPS and a UNIGYR “Segment data folder” (PTM5920.zip) for a UNIGYR controller have been engineered for the selection of datapoint mapping, scaling and encoding/decoding of the LPB objects.

Colbas task 188 - module communications and AO mapping/scaling/decoding.
Colbas task 189 - AI mapping/scaling/decoding.

UNIGYR Segment data folder PTM5920.zip - AO an AI mapping /scaling / decoding.

Data traffic
P-Bus

Data traffic between the interface module and the process unit takes place on the 3-wire P-Bus (Process bus).
Refer to data sheet 8802 “Process Bus” for detailed information.

Local process bus (LPB) / BatiBUS

The data traffic between the interface module and a controller is carried out in accordance with the local process bus (LPB) requirements and the BatiBUS protocol.
For more detailed information refer to document CE1P2370E.

Addressing

For the transfer over the p-bus an address is assigned to each data point.
This P-Bus address consists of :

- a base address
- a offset address
- and a channel number

Table 3 The table shows the data-point addressing for the BPS and the mapping configurations 1 to 8, which determine the data-point direction.

Data point description	Link points	P-Bus module	PRV address	Mapping number							
Outputs				**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
LPB destination address	@AO1	2Y10	$XX	0	0	0	0	0	0	0	0
LPB source address	@AO2	2Y10	$XX	1	1	1	1	1	1	1	1
«Refer to table 7»	@AO3, @AO4	2Y10	$XX	2	2	2	2	2	2	2	2
«Refer to table 7»	@AO5, @AO6, @AO7	2Y10	$XX	3	3	3	3	3	3	3	3
Heat generation signal*	@AO8	2Y10	$XX	4	4	4	4	4	4	4	4
Heat gen. reduction signal*	@AO9	2Y10	$XX	5	5	5	5	5	5	5	5
Heat gen. increase signal*	@AO10	2Y10	$XX	6	6	6	6	6	6	6	6
System time (week day)	@AO11	2Y10	$XX	7	7	7	7	7	7	7	7
System time (hour)	@AO12	2Y10	$(XX+1)	0	0	0	0	0	0	0	0
System time (minute)	@AO13	2Y10	$(XX+1)	1	1	1	1	1	1	1	1
Heat demand value	@AO14	2Y10	$(XX+1)	2	2	2	2				
Heat demand attribute	@AO15	2Y10	$(XX+1)	3	3	3	3				
DHW temperature setpoint	@AO16	2Y10	$(XX+1)	4	4			2	2		
Outside air temperature	@AO17	2Y10	$(XX+1)	5		4		3		2	
Wind speed	@AO18	2Y10	$(XX+1)	6		5		4		3	
Solar intensity	@AO19	2Y10	$(XX+1)	7		6		5		4	
Inputs											
Device mode	@AI1	2R1K	$(XX+2)	0	0	0	0	0	0	0	0
Error message code	@AI2	2R1K	$(XX+2)	1	1	1	1	1	1	1	1
Error massage priority	@AI3	2R1K	$(XX+2)	2	2	2	2	2	2	2	2
Boiler temperature	@AI4	2R1K	$(XX+2)	3	3	3	3	3	3	3	3
DHW temperature	@AI5	2R1K	$(XX+2)	4	4	4	4	4	4	4	4
System time (week day)	@AI6	2R1K	$(XX+2)	5	5	5	5	5	5	5	5
System time (hour)	@AI7	2R1K	$(XX+2)	6	6	6	6	6	6	6	6
System time (minute)	@AI8	2R1K	$(XX+2)	7	7	7	7	7	7	7	7
Heat demand value*	@AI9	2R1K	$(XX+3)					0	0	0	0
Heat demand attribute*	@AI10	2R1K	$(XX+3)					1	1	1	1
DHW temperature setpoint	@AI11	2R1K	$(XX+3)				0			2	2
Outside air temperature	@AI12	2R1K	$(XX+3)		0	0	1		2		3
Wind speed	@AI13	2R1K	$(XX+3)		1		2		3		4
Solar intensity	@AI14	2R1K	$(XX+3)		2		3		4		5
Reserved for product test	-	-	$(XX+3)								
Reserved for product test	-	-	$(XX+3)								

* indicates that the data-point value and attribute must be decoded from the LPB-Objects.

