Analog Input

4-gang

1

2

	Ref.-No.
KNX analog input	**2214 REGA**
ETS-product family:	Input
Product type:	4-gang analog input
Series embodiment (SE)-device (4 units)	

3

The analog input processes measured-value data supplied by analog sensors. Four analog transducers in any combination can be connected to the input. The analog input evaluates voltage and current signals.

Voltage signals:	0 ... 1 V DC	0 ... 10 V DC
Current signals:	0 ... 20 mA DC	4 ... 20 mA DC

The 4 ... 20 mA current inputs can be monitored for open-circuit conditions.

The following sensors from the JUNG range can be connected to the analog input:
Brightness (WS 10 H), Twilight (WS 10 D), Temperature (WS 10 T), Wind (WS 10 W) and Rain (WS 10 R).
An optional analog input extension module, ref.-no. 2214 REGAM, connected by a 6-pole system connector adds four more analog sensor inputs to the device. A 6-pole connector can be used for future extensions.

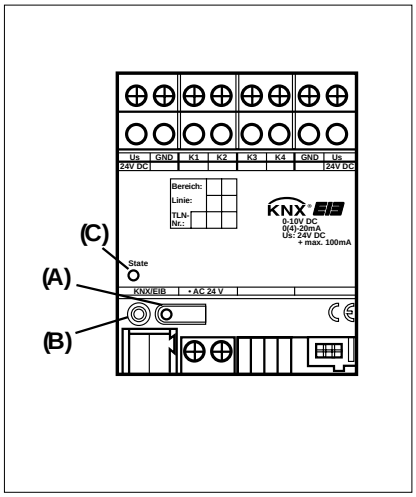
The measured values are encoded by the analog input in the form of value telegrams (DPT 9.0xx, 2 byte or DPT 5.001, 1 byte) so that other bus subscribers (e.g. visualization software, Info Display) can display these measured values, generate messages or intervene in automatic control processes.

Each measured value has two presettable limit values. As soon as a measured value rises above or drops below these limits, the analog input can transmitt the corresponding messages. The limit values can also be modified in operation by other devices as, for instance, a push-button sensor serving as a value transmitter.

The analog input needs 24 V AC for operation. This voltage can be supplied, for instance, by the power supply unit (WSSV 10). This power supply unit can at the same time also supply the power for wind sensor heating or the power for a connected analog input extension module.

The terminals U_S and GND supply 24 V DC (max. 100 mA altogether) to external analog sensors. In the event of short-circuits or overload between U_S and GND, the power is shut off.

3 Layout:



Dimensions:
Width: 72 mm (4 units)
Height: 90 mm
Depth: 58 mm

Controls:
A: Programming button
B: Programming LED
C: Status LED, three-colour (red, orange, green)

Status LED functions:

LED off	no power supply
LED orange/on	modul scan by analog input
LED orange/flashing fast	parameterization of analog extension module
LED red/flashing slowly	fault: low voltage at module connection / U_S short-circuited
LED red/flashing fast	fault: no project, parameterization error
LED green/flashing slowly	module scan terminated, projecting OK parameter download into modules
LED green/flashing fast	parameter download to modules
LED green/on	initialization process terminated, everything OK
slow flashing:	approx. 1 Hz
fast flashing:	approx. 2 Hz

4 Technical data

KNX Supply

Voltage:	21 – 32 V DC (SELV)	
Power consumption:	typically 150 mW	
Connection:	Bus terminal (KNX Typ 5.1)	
External supply, voltage:	24 V AC ± 10 %	
Current consumption:	250 mA max.	
Power consumption:	max. 4 VA	
Connection:	Screw terminals:	0.5 mm² to 4 mm², single-wire 0.34 mm² to 4 mm², fine-wire (without ferrule) 0.14 mm² to 2.5 mm², fine wire (incl. ferrule)

Response to voltage failure

Bus voltage only:	No communication with KNX.
Operating voltage only:	No communication with KNX, no feeding of the measuring sensors.
Bus and mains/operating voltage:	No communication with KNX, no feeding of the measuring sensors.

Response to recovery

Bus voltage only:	No communication with KNX, no feeding of the measuring sensors.
Operating voltage only:	No communication with KNX.
Bus and mains/operating voltage:	Communication with KNX according to initialization parameters.

