



Climatix™

Climatix AHU ext. module 14 I/O

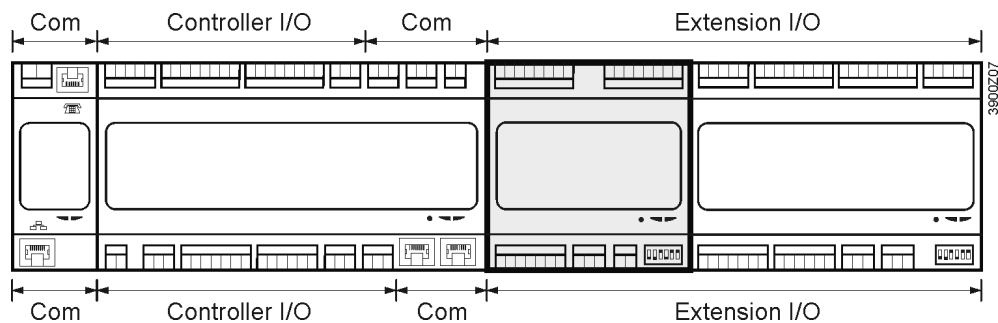
POL955.XX/XXX

POL955.XX/XXX is a versatile Climatix extension module that can be connected to any type of Climatix POL6xx controller. Its high level of flexibility of universal inputs meets the requirements of the compact air handling unit industry plus those of other air conditioning applications.

The extension module offers the following features:

- Power supply AC 24 V or DC 24 V via the controller
- 8 universal I/Os (configurable inputs / outputs, for analog or digital signals)
- 4 relay outputs (NO contacts)
- 2 analog outputs (DC 0...10 V)
- Peripheral bus interface for local / remote extension I/Os

The POL985.00/xxx extension module is part of the Climatix product range (also refer to Data Sheet 3900 and Mounting Instructions M3910).



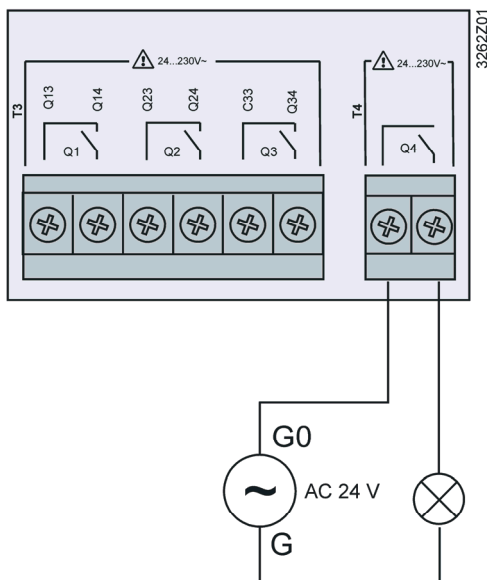
Technical data

Power supply

Operating voltage	AC 24 V ±20%; DC 24 V ±10%
Frequency	45...65 Hz
Power consumption	(AC) 600 mA, (DC) 340 mA
Connection	Peripheral bus

Relay outputs Q1...Q4

Relay: Type, contact	Monostable, NO contact
Contact rating	
Switching voltage	AC 24 V...230 V (-20%, +10%)
Nominal current (res. / ind.)	Max. AC 4 A / 3 A (cosφ 0.6)
Switching current at AC 19 V	Min. AC 30 mA



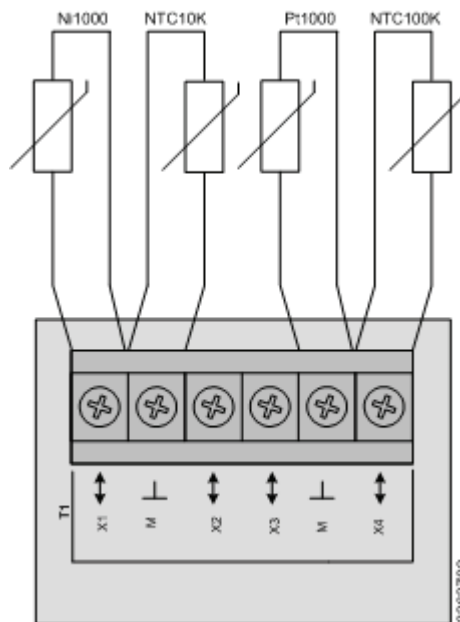
Connecting indicator lamps to relay output