The interface module is assigned a base address with the help of an address plug (hardware address). In the interface module fixed offset addresses are used. The addressing plug must be selected so that the first module address in the interface module corresponds to a base address. Base addresses have the values 1, 5, 9, 13, 17 etc. to 109 (decimal). For this interface module they can only be used upto 97. The addressing plug 97 is the highest address which be used can, so that all data points in the interface module can be addressed on the P-Bus.

Example : an interface module with an addressing plug 9 is shown on the P-Bus:

$02	STU	59	**9:**	2Y10	10:	2Y10	11:	2Y10	12:	2Y10
$03	STU	59	13:	2Y10	14:	2Y10	15:	2Y10	16:	2Y10
$04	MW	56	17:	2R1K	18:	2R1K	19:	2R1K	20:	2R1K
$05	MW	56	21:	2R1K	22:	2R1K	23:	2R1K	24:	--

Base address
9 ($02)

$ADR for boiler temperature
$(02+2)+3 = **$43**

It must be highlighted that the number of load units are not exceeded in the BPS, the PTM59.20 module occupies 15 load units in the BPS.

Table 4 The table shows the data-point addressing for the UNIGYR controller and the mapping configurations 1 to 8, which determine the data-point direction.

Data point description	Data points	P-Bus module	PRU address	Mapping number							
Outputs				**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
LPB destination address	AO1	2Y10	+0	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1
LPB source address	AO2	2Y10	+0	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2
Mapping-number Heat generation value	AO3 AO4	2Y10	+1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1
Device mode Heat gen. reduction attribute Heat gen. increase attribute	AO5 AO6 AO7	2Y10	+1	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2
Heat generation signal*	AO8	2Y10	+2	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1
Heat gen. reduction signal*	AO9	2Y10	+2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2
Heat gen. increase signal*	AO10	2Y10	+3	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1
System time (week day)	AO11	2Y10	+3	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2
System time (hour)	AO12	2Y10	+4	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1
System time (minute)	AO13	2Y10	+4	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2
Heat demand value	AO14	2Y10	+5	Ch1	Ch1	Ch1	Ch1				
Heat demand attribute	AO15	2Y10	+5	Ch2	Ch2	Ch2	Ch2				
DHW temperature setpoint	AO16	2Y10	+5					Ch1	Ch1		
			+6	Ch1	Ch 1						
Outside air temperature	AO17	2Y10	+5					Ch2		Ch1	
			+6	Ch2		Ch1					
Wind speed	AO18	2Y10	+5							Ch2	
			+6			Ch2		Ch1			
			+7	Ch1							
Solar intensity	AO19	2Y10	+6					Ch2		Ch1	
			+7	Ch2		Ch1					
Inputs											
Device mode	AI1	2R1K	+8	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1
Error message code	AI2	2R1K	+8	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2
Error massage priority	AI3	2R1K	+9	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1
Boiler temperature	AI4	2R1K	+9	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2
DHW temperature	AI5	2R1K	+10	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1
System time (week day)	AI6	2R1K	+10	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2
System time (hour)	AI7	2R1K	+11	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1	Ch1
System time (minute)	AI8	2R1K	+11	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2	Ch2
Heat demand value*	AI9	2R1K	+12					Ch1	Ch1	Ch1	Ch1
Heat demand attribute*	AI10	2R1K	+12					Ch2	Ch2	Ch2	Ch2
DHW temperature setpoint	AI11	2R1K	+12			Ch1	Ch1				
			+13							Ch1	Ch1
Outside air temperature	AI12	2R1K	+12		Ch1		Ch2				
			+13						Ch1		Ch2
Wind speed	AI13	2R1K	+12		Ch2						
			+13				Ch1		Ch2		
			+14								Ch1
Solar intensity	AI14	2R1K	+13		Ch1		Ch2				
			+14						Ch1		Ch2
Reserved for product test	-	-	+15								
Reserved for product test	-	-	+15								

Table 5
Interface module LEDs for P-Bus and RS232 interface

The two LEDs for the P-Bus and the Local Process Bus (LPB) indicate the operational status of the interface module and that of the bus connections. The table below provides the relevent information :

Phase	P-Bus LED 1	RS232 LED 2	Meaning
Start phase (approx. 5 s)	Steady light		Normal status
	Off		No P-Bus module power supply
	Flashing light		Module defective
Operating phase	Steady light	Steady light	Normal operation
	Steady light	Flashing light	Transmission error between module and RS232 interface
	Off	Off	No P-Bus module power supply or no AC 24 V operating voltage
	Steady light	Off	No communications with RS232 interface

System and function safety

Switch on behaviour

After switching on the power supply (reference voltage BEZ and system potential G), the interface module is capable of communicating within 0.5 seconds, that is, they are ready for receiving a telegram.

