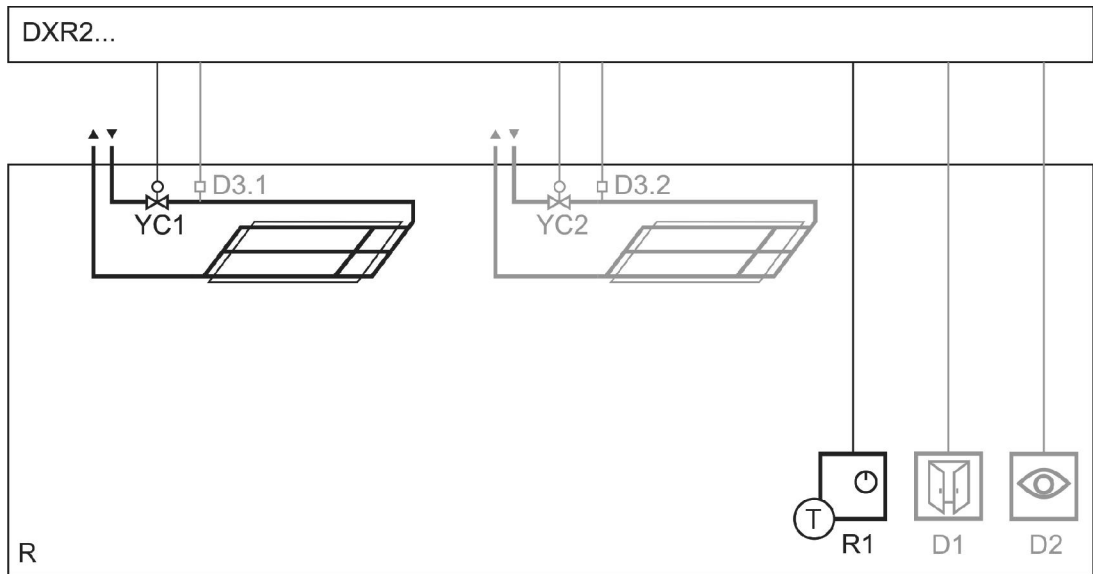




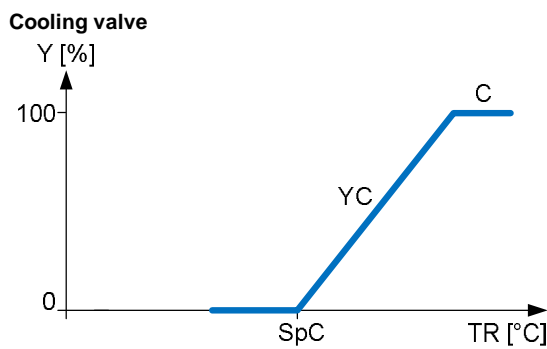
- Cooling with chilled ceiling on analog output
- Modulating control of cooling valve
- Condensation monitoring
- Room temperature operation via KNX PL-Link room operator unit with temperature measurement

Plant diagram



| | | | |
|---------|-------------------------|-----|--------------------------------------------|
| DXR2... | Room automation station | R | Room |
| D1 | Window contact | R1 | Room operator unit with temperature sensor |
| D2 | Presence detector | | |
| D3.1 | Condensation monitor 1 | YC1 | Cooling valve 1 |
| D3.2 | Condensation monitor 2 | YC2 | Cooling valve 2 |

Function diagrams



| | | | |
|-----|----------------------------|----|---------------|
| C | Cooling sequence | Y | Output signal |
| SpC | Effective cooling setpoint | YC | Cooling valve |
| TR | Room temperature | | |

Description of functions**Basic functions**

- PID control for cooling.
- 0...10 V valves are controlled by analog outputs for cooling.
- The temperature is measured in the room operator unit.
- The application allows customers to adjust the room temperature setpoints via the room operator unit.
- The operating modes are Comfort, Pre-Comfort, Economy and Protection.
- Change of operating mode via room unit, presence detector, window contact or central command.

Auxiliary functions

- Green Leaf (RoomOptiControl) function.
- Multisegment use of DXR2 automation stations.
- The application allows for control via centralized commands (e.g. scheduler program for room operating mode).
- Central optimum start control provides best room comfort at the start of occupancy.
- Central operation or reset of setpoints, timed valve kick function.
- Central override functions for valves.
- Seasonal compensation of room temperature setpoints.

Options

- 2nd chilled ceiling.
- Condensation monitoring.
- Optimal energy efficiency by presence detector or window contact.
- Optional system alarms displayed on the management station notify building operators of possible faults.
- Optional trends can be activated for room sensors.

