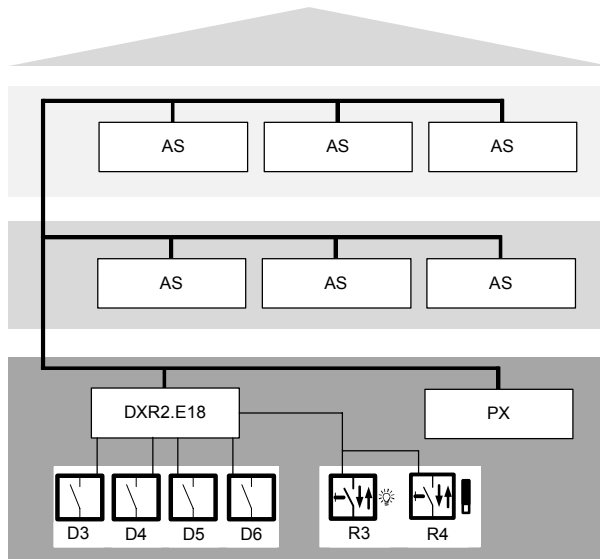




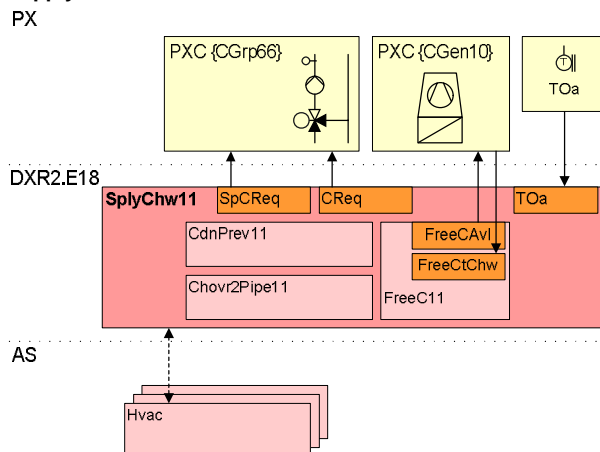
- **Collection and preparing HVAC supply and demand signals as BACnet data points for:**
 - 2 x groups for chilled water supply
 - 2 x groups for hot water supply
 - 1 x group for demand-controlled air supply
- **Room operating mode control for 4 groups via digital input**
- **Manual central operation of facades via KNX PL-Link button**
- **Manual central operation of lighting via KNX PL-Link button**

Plant diagram



| | | | |
|----------|---|----------------|--|
| DXR2.E18 | Automation station for HVAC supply chain | AS | Automation station in the room |
| R3, R4 | KNX PL-Link button for central switching/dimming of luminaires and facade control | D3, D4, D5, D6 | Digital signals for room operating mode |
| | | PX | Automation station for supply plants (Siemens PX or BACnet third-party device) |

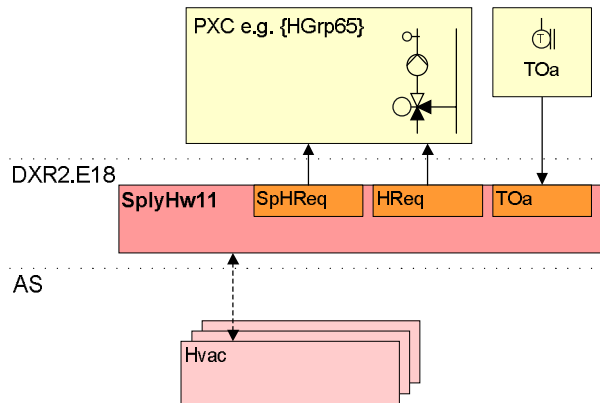
Function diagrams **Supply chain chilled water**



| | | | |
|--------------|--|--------------|--|
| CdnPrev11 | Condensation prevention 11 | FreeCTChw | Free cooling temperature chilled water |
| Chovr2Pipe11 | Changeover function for 2-pipe 11 | HVAC | HVAC room function |
| CHwTOa | Supply chain chilled water outside temperature | PXC {CGen10} | Primary application cooling 10 |
| CReq | Cooling request | PXC {CGrp86} | Primary application cooling group 86 |
| FreeC11 | Free cooling 11 | SpCReq | Setpoint for cooling request |
| FreeCAvl | Free cooling available | SplyChw11 | Supply chain chilled water 11 |
| | | TOa | Outside temperature |

