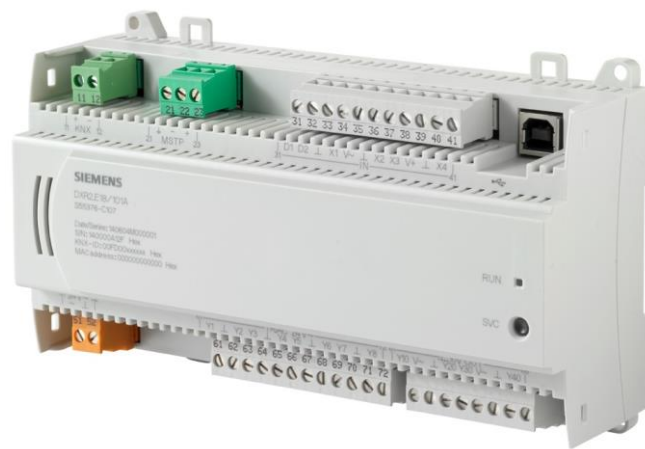


Design Room Automation

## DXR2.T18

P1 DXR



**Automation station which migrates P1 TEC controller technology to the latest Design 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

### Fan Coil Unit (FCU)

- FAN COIL 2-Pipe CW/HW and HW Valves
- FAN COIL 4-Pipe CW and HW Valves
- FAN COIL staged Cooling and staged Heating
- FAN COIL with CW and staged Electric Heat
- FAN COIL–UNIT VENT with CW, HW and Outside Air Damper (OAD) control
- FAN COIL–UNIT VENT with CW, ELEC and OAD control
- FAN-COIL-UNIT VENT with DX, HW and OAD control
- FAN COIL-UNIT VENT with DX, ELEC and OAD control

### Heat Pump

- HP Variable Speed, Two Stage Elec Heat and One Stage Elec Rad with OAD
- HP Variable Speed, Water Source, HW Heat and Modulating Elec Rad with OAD
- HP Single Stage, One Stage Elec Heat and HW Rad with OAD
- HP Multi Stage, Two Stage Elec Heat and HW Rad with OAD
- HP Multi Stage, Hot Gas Reheat, One Stage Elec Heat and HW Rad with OAD
- HP Multi Stage, Ground Source, Hot Gas Reheat, One Stage Elec Heat and HW Rad with OAD

## 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.
- Optional terminal DX, chilled water, hot water or chilled/heated valve (2-pipe or 4-pipe).
- Configurable operating modes (heating, cooling, warm up, cool down, flush/purge, and so on).

## 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.T18-101B	S55376-C124	DXR2.T18 Room Automation Station	2 DI, 4 UI	8 DO Triacs, 4 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

<b>Dimensions</b>	7.09 in. (180 mm) x 4.11 in. (104.5 mm) x 2.34 in. (59.5 mm)
<b>Weight</b>	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) <sup>1)</sup>	Max. Allowed Power Consumption Including Connected Field Devices
DXR2.T18	6	8 x 6 = 48	18	4	6	70

Power for the Triac outputs must be reduced if the max. load of 18 VA is required for AC 24 V field supply on the DXR2.x18.



**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 <sup>1)</sup>	
AI 100 KΩ	AI Ni1000 DIN	
	AI NTC3K	
	AI NTC10K <sup>1)</sup>	
	AI NTC100K <sup>1)</sup>	

<sup>1)</sup> 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

## 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

DC 24V output for field devices (1: V+)	
Output voltage	DC 24V
Permissible load	100 mA/2.4 W
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 mm <sup>2</sup> (22 to 14 AWG) or 2 x 0.5 mm diameter to 1 mm <sup>2</sup> (24 to 18 AWG) Copper strands without ferrules 1 x 0.6 mm diameter to 2.5 mm <sup>2</sup> (22 to 14 AWG) or 2 x 0.5 mm diameter to 1.5 mm <sup>2</sup> (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 <sup>1)</sup>	
Cable configuration	1 or 2 twisted pair <ul style="list-style-type: none"> <li>Pair 1 red/black</li> <li>Pair 2 yellow/white</li> </ul>
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)

<sup>1)</sup> Substitute 18 AWG STP CMP (Belden 6320FE 8771000).

	<b>⚠ CAUTION</b>
	<b>National safety regulations</b> 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 <ul style="list-style-type: none"> <li>• Transport and storage</li> <li>• Operation</li> </ul>	<ul style="list-style-type: none"> <li>• Temperature -25°C...70°C (-13°F... 158°F) Air humidity 5 rh...95% rh</li> <li>• Temperature -5°C...50°C (23°F... 122°F) Air humidity 5 rh...95% rh</li> </ul>

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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