**Universal I/Os
X1...X8**

Configurable	Via software
Reference potential	Terminals \perp
Contact voltage	Max. DC 24 V (SELV)
Over voltage protection	Up to 40 V

Analog inputs (X1...X8)

Ni1000		
Sensor current	1.4 mA	
Resolution	0.1 K	
Accuracy within the range -50...150 °C	0.5 K	
Pt1000		
Sensor current	1.8 mA	
Resolution	0.1 K	
Accuracy within the range -40...120 °C	0.5 K	
NTC 10k (B_{25/85} = 3977K)		
Sensor current	140 µA	
Temperature range	Accuracy	Resolution
-50...-26 °C	1 K	0.2 K
-25...74 °C	0.5 K	0.1 K
75...99 °C	1 K	0.3 K
100...124 °C	3 K	1.0 K
125...150 °C	6 K	2.5 K
NTC 100k (B_{25/85} = 3977K)		
Sensor current	140 µA	
Temperature range	Accuracy	Resolution
-25...-11 °C	3 K	0.2 K
-10...9 °C	1 K	0.1 K
10...99 °C	0.5 K	0.1 K
100...150 °C	1 K	0.2 K
0...2,500 Ω		
Sensor current	1.8 mA	
Resolution	1 Ω	
Accuracy	4 Ω	



Connecting a ratiometric sensor to universal I/Os
Connecting NTC to universal I/Os

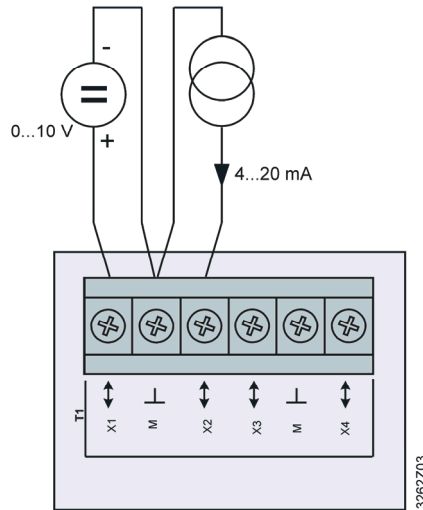
Analog inputs (X1...X8)

DC 0...10 V input

Resolution	1 mV
Accuracy at 0 V	2 mV
Accuracy at 5 V	25 mV
Accuracy at 10 V	50 mV
Input resistance	100 kΩ

DC 0/4...20 mA input

Resolution	1 μA
Accuracy at 4 mA	25 μA
Accuracy at 12 mA	70 μA
Accuracy at 20 mA	120 μA



Voltage input DC 0...10 V
Current input 4...20 mA

Digital inputs (X1...X8)

0/1 digital signal (binary)

Sampling voltage / current

Contact resistance

Delay

Pulse frequency

For potential-free contacts

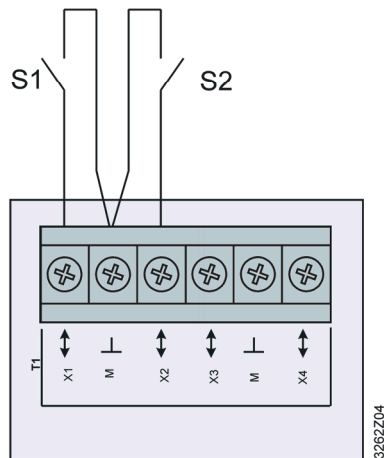
DC 24 V / 8 mA

Max. 200 Ω (closed)

Min. 50 kΩ (open)