Variants

- The room temperature can be measured by:
 - KNX PL-Link wall-mount sensor
 - KNX PL-Link flush-mount room operator unit
 - KNX PL-Link flush-mount sensors
- Presence can be detected by KNX PL-Link sensor or binary sensor.

| Siemens devices | Legend | Type of unit | Data sheet | Product No. | Qty. |
|-----------------|---------|---------------------------------------------------------------------------------------------------------|------------|---------------|------|
| | DXR2... | Compact room automation station, BACnet/IP, 230 V, flat housing, 1 DI, 2 UI, 3 DO relays, 3 AO 0...10 V | N9204 | DXR2.E09-101A | 1 |
| | R1 | KNX PL-Link room operator unit with temperature sensor, segmented backlit display, touchkeys | N1602 | QMX3.P34 | 1 |
| | YC1 | 2-port, 3-port valve or 3-port valves with bypass, PN16 | N4845 | V..P45.. | 1 |
| | | Electromotive actuator, AC/DC 24 V, DC 0...10 V | N4864 | SSP61 | 1 |

| Optional ¹⁾ | Legend | Type of unit | Data sheet | Product No. | Qty. |
|------------------------|--------|---------------------------------------------------------|---------------|-------------|---------------|
| | D1 | Door/window contact, white | ²⁾ | S 290/11 | ³⁾ |
| | D2 | KNX PL-Link presence detector with brightness sensor | ²⁾ | UP 258D12 | 1 - 4 |
| | D3.1 | Condensation monitor | A6V10741072 | QXA21.. | 1 |
| | D3.2 | Condensation monitor | A6V10741072 | QXA21.. | 1 |
| | YC2 | 2-port, 3-port valve or 3-port valves with bypass, PN16 | N4845 | V..P45.. | 1 |
| | | Electromotive actuator, AC/DC 24 V, DC 0...10 V | N4864 | SSP61 | 1 |

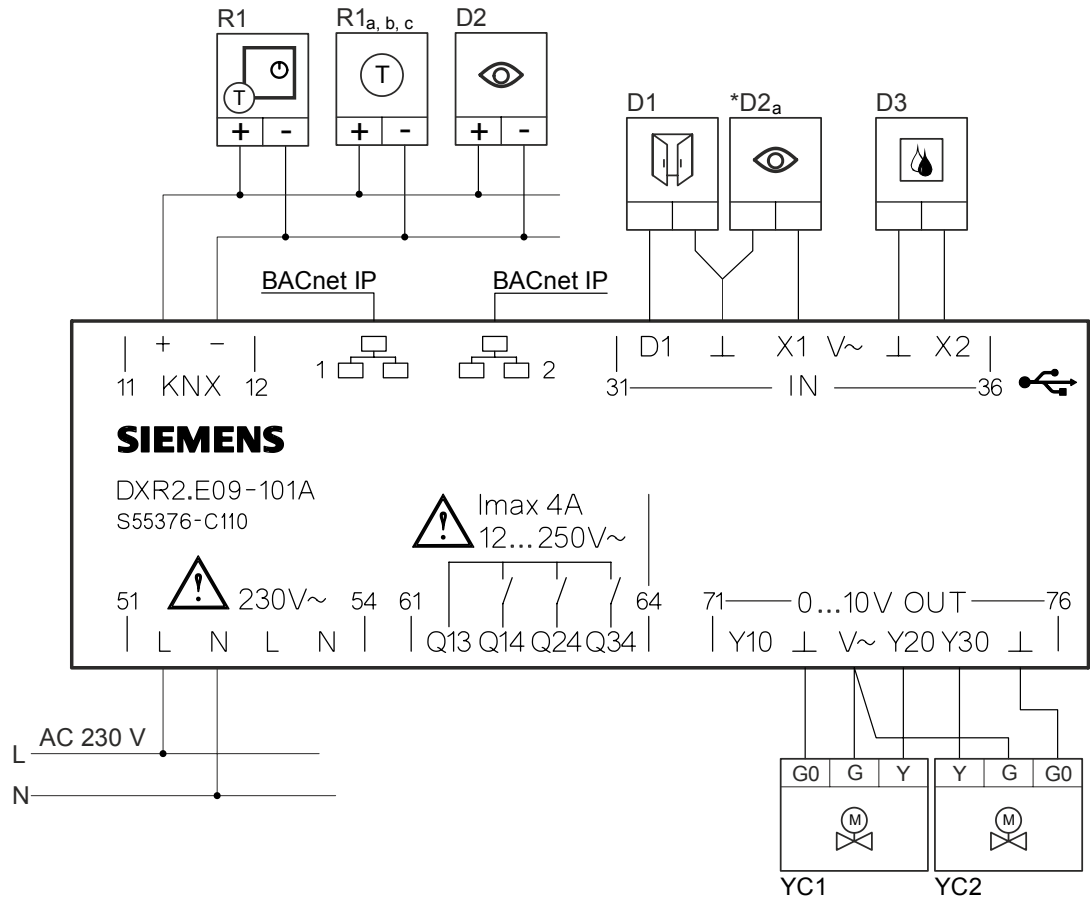
¹⁾ Can be combined according to available on-board I/Os on controller.