Module connection

Numbers:	1
Connection:	6-pole system connector for analog input extension module

Analog inputs

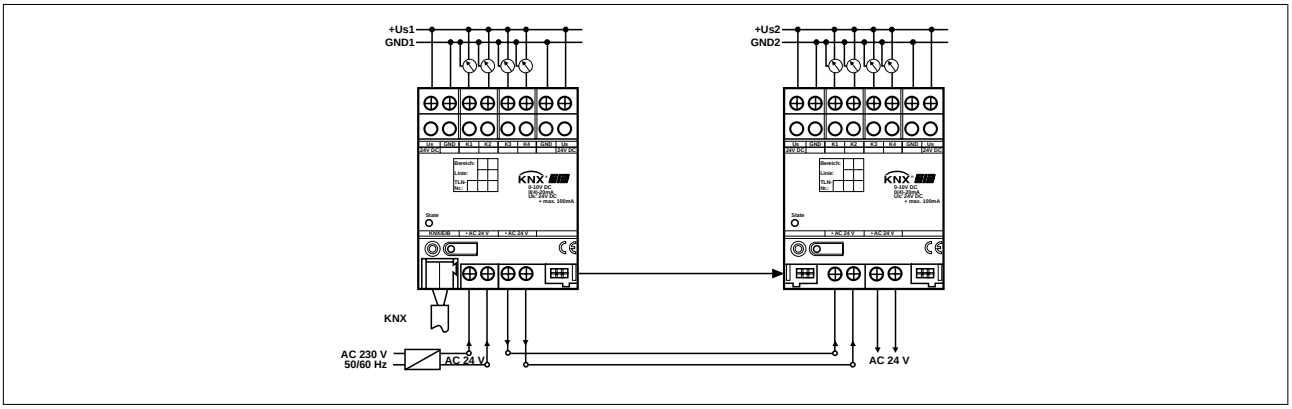
Number:	4	
Signal voltage/current:	0 ... 1 V DC, 0 ... 10 V DC, 0 ... 20 mA DC or 4 ... 20 mA DC, depending on parameterization	
Input resistance:	Voltage measurement:	approx. 18 kΩ
	Current measurement:	approx. 100 Ω
Connection:	Screw terminals:	0.5 mm² to 4 mm², single-wire 0.34 mm² to 4 mm², fine-wire (without ferrule) 0.14 mm² to 2.5 mm², fine-wire (incl. ferrule)

Measuring sensor power supply outputs

Number:	2	
Rated voltage:	24 V DC ±10 %	
Rated current:	100 mA DC (total)	
Connection:	Screw terminals:	0.5 mm² to 4 mm², single-wire 0.34 mm² to 4 mm², fine-wire (without ferrule) 0.14 mm² to 2.5 mm², fine-wire (incl. ferrule)

Protection:	IP 20
Safety class:	III
Mark of approval:	KNX/VDE
Ambient temperature:	–5°C ... +45°C
Storage/transport temperature:	–25°C ... +70°C (storage above +45°C reduces the lifetime)
Mounting position:	any
Minimum distances:	none
Fastening:	on DIN rail 35 x 7.5

4 Wiring diagram for connection of an analog input module



Remarks on the hardware

Please observe the following basic rules when installing the analog input station:

- Any sensors connected can be power-supplied via terminals $+U_S$ and GND (refer to the wiring diagram). These terminals are provided in duplicate and are internally connected with each other. The total current consumption of all sensors power-supplied this way must not exceed 100 mA.
- In the event of a short-circuit between $+U_S$ and GND, the voltage will be switched off. After the elimination of the fault, the voltage will reappear automatically.
- Sensors connected can also be power-supplied externally (SELV), e.g. if their current consumption exceeds 100 mA. In this case, such sensors must be connected between terminals K1 ... K4 and GND.
- The $+U_S$ and GND terminals must not be connected with the corresponding inputs of a different device. The power supply of any sensors used through an analog input module connected is not permitted (hazard of destruction).

Please observe the following basic rules when installing the analog input extension module:

- The analog input extension module is connected to the analog input only with the 6-pole system connector (supplied with the analog input extension module). Only one analog input extension module can be connected to the device.
- The analog input and the analog input extension module can be connected to the same 24 V AC power supply. The connecting terminals are double terminals for easy wiring. Corresponding terminals are marked with dots.
- The $+U_S$ and GND terminals of the analog input extension module must not be connected to the corresponding terminals of another device, e.g. of the analog input, to prevent problems caused by ground loops.
- Sensors connected to the inputs of the analog input extension module must not get their power supply from the analog input. Sensors connected to the inputs of the analog input must not get their power supply from the analog input extension module.
- If defective, an analog input extension module can be replaced by one of the same type while the system is in operation (disconnect voltage supply from module!). After the replacement, the analog input makes a reset after abt. 25 s. This action re-initializes all inputs and outputs of the analog input / analog sensor interface and of the module connected and resets them to their original state.
- Removal or addition of modules without adapting the project and subsequent downloading into the analog input is not permitted as this will result in system malfunctioning.
- After first activation, the analog input performs a module scan (status LED: “Orange / On”). As a new decive is not projected from the start, the status LED thereafter switches to “Red / Flashing fast”.
- A connected analog input extension module signals its ready-for-operation status by switching its status LED to “Flashing fast”.
- After loading a project into the analog input, the status LED switches to “Green / On”; and the module switches its status LED off.

4 Scope of functions:

- Up to four analog sensors with output signals of 0 ... 1 V DC, 0 ... 10 V DC, 0 ... 20 mA DC, 4 ... 20 mA DC can be connected directly to the analog input.
- The connecting lines of the sensors with 4 ... 20 mA outputs can be monitored for open-circuit conditions.
- An analog input extension module permits the connection of up to four more analog sensors.
- The values measured by the analog sensors can be transmitted in the form of 16-bit or 8-bit values.
- The measuring values can be transmitted after value changes and/or cyclically.
- For analog sensors, two limit values with definable hysteresis characteristics can be used.
- The limit values can be modified with external devices as 8-bit values or as 16-bit values.