10 ms

Max. 30 Hz



Connecting floating contacts to universal I/O

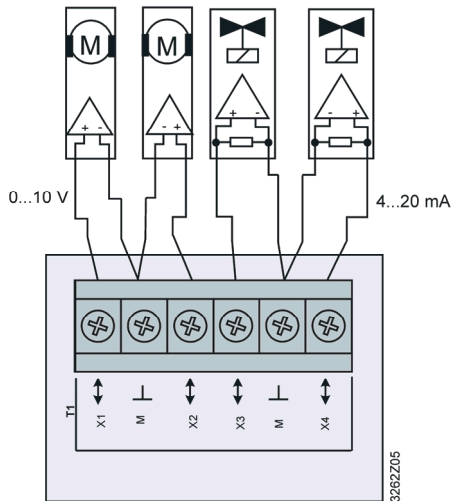
Analog outputs (X1-X8)

DC 0...10 V output

Resolution	11 mV
Accuracy at 0 V	66 mV
Accuracy at 5 V	95 mV
Accuracy at 10 V	124 mV
Output current	1 mA (short-circuit-proof)

DC 4...20 mA output

Resolution	22 μ A
Accuracy at 4 mA	150 μ A
Accuracy at 12 mA	196 μ A
Accuracy at 20 mA	243 μ A



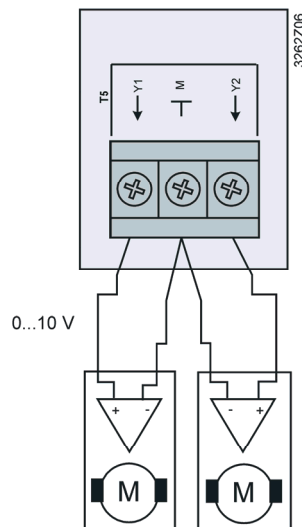
Connecting Voltage output and current output to universal I/O

Analog outputs

Y1...Y2

DC 0...10 V output

Resolution	11 mV
Accuracy at 0 V	66 mV
Accuracy at 5 V	95 mV
Accuracy at 10 V	124 mV
Output current	2 mA (short-circuit-proof)



Connecting voltage output and offboard relays to analog output

Connection terminals

Possible plugs for IO signals (not included)	Phoenix FKCVW 2,5 / x-ST Phoenix FKCT 2,5 / x-ST Phoenix MVSTBW 2,5 / x-ST Phoenix FRONT-MSTB 2,5 / x-ST
Solid wire	0.5...2.5 mm ²
Stranded wire (twisted and with ferrule)	0.5...1.5 mm ²
Cable lengths	In compliance with load, local regulations and installation documents

Peripheral bus

Power supply	U _{eff} = AC 24 V ± 20%, f _{main} = 45...65 Hz or U = DC 24 V ± 10%, no internal fuse
Bus termination selectable	(680 Ω / 120 Ω +1 nF / 680 Ω)
Solid wire	0.2...1.0 mm ²
Stranded wire (twisted and with ferrule)	0.2...1.0 mm ²
Cable lengths	Max. 30 m
Addressing	DIP switches 1...5
Termination	DIP switch 6

Environmental conditions

Operation	IEC 721-3-3 class 3K5
Temperature	-40...70 °C
Humidity	<90% r.h. (non-condensing)
Atmospheric pressure	Min. 700 hPa, corresponding to max. 3,000 m above sea level
Transport	IEC 721-3-2 class 2K3/2K4
Temperature	-40...70 °C
Humidity	<95% r.h. (non-condensing)
Atmospheric pressure	Min. 260 hPa, corresponding to max. 10,000 m above sea level

Protection

Degree of protection	IP20 (EN 60529)
Safety class	Suitable for use in plants with safety class II

Standards

Product safety	
Automatic electrical controls	EN 60730-1
Electromagnetic compatibility	
Immunity in the industrial sector	EN 61000-6-2
Emissions in the domestic sector	EN 61000-6-3
CE conformity	
EMC directive	2004/108/EC
Low-voltage directive	2006/95/EC
Listings	UL916, UL873 CSA C22.2M205
RoHS directive	2002/95/EC (Europe) ACPEIP (China)

General data

Dimensions of controller	108 x 110 x 75 mm
Weight excl. packaging	183.5 g
Base	Plastic, pigeon-blue RAL 5014
Housing	Plastic, light-grey RAL 7035

Status of LEDs

The status of the BSP LED is defined as follows:

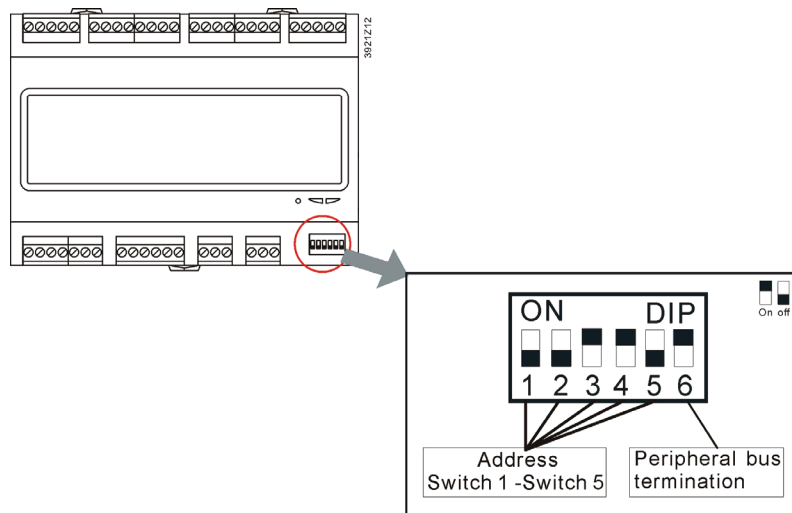
Status	Meaning
Red blinking at 2 Hz	BSP error or slave address error
Green on	BSP running

The status of the BUS LED is defined as follows:

Status	Meaning
Red on	Communication error
Green on	Communication running
Green on and red on (yellow)	Communication running but parameter not successfully configured

DIP switch

The extension module is equipped with DIP switches for communication with the controller. Switches 1, 2, 3, 4, and 5 are configurable to set the slave address, while switch 6 acts as peripheral bus termination. When the extension module operates as the termination in the network, switch 6 must be set to ON.


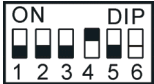
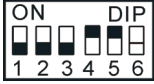

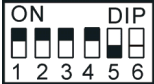
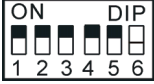


The bit order for the switches is from 5 to 1. The lowest bit is 5 while the highest bit is 1. The following table shows the logic of slave address:

Switch 1	2^4
Switch 2	2^3
Switch 3	2^2
Switch 4	2^1
Switch 5	2^0

By combining switches 1, 2, 3, 4 or 5, a maximum of 31 slave addresses can be configured. The configuration formula is as follows: $2^4+2^3+2^2+2^1+2^0=31$.

Below are some configuration examples:

DIP switch configuration of extension module						
Slave address (controller)	Switch 1	Switch 2	Switch 3	Switch 4	Switch 5	Schematics
1	Off	Off	Off	Off	On	
2	Off	Off	Off	On	Off	
3	Off	Off	Off	On	On	
4	Off	Off	On	Off	Off	
5...29						
30	On	On	On	On	Off	
31	On	On	On	On	On	

Note



The same address of extension module must be set in the application program of the controller. Zero cannot be set as the slave address.

Ordering data

AHU extension 14 I/O module (with connector set included)	POL955.55/STD
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Accessories

Connector set (spring cage, cable top entry) 1 x Phoenix FKCT 2,5/2-ST GY7035 1 x Phoenix FKCT 2,5/3-ST KMGY 3 x Phoenix FKCT 2,5/6-ST GY7035 1 x Phoenix ZEC 1,0 / 4-LPV-3,5 GY35AUC2CI1 2 x Phoenix ZEC 1,0 / 4-ST-3,5 GY35AUC1R1,4	POL095.55/XXX
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Engineering notes



To ensure protection against accidental contact with relay connections carrying voltages above $42 V_{eff}$, the module must be installed in an enclosure (preferably a control panel). It must be impossible to open the enclosure without the aid of a key or tool.

AC 230 V cables must be double-insulated against safety extra low-voltage (SELV) cables.

Disposal notes



The module contains electrical and electronic components and must not be disposed of together with household waste.

Local and currently valid legislation must be observed!

Layout of AHU 14 I/O extension module