²⁾ Further documents on www.siemens.com/gamma-td.

³⁾ Type of operation (NO or NC). Multiple devices of the same type can be connected.

| Variants | Legend | Type of unit | Data sheet | Product No. | Qty. |
|-----------------|--------|----------------------------------------------------|------------|------------------------|------|
| R1 _a | | KNX PL-Link wall-mount room sensor for temperature | N1602 | QMX3.P30 | 1 |
| R1 _b | | KNX PL-Link flush-mount room operator unit | N1601 | QMX3.P36 | 1 |
| R1 _c | | KNX PL-Link flush-mount room sensors | N1411 | AQR253... AQR257... | 1 |

Connection diagram



*3rd party device

Application configuration

| | Equipment | Values/Range | Template settings |
|---------------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| On-board output | Radiant ceiling valve position 1 | Chilled; Y20; 0...10 V Chilled; Y30; 0...10 V Heating/chilled 2-pipe; Y20; 0...10 V Heating/chilled 2-pipe; Y30; 0...10 V Heating/chilled 4-pipe 6-way; Y20; 0...10 V Heating/chilled 4-pipe 6-way; Y30; 0...10 V Heating; Y20; 0...10 V Heating; Y30; 0...10 V | Chilled; Y20; 0...10 V |
| KNX PL-Link devices | Room operator unit device 1 | QMX3.P02, QMX3.P34, QMX3.P36, QMX3.P37, QMX3.P74 | QMX3.P34 |

Optional configuration

| | Equipment | Values/Range | Template settings |
|---------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| On-board output | Radiant ceiling valve position 2 | Chilled; Y20; 0...10 V Chilled; Y30; 0...10 V Heating/chilled 2-pipe; Y20; 0...10 V Heating/chilled 2-pipe; Y30; 0...10 V Heating/chilled 4-pipe 6-way; Y20; 0...10 V Heating/chilled 4-pipe 6-way; Y30; 0...10 V Heating; Y20; 0...10 V Heating; Y30; 0...10 V | Chilled; Y30; 0...10 V |
| On-board input | Presence detector 2 (D2 _a) | | X1, Normally open |
| | Window contact (D1) | | D1; Normally closed |
| | Condensation monitor (D3.1, D3.2) | | X2; Normally closed |
| KNX PL-Link devices | Sensor device 1...4 (D2) | | JP 258D12 |

Default values

| | Parameter | Values/Range | Template settings |
|-----------------------|----------------------------------------|----------------------------------------------------------|--------------------------|
| Temperature setpoints | Cooling setpoint for Comfort | 0 ... 50 °C | 24 °C |
| | Delta cooling setpoint for Pre-comfort | 0 ... 10 K | 1 K |
| | Cooling setpoint for Economy | 0 ... 50 °C | 35 °C |
| | Cooling setpoint for Protection | 0 ... 50 °C | 40 °C |
| Radiant ceiling | Enable condensation monitor input | Yes, No | Yes |
| Room operator unit | Room unit, display temperature | None Display room temperature | Display room temperature |
| | Room unit, display windows status | Yes, No | No |
| | Room unit, display heat./cool. status | Yes, No | Yes |
| | Enable operation: room temp. setpoint | Yes, No | Yes |
| | Room unit, room temp. setpoint display | Absolute temperature setpoint Relative setpoint shift | Relative setpoint shift |
| | Enable operation: fan speed setpoint | Yes, No | No |
| | Enable operation: presence button | Yes, No | No |
| | Enable operation: temporary Comfort | Yes, No | No |
| | Enable operation: room op. mode | Yes, No | No |
| | Enable operation: Green Leaf | Yes, No | Yes |

Engineering

- ABT Site engineering tool is required to configure the DXR2 automation stations.
 - See the Siemens Download Center at www.siemens.com/bt/download for the latest application configuration and workflow tutorials.
 - Option combination according to available on-board I/Os on controller.
 - D2_a (on-board presence detector) to be configured in ABT Site under ‚Presence detector 2‘ for maximum combination of optional devices.
Type of operation (NO or NC). Multiple devices of the same type can be connected.
-

Management station

Sample presentation of a chilled ceiling application on the Desigo CC management station.

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