Supply chain hot water

PX



HReq

Heating request

PXC {HGrp65} Primary application heating group 65

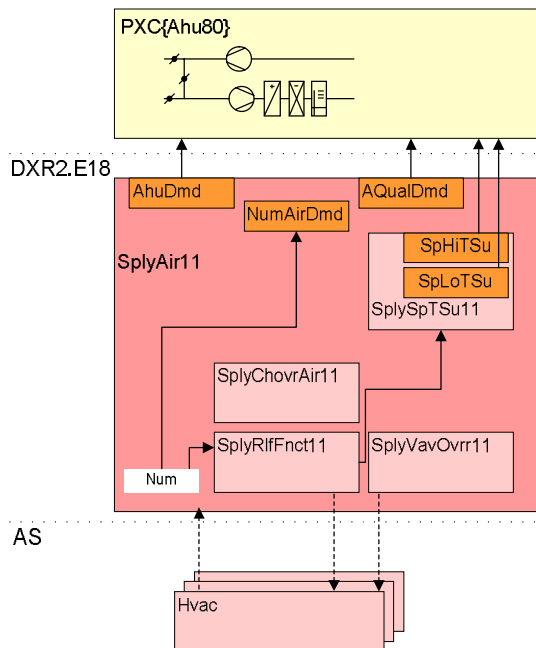
SpHReq

Setpoint for heating request

SplyHw11 Supply chain hot water 11

Supply chain air

PX



AhuDmd

Demand for air handling unit

SplyChovrAir11 Supply chain changeover condition for air 11 (hot/cold air)

