SIEMENS

Desigo Room Automation

DXR2.T12P

P1 DXR

Automation station which migrates P1 TEC controller technology to the latest Desigo DXR2 platform. Using existing P1 network wiring and panels, the device's firmware generates P1 TEC points for the configured template.

- P1 Protocol Communication
- KNX PL-Link bus to connect sensors, actuators, and operator units
- USB interface
- Operating voltage AC 24V

Features

- Proven, pre-loaded applications.
- Operational modes (Comfort, Standby, Economy, Protection, and so on).

Preconfigured Applications

Variable Air Volume (VAV) or Constant Volume (CV)

- VAV Cooling Only
- VAV with staged Electric Heat
- VAV with Hot Water
- VAV with Hot Water and Supply Temp Control

Dual Duct Variable Air Volume (VAV)

- Cool Air Duct, Hot Air Duct with Configurable Ventilation Delivery
- Dual Duct, Configurable Ventilation with Hot Water or Electric Heating Coils
- VAV Dual Duct with Dedicated Ventilation Duct

VAV with Fan Powered Boxes (FPB)

- VAV Series FPB with staged Electric Heat
- VAV Series FPB with Hot Water
- VAV Series FPB with Hot Water and Supply Temp Control
- VAV Parallel FPB with staged Electric Heat
- VAV Parallel FPB and Hot Water
- VAV Parallel FPB with Hot Water and Supply Temp Control

Pressure Independent or Pressure Dependent air flow control.

Additional Applications

- Chilled Beam: cooling only, cooling and heating (4-pipe) or cooling/heating (2-pipe)
- Radiator/Baseboard: hot water, steam or electric stages

Pre-loaded Application Options

- Demand Control Ventilation with separate flow setpoints for each operational mode.
- Chilled beams and Radiator control.
- Single, multiple or variable speed terminal fan control (Fan Powered Boxes).
- Exhaust air flow tracking and control.
- Optional terminal chilled water, hot water or chilled/heated valve (2-pipe or 4-pipe).
- Configurable operating modes (heating, cooling, warm up, cool down, flush/purge, etc.).

Functions

The selected application and its parameters, as well as input and output configuration, determine the room automation station's functionality.

Communication

- RS 485 P1 Protocol
- USB connection for service and commissioning, application and firmware download.
- The following functions are available with the KNX PL-Link bus:
  - Communication with room operator units, sensors, actuators.
  - Plug-and-play connection of Siemens field devices with KNX PL-Link.

Type Summary

Product Number	SSN	Description	Inputs	Outputs
DXR2.T12P-102B	S55376-C123	DXR2.T12P Room Automation Station	1 DI, 2 UI , ΔP sensor	6 DO Triacs, 2 AO: 0 to 10 V

Accessories

Product Number	Designation
985-124	499 OHM Resistor Kit

Product Documentation

Topic	Title	Document ID:
Installation and mounting	P1 DXR Room Automation Station Installation Instructions	A6V11516808
Global datasheet	DXR2 24 V IP DXR2 24 V MS/TP	N9205 N9207
Setup and commissioning	DXR2 VAV Start-up Procedures DXR2 FPB Start-up Procedures DXR2 FCU Start-up Procedures DXR2 Balancing Procedure	A6V10665935 A6V10665938 A6V10665941 A6V10665943
TEC Migration	P1 DXR - TEC Variable Air Volume and Fan Powered Box Migration (PDF) P1 DXR - TEC Variable Air Volume and Fan Powered Box Migration (HTML Help) P1 DXR - TEC Fan Coil Unit Migration Guide (PDF) P1 DXR - TEC Fan Coil Unit Migration Guide (HTML Help) P1 DXR - TEC Heat Pump Migration Guide (PDF) P1 DXR - TEC Heat Pump Migration Guide (HTML Help)	A6V11504404 A6V11546425 A6V11504410 A6V11546427 A6V11504412 A6V11546428
Room Unit Datasheet	Wall-mounted sensors and room operator units for KNX PL-Link, KNX S-mode and KNX LTE-Mode	A6V10394781

Technical Data

Dimensions	7.09 in. (180 mm) x 4.11 in. (104.5 mm) x 2.34 in. (59.5 mm)
Weight	approximately 3 lb (1.35 kg)

Power Data

Power Supply	
Operating voltage	AC 24V -15%/+20%
Frequency	50/60 Hz
Class 2 Power Source	4 A (96 VA) (maximum)

Apparent Power (VA) for Transformer Design						
Base Model	**Base Load**	**Max. Load Triac Output AC 24V~ 0.25 A Each**	**Max. Load all Aux. Outputs AC 24V~**	**Max. Load KNX PL-Link (at 50 mA)**	**Max. Load DC 24V+ (2.4 W)**	**Max. Allowed Power Consumption Including Connected Field Devices**
DXR2.T12P	6	6 x 6 = 36	12	4	-	58

NOTE:
To calculate the total VA, add the Base Load + number of Triacs + field supplies+ KNX PL-Link. This cannot exceed the maximum power consumption. See *Wiring Guidelines for Field Panels and Equipment Controllers* (125-3002) for more information.