Transmission reliability

- Faulty data transmission is detected and not accepted. Transmission reliability is guaranteed with the aid of safety code CRC.
- A process unit must transmit output updated output values in the form of an error free telegram in 4 second intervals to the interface module. If no telegram is received within this specific period, then the interface module's default values are activated and transmitted to the controller in place of non-transmitted actual values.

Protection from faulty wiring

The interface module is not damaged, if by mistake, AC 230 V is applied to the controller or OCI69 bus.

Short-circuit strength

The two bus lines are short-circuit proof.

Working on the module when voltage is present

Connection to the Local Process Bus (LPB) and plugging in and removal of the interface module under voltage will not cause any damage to the module.

Note

The whole functionality of the interface module comprises the interface module itself (hardware) and handling of the signals in the process unit (software). For a full understanding of the scope of module functions, the relevent process sequences and possible choices available when configuring the user program must be taken into consideration.
For the technical features common to all I/O modules, refer to the data sheet 8102, «Basic Data of I/O Module System», same chapter.

Mechanical design

Interface module unit with plastic housing containing a terminal base and electronics, can be plugged onto the I/O bar, signal and voltage pick-off via contact springs on conductor rail in the I/O bar.
The connecting terminals for the interface module that are arranged on the I/O bar perform the terminal block's task. Terminal blocks must usually be installed in the control panel for external wiring. They fulfill all applicable standards and guidelines, contain the test terminal functions and can be labelled specifically for the plant.

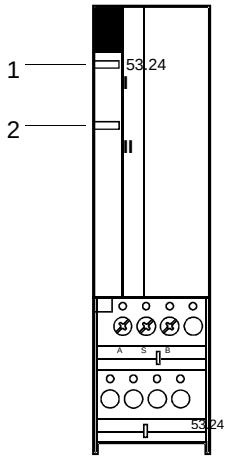
Transparent module front to insert plant specific module labelling on pre-printed and perforated labelling sheets which are created with the aid of the configuration tool «UNIGYR Design».
The address plug as well as the two LEDs for P-Bus and LPB interface are located on the module front. There are no operator elements.
Necessary interface module accessories are listed in the data sheet 8105.

Note

Refer to data sheet CM2N8102E «Basic Data of I/O Module System» for a detailed description of the module mechanical design.

Front view

PTM59.20V01



1 LED for the P-Bus
2 LED for RS232 interface

Engineering notes

Data sheet CM2N8102E «Basic Data of I/O Module System», contains system related engineering know-how. It should be studied before reading the following sections while paying special attention to the information relating to safety.

Correct use

Within the overall system, the interface module must always be used on applications as described in the data sheet CM2N8102E, «Basic Data of I/O Module System». The interface module specific characteristics and features given in the brief description on the front page and in the chapters «Use», «Engineering notes» and «Technical data» must be taken into consideration.

Interfacing the Local Process Bus (LPB)

The Local Process Bus (LPB) is galvanically seperated from the interface module electronics.

System integration

The interface module represents virtually a consecutive combination of several I/O-modules starting from a base address which can be individually addressed. The controller data points are mapped internally in the interface module to normal I/O-points which then can be integrated into the process stations.

The interface module is periodically reading the data points from the controller and updating the internal database with the actual values. Upon read requests from the process unit, values are transferred from the interface module to the process unit. In the opposite direction values written from the process unit to interface module over the P-Bus are transferred to the controller.