AQualDmd

Air quality demand

SplyRlfFnct11 Supply chain relief function 11

NumAirDmd

Number of rooms with air demand

SplySpTSu11 Supply chain setpoint for supply air temperature 11

PXC{Ahu80}

Primary application air handling unit 80

SplyVavOvrr11 Supply chain VAV overridden value 11

SpHiTSu

Setpoint high for supply air temperature

SpLoTSu

Setpoint low for supply air temperature

SplyAir11

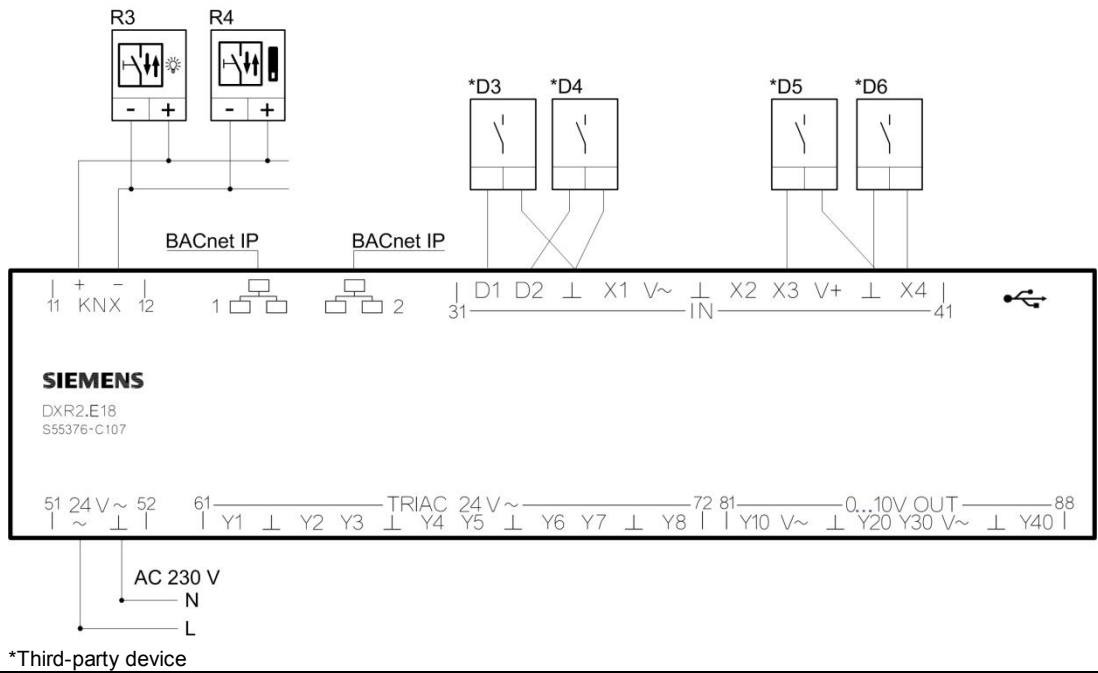
Supply chain air 11

| Description of functions | Basic function | Options |
|--------------------------|--|---|
| | <ul style="list-style-type: none"> • 2 x coordination of supply and demand signals for chilled water <ul style="list-style-type: none"> ○ Setpoint determination for cooling request ○ Free cooling ○ Disable chilled water sequence based on outside temperature ○ Condensation prevention using local condensation monitors in the rooms ○ Centrale valve kick control ○ Central override of all cooling valves • 2 x coordination of supply and demand signals for hot water <ul style="list-style-type: none"> ○ Setpoint determination for heating request ○ Disable hot water sequence based on outside temperature ○ Centrale valve kick control ○ Central override of all heating valves • 1 x coordination of supply and demand signals for air <ul style="list-style-type: none"> ○ Activate supply air supply by a minimum number of rooms with fresh air demand ○ Supply air temperature selection ○ Relief function for stable operation of air handling unit ○ Central override of all VAV | <ul style="list-style-type: none"> • 4 central groups for controlling room operating mode via one digital input. It can be switched between 2 room operating modes per group. • Room operating mode control can be enabled for each group on 3 additional groups with a delay on large buildings. • 2 central groups of manual operation of blinds via KNX PL-Link switch. • Manual blinds operation can be enabled for each group on 3 additional groups with a delay on large buildings. • 2 central groups of manual operation of blinds via KNX PL-Link switch. • VAV position selection for AirOptiControl by damper position, air flow deviation, or setpoint evaluation of air flow. |
| | | Variants |
| | | <ul style="list-style-type: none"> • The room operating modes can be commanded on the DXR2 via a BACnet reference. |

| Siemens devices | Key | Device | Datasheet | Product no. | No. |
|-----------------|---------|---|-----------|---------------------------------|-----|
| | DXR2... | Compact room automation station, BACnet/IP, 24 V, DIN housing, 2 DI, 4 UI, 8 DO Triacs, 4 AO 0...10 V | N9205 | DXR2.E18-101A/ DXR2.E18-102A | 1 |

| Optional third-party device | Key | Device | | | No. |
|-----------------------------|---|--|----|----------------|-----|
| | R3 | I/O pushbutton interface UP 220/31 | 2) | 5WG1 220-2AB31 | 1 |
| | R4 | I/O pushbutton interface UP 220/31 | 2) | 5WG1 220-2AB31 | 1 |
| | D3, D4, D5, D6 | Digital contact to control room operating mode | | | 4 |
| | 2) Additional documents on www.siemens.com/gamma-td | | | | |