Inputs

Analog Inputs		
Resistance Sensor	**Temperature Measurement**	**Voltage Measurement**
AI 1000 Ω	AI PT1K 375	AI 0 to 10V
AI 2500 Ω	AI PT1K 385	AI 0 to 10V (0 to 100%)
AI 10 KΩ	AI Ni1000 [1)]	
AI 100 KΩ	AI Ni1000 DIN	
	AI NTC3K	
	AI NTC10K [1)]	
	AI NTC100K [1)]	

[1)] Configurable default.

Digital Inputs	
Contact query voltage	DC 17 V typical
Contact query current	1.5 mA typical, 7 mA initial current
Contact resistance for closed contacts	Less than 100 Ω
Contact resistance for open contacts	Greater than 50 kΩ

Differential Pressure Sensor	
Connections (nipple diameter)	Diameter 0.20 inch (5.2 mm)
Measuring range	0 to 500 Pa (0 - 2.01 inch WC)
Overload range	0 to 100 kPa (0 - 402 in WC)

Outputs

Analog Outputs	
0 to 10V	1.5 mA maximum

Digital Outputs	
Type (Switching outputs triacs)	High side The Triac closes the contact to AC 24V
Switching voltage	AC 24V
Permissible load	250 mA/6VA per output
Protection	Short-circuit proof

AC 24V outputs for field devices (2: V~)	
Output voltage	AC 24V
Permissible load	500 mA/12 VA overall
Protection against overload	Short-circuit proof

Connections

Interfaces	
P1 Network	Interface type: RS485 Galvanic isolation: Yes Baud rates: 4800 Protocol: P1 Protocol
USB (2.0)	Plug: Type B Galvanic isolation: No, use isolator for connection to grounded USB host, see Accessories [→ 3] Data rate: 12 Mbps Full Speed USB 1.1 and USB 2.0 compatible
KNX PL-Link	Type: KNX TP1 PL-Link, galvanic isolation Baud rate: 9600 bps Bus power: 50 mA Protection against faulty wiring at maximum AC 24V

Wiring Connections	
Pluggable screw terminals	Copper wire or copper strands with ferrules 1 x 0.6 mm diameter to 2.5 mm2 (22 to 14 AWG) or 2 x 0.5 mm diameter to 1 mm2 (24 to 18 AWG) Copper strands without ferrules 1 x 0.6 mm diameter to 2.5 mm2 (22 to 14 AWG) or 2 x 0.5 mm diameter to 1.5 mm2 (24 to 16 AWG)
Slotted screws	Small 1/8 inch blade, tightening torque 0.6 Nm (0.44 lb ft)
Wiring lengths for signals	KNX PL-Link 80 m (263 ft) with internal bus power P1 3,280 ft 1,000 m Signal lines 263 ft (80 m)

KNX/PL-Link Network and Power Wiring [1)]	
Cable configuration	1 or 2 twisted pair ● Pair 1 red/black ● Pair 2 yellow/white
Gauge	20 AWG (solid bare copper)
Twists per foot	4 Minimum
Capacitance	30 pF/foot or less
Shields	100% foil with drain wire
UL type	300 Vrms, CMP (75 C or higher)
CSA type	300 Vrms, FT6 (75 C or higher)

1) Substitute 18 AWG STP CMP (Belden 6320FE 8771000).

Conformity

⚠ CAUTION

National safety regulations

Failure to comply with national safety regulations may result in personal injury and property damage. Observe national provisions and comply with the appropriate safety regulations.

Ambient Conditions and Protection Classification	
Climatic ambient conditions	
• Transport and storage	• Temperature -25°C...70°C (-13°F... 158°F) Air humidity 5 rh...95% rh
• Operation	• Temperature -5°C...50°C (23°F... 122°F) Air humidity 5 rh...95% rh

Standards, directives and approvals	
UL Listing	UL916
Suitable for plenum area installation	UL1995
Federal Communications Commission	FCC CFR 47 Part 15 Class B
CSA Compliance and cUL certification	C22.2 No. 205
Environmental compatibility - RoHS Compliant	The product environmental declaration contains data on environmentally compatible product design and assessments (composition, packaging, environmental benefit, disposal).
ASHRAE 90.1 Supported	
Quality	ISO 9001 (Quality)

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