It is possible for the user to select the data direction of some of these datapoints to suit the site application, refer to table 2 under «Functions». Therefore, a data-point mapping scheme has been implemented, refer to tables 3 and 4 under «Technical design». The 8 mapping configurations have been engineered within ‘Colbas tasks’ for the BPS and

a ‘Segment folder data file’ for the UNIGYR controllers. The Colbas tasks and segment folder data file also serve the following functions :

- Data-point mapping (1 to 8) selection.
- Encoding several data-points into one module address.
- Data-point scaling.
- Defines a fixed data-point number within the process unit (link points in BPS), as the mapping selection alters the module address of the data-point.

The user must configure parameters and output default values within the Colbas tasks, segment folder data file and the controller to be integrated before the correct operation can be established. The parameters/default are as follows :

Table 6
System setup parameters and default values.

	Parameters	Default value	Range
Setup	P_Bus Module address	1	
	Mapping-Nr.	8	1 ... 8
	Dest Device-Nr (controller)	0	0 ...16
	Dest Segment-Nr (controller)	1	0 ...14
	SRC Device-Nr (I/O module)	0	0 ...16
	SRC Segment-Nr (I/O module)	1	0 ...14
Output default values	Heat generation status	1	0 ... 1
	Device Mode	1	0 ... 3
	Heat gen. reduction attribute	1	0 ... 3
	Heat gen. increase attribute	1	0 ... 3
	Heat generation attribute	3	0 ... 127
	Heat gen. reduction signal	10	0 ... 255
	Heat gen. increase signal	10	0 ... 255
	Heat demand temperature	70	0 ...140 °C
	Heat demand attribute	17	0 ... 240
	Domestic hot water setpoint	60	0 ...100 °C
	Outside air temperature	14	–50 ...+50 °C
	Wind speed	5	0 ... 20 m/s
	Solar intensity	300	0 ...1000 W/m^2

The ‘Dest’ (destination) and ‘SRC’ (source), device and segment numbers refer to the system setup on the Local Process Bus (LPB), refer to document CE1P2370E.
The interface module must be allocated a device number within a segment of the LPB and it must be on the same segment as the controller.

System integration for UNIGYR-VISONIK

Colbas tasks have been engineered to transmit and request data from module addresses configured in the interface module and pass this data to link-points in the process unit. The link-points are pre-configured and generated when the tasks are run, refer to table 7 under «Engineering notes». The following Colbas tasks must be used with the I/O Albatros module integration to guarantee the correct functionality :

TASK188 – communications, system setup, AO datapoint mapping and link point generation.

TASK189 – system setup, AI datapoint mapping and link point generation.

Table 7
Link points

	Link point	Range	Units	Comments
Analog Outputs				
LPB-destination address	@AO1	1...240	-	I/O interface module setup parameter
LPB-source address	@AO2	1...240	-	I/O interface module setup parameter
Mapping-number	@AO3	1...8	-	I/O interface module setup parameter
Heat generation value	@AO4	0...1	-	
Device mode	@AO5	0...4	-	
Heat gen. reduction attribute	@AO6	0...3	-	
Heat gen. increase attribute	@AO7	0...3	-	
Heat generation attribute	@AO8	0...127	-	
Heat gen. reduction value	@AO9	0...100	%	
Heat gen. increase value	@AO10	0...100	%	
System time - week day	@AO11	1...7	Day	
System time - hour	@AO12	0...23	Hour	
System time - minute	@AO13	0...59	Minute	
Heat demand value	@AO14	0...140	Deg C	
Heat demand attribute	@AO15	0...240		
DHW temperature setpoint	@AO16	0...100	Deg C	
Outside air temperature	@AO17	–50...+50	Deg C	
Wind speed	@AO18	0...20	m/s	
Solar intensity	@AO19	0...1000	W/m^2	
Analog Inputs				
Device mode	@AI1	0...4	-	
Error message code	@AI2	0...255	-	
Error message priority	@AI3	1...10	-	
Boiler temperature	@AI4	0...140	Deg C.	
DHW temperature	@AI5	0...100	Deg C.	
System time - week day	@AI6	1...7	Day	
System time - hour	@AI7	0...23	Hour	
System time - minute	@AI8	0...59	Minute	
Heat demand value	@AI9	0...140	Deg C	
Heat demand attribute	@AI10	0...240	-	
DHW temperature setpoint	@AI11	0...100	Deg C	
Outside air temperature	@AI12	–50...+50	Deg C	
Wind speed	@AI13	0...20	m/s	
Solar intensity	@AI14	0...1000	W/m^2	

Colbas task setup - Task188

Set task to ‘interactive’ (line 16) means that whenever the task runs, the user is requested to enter the parameters required to setup the integration and output default values, refer to table 6. Depending on the datapoint mapping table, not all of these parameters are requested (only mapping 8 will request the full list).

