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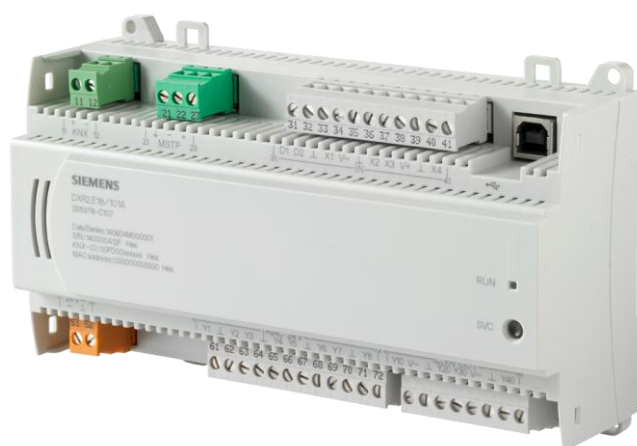
Room Automation stations

DXR2.M18

Automation station with increased functionality and flexibility to support the demands for standard control of terminal HVAC equipment and Total Room Automation (TRA) applications. TRA offers the highest level of flexibility for energy-optimized solutions without sacrificing comfort.

- Compact, programmable room automation stations for HVAC, lighting, and shading.

- BACnet MS/TP Communication (BTL certified).
- KNX PL-Link bus to connect sensors, actuators, and operator units (including bus power).
- USB interface.
- Operating voltage AC 24V.
- Mounted on standard DIN rails or on the wall.
- Plug-in terminal blocks.

Features

- Total Room Automation applications combining multiple disciplines (HVAC, lighting, shading) into one comprehensive solution.
- BTL Listed as a BACnet Advanced Application Controller (B-AAC) device.
- Fully programmable using block programming.
- Proven, pre-loaded applications.
- Extendable application for lighting and blinds.
- 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 DX 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

Chilled Beam

- Chilled Beam Passive 2 Pipe Heating/Cooling and Radiator 1-Stage Electric

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

- Radiator/Baseboard: chilled water, hot water, steam or electric
- Lighting – up to four separated or overlapping zones
    - Manual switching and dimming
    - Occupancy control and Vacancy control
    - Automatic Daylight Harvesting - step or constant level control
    - Stairwell lighting
    - Scene control
- Blinds one or two separate zones
    - Manual control: Up, Down, Predefined positions
    - Occupancy control and Vacancy control
    - Glare Protection
    - Energy efficiency functions including solar radiation optimization
    - Slat angle
    - Scene control

Fan coil unit

- Single, multiple or variable speed fan control.
- Outside air damper control with economizer.
- Ventilation Control or Demand Control Ventilation (DCV) with separate outside air damper (OAD) setpoints for each operational mode.
- Supply (discharge) air temperature control for modulation heating or cooling coils.
- Dehumidification control.
- Terminal coils: heating (hot water or electric), cooling (chilled water or DX) and heating/cooling coil (2-pipe or 4-pipe).
- Radiant ceiling including Chilled beams and Radiator control.

Heat pump

- Heat Pump compressors: Single, multiple or variable speed.
- Air-to-air, water loop or ground water configurations.
- Single, multiple or variable speed fan control.
- Outside air damper control with economizer.
- Dehumidification control.
- Ventilation Control or Demand Control Ventilation (DCV) with separate outside air damper (OAD) setpoints for each operational mode.
- Terminal heating coil (hot water or electric) or hot gas coil.
- Radiant ceiling including Chilled beams and Radiator control.
- Lighting/Shading, Chilled beams and Radiator control.
- Greenleaf determination and display.
- 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.

A detailed description of functionality is available in the ABT (Automation Building Tool) online help.

Communication

- BACnet MS/TP
- USB connection for service and commissioning, firmware download, and LAN access.
- The following functions are available with the KNX PL-Link bus:
  – Communication with room operator units, switches, sensors, actuators, and luminaires.
  – Plug-and-play connection of Siemens field devices with KNX PL-Link.