Connection diagram



**Application
configuration**

| | Equipment | Values/range | Template settings |
|-----------------------|---|---------------------|--------------------------|
| Central HVAC function | Supply chain hot water 1 | None Active | Active |
| | Supply chain hot water 2 | None Active | Active |
| | Supply chain chilled water 1 | None Active | Active |
| | Condensation prevention 1 | None Active | Active |
| | Changeover function 2-pipe 1 | None Active | Active |
| | Free cooling 1 | None Active | Active |
| | Supply chain chilled water 2 | None Active | Active |
| | Condensation prevention 2 | None Active | Active |
| | Changeover function 2-pipe 2 | None Active | Active |
| | Free cooling 2 | None Active | Active |
| | Supply chain air | None Active | Active |
| | Relief function | None Active | Active |
| | Supply air temperature setpoint determination | None Active | Active |
| | Changeover condition determination air | None Active | Active |
| | Dew point evaluation | None Active | Active |
| | Evaluation room air humidity | None Active | Active |
| VAV override | None Active | Active | |

**Optional
configuration**

| | Equipment | Values/range | Template settings |
|--------------------|-------------------------|--|--------------------------|
| On-board input | Operating mode switch 1 | None D1; Normally open X3; Normally open | D1; Normally open |
| | Operating mode switch 2 | None D2; Normally open X4; Normally open | D2; Normally open |
| | Operating mode switch 3 | None X3; Normally open | X3; Normally open |
| | Operating mode switch 4 | None X4; Normally open | X4; Normally open |
| KNX PL-Link device | Light switch 1 | None UP 220/31; 2 x dimming UP 221/2; 1 x dimming UP 221/3; 1 x dimming UP 285/2; 1 x dimming UP 285/3; 1 x dimming | UP 220/31; 2 x dimming |

Optional configuration

| | Equipment | Values/range | Template settings |
|--------------------------|---|---|----------------------------------|
| KNX PL-Link device | Light switch 2 | None UP 220/31; 2 x dimming UP 221/2; 1 x dimming UP 221/3; 1 x dimming UP 285/2; 1 x dimming UP 285/3; 1 x dimming | None |
| | Blinds switch 1 | None UP 220/31; 2 x blinds control UP 221/2; 1 x blinds control UP 221/3; 1 x blinds control UP 285/2; 1 x blinds control UP 285/3; 1 x blinds control | UP 220/31; 2 x blinds control |
| | Blinds switch 2 | None UP 220/31; 2 x blinds control UP 221/2; 1 x blinds control UP 221/3; 1 x blinds control UP 285/2; 1 x blinds control UP 285/3; 1 x blinds control | None |
| Central shading function | Central operation shading 1 switch-on delay 1 | None Active | None |
| | Central operation shading 1 switch-on delay 2 | None Active | None |
| | Central operation shading 1 switch-on delay 3 | None Active | None |
| | Central operation shading 2 switch-on delay 1 | None Active | None |
| | Central operation shading 2 switch-on delay 2 | None Active | None |
| | Central operation shading 2 switch-on delay 3 | None Active | None |

Standard values

| | Parameter | Values/range | Template settings |
|--------------------|---------------------------------------|--------------|-------------------|
| VAV override value | Enable supply air VAV override value | Yes No | No |
| | Supply air VAV override value | 0...1000 % | 50 % |
| | Enable extract air VAV override value | Yes No | No |
| | Extract air VAV override value | 0...1000 % | 50 % |

Engineering

- The ABT Site engineering tool is required to engineer DXR2 automation stations.
- See the Siemens Download Center www.siemens.com/bt/download for the latest application configurations and workflow tutorials.
- The following evaluation functions can be configured for the AirOptiControl function:
 - Via the VAV damper positions (if known)
 - Via the VAV supply air flow deviation (if air flow is known)
 - Via VAV setpoint evaluation (if neither the damper position nor the air flow is known)

Siemens Switzerland Ltd
Building Technologies Division
International Headquarters
Gubelstrasse 22
CH-6301 Zug
Tel. +41 41-724 24 24
Fax +41 41-724 35 22
www.siemens.com/buildingtechnologies

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