If task188 is not set to interactive then the task parameters must be modified manually in the task using a text editor or the VISOTOOL. The following lines in the task should be checked :

Table 8
Detail taken from TASK188

```
300-- Setting in case of not interactive
310 PMA=1;     -- P_Bus Module address
320 MNR=8;     -- Mapping-Nr.
330 @AO1=1;    -- Seg.Nr.[0..14]=0  Dev.Nr.[1..16]=1  ->  1*16+1=1(Dez) Controller
331 @AO2=2;    -- Seg.Nr.[0..14]=0  Dev.Nr.[1..16]=2  -> 0*16+2=2(Dez) I/O module
332 @AO3=MNR;  -- Mapping-Nr.[1..8]
333 @AO4=1;    -- Heat generation status [0..1]
334 @AO5=1;    -- Device mode [0..3]
335 @AO6=1;    -- Heat generation reduction attribute [0..3]
336 @AO7=3;    -- Heat generation increase attribute [0..3]
337 @AO8=1;    -- Heat generation attribute [0..127]
338 @AO9=10;   -- Heat generation reduction signal(0..255)
339 @AO10=10;  -- Heat generation increase signal(0..255)
340 @AO14=70;  -- Heat demand temperature (0..140 Grad C.)
341 @AO15=17;  -- Heat demand signal attribute [0..240]
342 @AO16=60;  -- Domestic hot water temperature (0..100 Grad C.)
343 @AO17=14;  -- Outside air temperature (-50..+50 Grad C.)
344 @AO18=5;   -- Wind speed (0..20 m/s)
345 @AO19=300; -- Solar intensity (0..1000 W/m2)
```

Set '@AO linkpoints to display' (line 24) will display the @AO link points whenever task189 runs, this is a display function only therefore no values can be entered. The datapoints shown will depend on the mapping choosen

Colbas task setup – Task 189.

Set task to 'interactive' (line 16) means that whenever the task runs, you must enter the parameters required to setup the integration. As most of the system setup is incorporated within task188 only the following parameters are required by task189 :

	Parameters	Default value	Range
Setup	P_Bus Module address	1	
	Mapping-Nr.	8	1 ... 8

If the task 189 is not set to interactive then the task parameters must be modified manually in the task using a text editor or the VISOTOOL. The following lines should be checked :

Table 9
Detail taken from Task 189

```
92 -- Setting in case of not interactive
94 PMA=1; -- P_Bus Module address
96 MNR=8; -- Mapping-Nr.
```

Note These two values must be the same as set in task 188.

Set '@AI linkpoints to display' (line 24) will display the @AI link points whenever task 189 is ran. The datapoints shown will depend on the mapping choosen.

Running the tasks

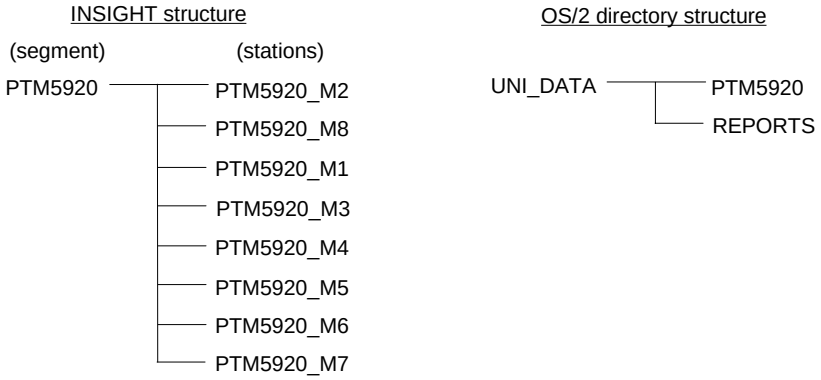
Task 188 must be run first to establish communications with the I/O interface module and download the system setup parameters. After a short period of time task189 should then be run. A command to run these tasks should be entered into the 'power-up task' in the process unit, so that, after a power shutdown or failure, the tasks are automatically started. If this is so, then task 188 and task 189 must be to non-interactive mode.