Type summary

Product Number	SSN	Description	Inputs	Outputs
DXR2.M18-101B	S55376-C124	DXR2.M18 Room Automation Station	2 DI, 4 UI	8 DO Triacs, 4 AO 0 to 10V
DXR2.M18-101K	S55376-C154	Smoke Control DXR2.M18 Room Automation Station	2 DI, 4 UI	8 DO Triacs, 4 AO 0 to 10V

Accessories

Product Number	Designation
985-124	499 ohm Resistor Kit

Product Documentation

Topic	Title	Document ID
Installation and mounting	DXR Installation Instructions	A6V10550039
Global datasheet*	DXR2 24V IP DXR2 24V MS/TP	N9205 N9207
Setup and commissioning	DXR VAV Start-up Procedures DXR FPB Start-up Procedures DXR FCU Start-up Procedures Balancing Procedures	A6V10665935 A6V10665938 A6V10665941 A6V10665943
Room Unit Datasheet	Wall mounted	A6V10394781
BTL listing	DXR PIC Statement	A6V10665948

*   Please see the Global datasheets for additional information not found in this submittal sheet.

Technical data

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

Power data

Power supply	
Operating voltage	AC 24V -15%/+20%
Frequency	50/60 Hz

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.M18	6	8 x 6 = 48	18	4	6	70

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

NOTE:
To calculate the total VA, add the Base Load + the number of Triacs + field supplies+ KNX PL-Link devices.
This cannot exceed the maximum power consumption. See the *Wiring Guidelines* for more information.

Inputs

Analog Inputs		
Resistance sensor	Temperature measurement	Voltage measurement
AI 1000 Ω	AI PT1K 375 (NA)*)	AI 0 to 10V
AI 2500 Ω	AI PT1K 385 (EU)*)	AI 0 to 10V (0 to 100%)
AI 10 KΩ	AI (LG-)Ni1000*)	
AI 100 KΩ	AI Ni1000 DIN*)	
	AI T1 (PTC)*)	
	AI NTC10K**)	
	AI NTC100K**)	

*   A fixed value of 1 Ω is calibrated to correct line resistance.

**   Configurable default.

Digital Inputs	
Contact voltage	Universal input: 18V Digital input: 21V
Contact current	Universal input: 1.2 mA; 7.4 mA initial current Digital input: 1.6 mA; 9.4 mA initial current
Contact resistance for closed contacts	Max. 100 Ω
Contact resistance for open contacts	Min. 50 kΩ

Outputs

Analog Outputs	
0 to 10V	Max. 1 mA

Digital Outputs	
Type (Switching outputs triacs)	High side The Triac closes the contact to AC 24V
Switching voltage	AC 24V
Permissible load	250 mA/6 VA per output (cos phi 0.35) (500 mA/12 VA per output with PWM*)
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	
MSTP	Interface type: RS485 Galvanic isolation: Yes Baud rates: 9600, 19200, 38400, 57600, 115200 Protocol: BACnet over MS/TP Short-circuit proof Protection against faulty wiring at max. AC 24V
USB (2.0)	Plug: Type B Data rate: 12 Mbps
KNX PL-Link	Type: KNX TP1 PL-Link, galvanic isolation Baud rate: 9.6 kbps Bus power: 50 mA Short-circuit proof Protection against faulty wiring at max. AC 24V

Wiring connections	
Pluggable screw terminals	Copper wire or copper strands with ferrules 1 x 0.6 mm dia. to 2.5 mm2 (22 to 14 AWG) or 2 x 0.5 mm dia. to 1 mm2 (24 to 18 AWG) Copper strands without ferrules 1 x 0.6 mm dia. to 2.5 mm2 (22 to 14 AWG) or 2 x 0.5 mm dia. to 1.5 mm2 (24 to 16 AWG)
Slotted screws	Small 1/8" blade, tightening torque 0.6 Nm (0.44 lb-ft)
Wiring lengths for signals	KNX PL-Link 80 m (260 ft) with internal bus power or 300 m (990 ft) with external power supply MS/TP 1,000 m (3,290 ft) Signal lines 80 m (260 ft) For inputs AI 100 kOhm, AI NTC10K, AI NTC100K: 30 m (100 ft) or 80 m (260 ft), if shielded.

KNX/PL-Link Network and Power Wriring.*	
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	300Vrms, CMP (75 °C or higher)
CSA type	300Vrms, FT6 (75 °C or higher)

*   Alternative 18 AWG STP CMP (Belden 6320FE 8771000)

⚠	**⚠ 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 to 70°C (-13 to 158°F) Air humidity 5 to 95% rh.
• Operation	• Temperature -5 to 45°C (23 to 113°F)/ -5 to 50 °C (23 to 122°F) Air humidity 5 to 95% rh.

Standards, directives and approvals	
UL Listing	UL916; UL864 (K variant only)
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).
BACnet BTL Listing	BTL-AAC
CEC Title 24 Supported	
ASHRAE 90.1 Supported	
Quality	ISO 9001 (Quality).