Note If the integration is operating and any of the system setup parameters in the task have to be changed, then the I/O interface module must be re-initialised. This is achieved by

removing and then re-instating the power of the I/O interface module (i.e. disconnecting from the P-Bus rail for a short period of time). The tasks should then be run.

System integration for UNIGYR-EMS

An UNIGYR-EMS40 ‘segment folder data file’ has been engineered which contains 8 stations, this file has the structure - ‘Segment\Station’. Each station represents one of the 8 mapping schemes, which has been engineered so that the number of datapoint inputs and outputs correspond to that shown in table 4 under «Technical design». Also, each mapping defines the module address, scaling and functionality of the inputs and outputs. The user may copy this file into a site specific UNIGYR data directory.



The user must select a mapping file, determine the system setup parameters, refer to table 6 under «Engineering notes». and download this station to the process unit.
If the integration is operating and any of the system setup parameters have to be changed, then the interface module must be re-initialised. This is achieved by removing and then re-instating the power of the I/O interface module (i.e. disconnecting from the P-Bus rail for a short period of time). The mapping file must be downloaded again.

Table 10
Settings for generating the module functions

OUTPUTS				
Data-point description	**Function block type**	**Var**	**Calculation**	**Function block type**
LPB destination address	FormBI	A	Ax100/240	PosO_modl
LPB source address	FormBI	A	Ax100/240	PosO_modl
Mapping-number Heat generation value	FormBI	A B	(Ax2+B)x100/240	PosO_modl
Device mode Heat gen. reduction attribute Heat gen. increase attribute	FormBI	A B C	((Ax32)+(Bx8)+C)x100/24 0	PosO_modl
Heat generation signal	FormBI	A	Ax100/240	PosO_modl
Heat gen. reduction signal	FormBI	A	A/255x100x100x240	PosO_modl
Heat gen. increase signal	FormBI	A	A/255x100x100x240	PosO_modl
System time (week day) System time (hour) System time (minute)	See diagram 1			
Heat demand value	FormBI	A	Ax100/240	PosO_modl
Heat demand attribute	FormBI	A	A/140x100x100/240	PosO_modl
DHW temperature setpoint	FormBI	A	Ax100/240	PosO_modl
Outside air temperature	FormBI	A	(A+150)x100/240	PosO_modl
Wind speed	FormBI	A	Ax100/240	PosO_modl
Solar intensity	FormBI	A	A/1000x100x100/240	PosO_modl

Table 10 (continued)

INPUTS				
Data point description	**Function block type**	**Function block type**	**Var**	**Calculation**
Device mode	Measl	-	-	-
Error message code	Measl	FormBI	A	Ax20
Error massage priority	Measl	-	-	-
Boiler temperature	Measl	-	-	-
DHW temperature	Measl	-	-	-
System time (week day)	Measl	-	-	-
System time (hour)	Measl	-	-	-
System time (minute)	Measl	-	-	-
Heat demand value	Measl	-	-	-
Heat demand attribute	Measl	FormBI	A	Ax20
DHW temperature setpoint	Measl	-	-	-
Outside air temperature	Measl	-	-	-
Wind speed	Measl	FormBI	A	Ax20
Solar intensity	Measl	FormBI	A	Ax20

Diagram 1
System clock block configuration.

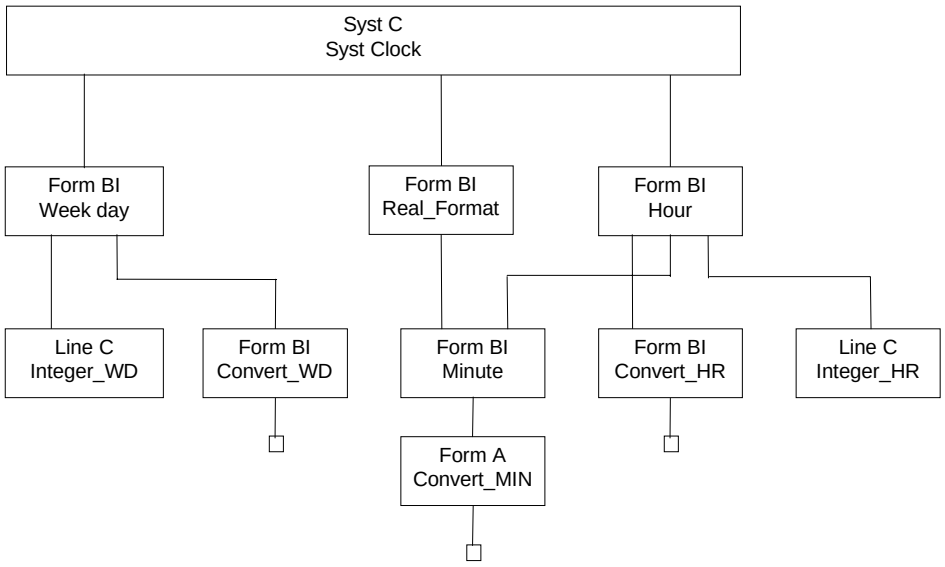


Table 11
Settings for generating the system clock functions

Function block description	**Function block type**	**Var**	**Calculation**
Convert_WD	FormBI	A	Ax100/240
Integer_WD	LineCnvtr	-	-
Week day	FormBI	-	-
Convert_MIN	FormBI	A	Ax100/240
Minute	FormBI	A B	(A-(Bx60))
Real_Format	FormBI	-	-
Convert_HR	FormBI	A	Ax100/240
Integer_HR	LineCnvtr	-	-
Hour	FormBI	A	A/60
Syst Clock	SystC	-	-

UNIGYR version compatibility

The I/O OPEN ALBATROS interface module is compatible with UNIGYR Version 7 and above. If the user wants to use the interface module with UNIGYR Version 6 and below, then they must adapt the TOOL.PRF file. The user must incorporate the following modifications (additional text shown in **bold**) :

1) Description of the module in section [IOCOMPACT]

[IOCOMPACT]
Variants=PTK1.30V01;PTK1.23V02;PTM52.32;PTM50.32;DH_COMPACT**;PTM59.20**

2) Define new section [PTM59.20]

[PTM59.20]
HWTypeId=17
PowerUse=8
;BaseAddress=1
;ModuleSet=8 PTM1_2Y10; 8 PTM1_2R1K
Module-
Set=1955;1955;1955;1955;1955;1955;1955;1955;1913;1913;1913;1913;1913;1913;1913;1913

Viewing the input and output datapoints

Once the user has downloaded the mapping file to the process unit, the datapoints can be viewed using the UNIGYR 'Booklet Operation'. The inputs can be viewed on page 0 and the outputs viewed on page 1.

Fitting notes

Refer to the following documentation for fitting instructions:
- «Basic Data of I/O Module System» CM2N8102E, same chapter.
- «Mounting and Installation Manual» CM2M8012E, for the application of the I/O module in connection with UNIGYR.
- « Mounting and Installation Manual » CM2M8017E for the application of the I/O module in connection with VISONIK.

Instructions for the fitting of the I/O module on the mounting rails and on the I/O bar are printed on the packaging.
Commissioning notes

Controller parameter setup

The controller to be integrated using the interface module must have the following parameters configured for the correct operation :
- Device number. 0 = standalone, 1 = master, each controller must be set to master
- Segment number. Must have the same segment number as the interface module
- Source of time of day. Must be set to 3, system clock master.
- Source of outside air temperature. Only required if sending OAT from system to controller. Can be set to 'automatic' detection or segment/device number entered manually.
- Plant type. Some controllers automatically set this value by detecting which sensors which are connected or this value can be manually set by the operator. Note: some plant type combinations are not permissible with certain device/segment number configurations.

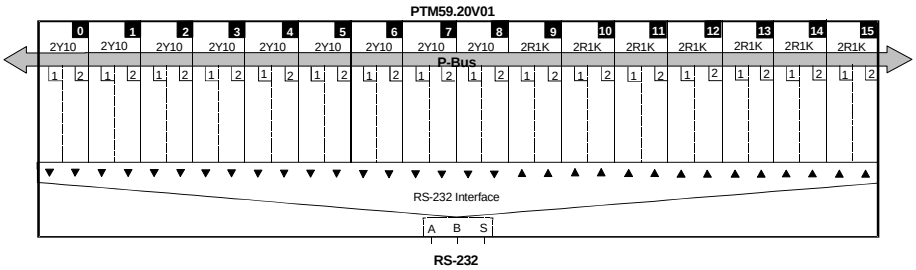
Technical data

Power supply	Operating voltage	AC 24 V ± 20 %
	Safety extra low voltage (SELV) to	EN 60730
	Frequency	50 / 60 Hz
	Power consumption	2 VA
	I/O module power supply via P-Bus	DC 24 V (to G0)
	Load units	15 BE each
Module addresses	Number range for base addresses	1 ... 241
	Valid offset addresses	0 ... 15
P-Bus	See document CM2-8022D «Process-Bus»	
RS232 interface	Interface type	RS232 (galvanically seperated)
	Rate of tranmission	9600 bit/s
	Type of cable	3-core, unscreened
	Maximum cable length	15 m
Conformity	In accordance with the directives of the European Union: Electromagnetic compatibility	89/336/EWG

Note: For technical data applying to all I/O modules, refer to data sheet CM2N8102E «Basic Data of I/O Module system».

Connection diagrams

Internal diagram



Addressing:

0 ...15 Offset-addresses (black squares).

1 ... 2 Channel addresses within offset addresses (white squares).
(assigning data points to the respective module typres, see table 3).

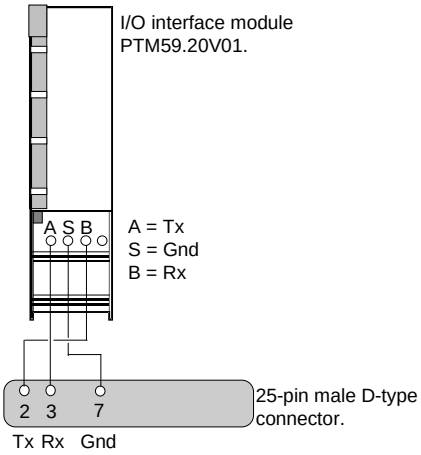
RS232 interface :

A Data transmit

B Data receive

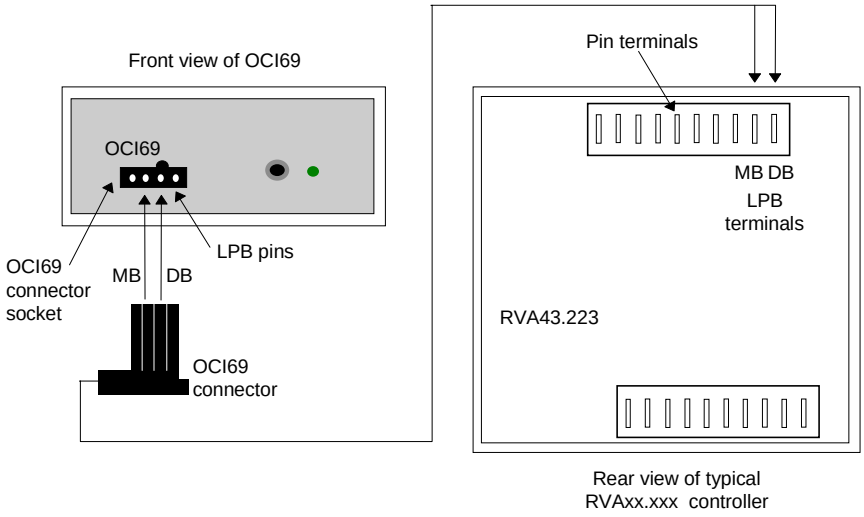
S Ground.

Wiring diagram 1
Interface module to OCI69



Wiring diagram 2
OCI69 to controller LPB

The OCI69 is used to connect a PC or Laptop computer to the service port of an ALBATROS™ and SIGMAGYR® controller. The 'OCI69 to controller' cable supplied with the OCI69 is not suitable for a permanent installation, therefore it is recommended that a cable is constructed for this purpose. The specific OCI69 connector can be utilised.



Dimensions

All dimensions in mm