ER-01U-G1*

General

The ER-01U-G1 single room controller is a temperature management system designed to meet the most wide-ranging room requirements. By regulating the heat in each room as required, the system ensures efficient use of energy in radiators and underfloor heating. The communication-capable controllers can be easily integrated into the superordinate ISYGLT BUS system for building management. The controller can be programmed and configured very easily with our ProgrammDesigner programming software (from version 3. 40.3). By communicating with the primary system, the controllers ensure that only the amount of energy actually required is processed.

Radiators and cooling ceilings etc. are controlled by thermal, magnetic or electromotive actuators. The logical connections e.g. to presence sensors, window contacts, overriding energy block by the caretaker or by interval timer are implemented in the master module of the ISYGLT BUS system. The control key allows you to operate the desired mode manually. The current mode is displayed by means of LEDs.

* ER-01U-G1A = with analogue output
* ER-01U-G1D = with digital output

Operating modes

Single room temperature controller ON/OFF (energy block via the ISYGLT BUS system)

The energy block is used to switch the controller to energy saving mode during long periods of absence. This means that the only energy consumed is the amount required to maintain the target temperature and thus prevent freezing. The target temperature for frost prevention can be freely parameterised. Energy block mode is signalised when all the LEDs on the room controller are out.

ON: all modes can be set
OFF: all LEDs are off. The target temperature is the setting for frost prevention (can be freely parameterised)

Day mode

In “day mode” both the target temperatures for HEATING and COOLING are active. Further subdivision into “present”, “absent” and “remote operation” is possible. The target temperature for “day mode and present” (comfortable target temperature) and “day mode and absent” (daytime target value) can be freely parameterised. In remote mode you have the option of specifying the target temperature for each room with the “ROOMREG” command via the ISYGLT BUS system.

Night mode

In “night mode” both the target temperatures for HEATING and COOLING are active. Further subdivision into “present”, “absent” and “remote operation” is possible. The target temperature for “night mode and present” (comfortable target temperature) and “night mode and absent” (night-time target value) can be freely parameterised. In remote mode you have the option of specifying the target temperature for each room with the ROOMREG command via the ISYGLT BUS system.

Frost prevention

The “frost prevention” mode is active when the single room temperature controller is switched off via the ISYGLT BUS system, the window contact is active, or a lower room temperature than the set „frost prevention” target value is recorded. The “frost prevention” temperature can be freely parameterised.

Dew point alarm
The dew point alarm only takes effect in conjunction with “cool“ mode. It is activated by means of a dew point sensor on the ISYGLT BUS system.

Remote mode
You can select the room temperature controllers using the ISYGLT BUS system. You can call up the ACTUAL temperature and specify the TARGET temperature and the input signal for the room temperature controller valve via the ISYGLT BUS system. On request all the functions of the room temperature controller can be called up and controlled via the ISYGLT BUS system.

Comfort key on the single room controller
This key controls the switch between “comfortable temperature” and “day/night mode“.Every time you press the key the previous status will be cancelled. This means that the room user can choose between two different target temperatures. The target temperatures can be freely parameterised for both modes. If the ISYGLT BUS system switches to night mode during “day and present” mode (comfortable temperature), the controller will go into “night mode and absent” mode. If the ISYGLT BUS system switches back to “day” mode, the controller will remain in “absent” mode. The key can be locked to prevent manipulation. This can be done on a permanent basis or just at certain times via the ISYGLT BUS system. The modes can be set by the ISYGLT BUS system via the BUS and can be confirmed. It is possible to specify a mode via the ISYGLT BUS system and then lock the key to prevent manipulation, for example, in schools etc. You can also switch one room to another mode using the ISYGLT BUS system and then let the room user determine the further course of action using the key on the controller. This function is freely programmable and can be adapted to suit individual requirements.

The comfort key function depends on the mode:

Day mode and presence sensor locked:
Switch between “present” and “absent” mode (switch between two target temperatures that can be freely parameterised)

Control via the ISYGLT BUS system:
From “day mode + present” to “night mode + absent”
From “night mode + absent” to “day mode + absent”

Night mode and presence sensor locked:
The presence key has a veto function. When it is pressed the mode switches between “absent“ and “present” (1...255min). The controller then automatically goes back to „absent”. The veto function can be repeated as often as desired.

Control via the ISYGLT BUS system:
From “day mode + present” to “night mode + absent”
From “night mode + absent” to “day mode + absent”

Day mode and presence sensor released:
Switch between present and absent.

Presence detector activates “present” mode when at “absent”. When you leave the room and hit the presence key, the presence detector is locked for 1...255sec to prevent the “present” mode from being reactivated.

Control via the ISYGLT BUS system:
From “day mode + present” to “night mode + absent”
From “night mode + absent” to “day mode + absent”

Night mode and presence sensor released:
Switch between “present” and “absent”.

Presence detector activates “present” mode when at “absent”. Once the time, which can be parameterised from 1...255min, has elapsed, the mode will automatically change to “absent” (can be retriggered).

Control via the ISYGLT BUS system:
From “day mode + present” to “night mode + absent”
From “night mode + absent” to “day mode + absent”

Function displays

	LED present (green)	LED lights up when the comfortable temperature target value has been activated (presence key or presence sensor)
	LED absent (green)	LED lights up when the controller is in stand-by mode. The current target value then depends on the day or night mode
	LED night mode (yellow)	LED lights up in night mode. The mode status is controlled by the master e. g. by the switching times of a radio controlled clock integrated into the system.
	prevention (red)	LED lights up when room temperature < frost prevention target temperature. The „frost prevention active“ status can be analysed in the master, the frost prevention target temperature can be parameterised
	LED dew point alarm (red)	LED reflects the status of the input (dew point sensor) LED lights up when input is active
	LED BUS (yellow)	LED is located under the target value slide knob and is visible when you remove the knob. Flashing indicates communication with the MASTER via the BUS

Mode
Basic day temperature (green)
Comfortable temperature during the day
Comfortable temperature during the night
Night mode
Window open (green flashing LED)
Saved parameter data is destroyed. Notify the service engineer and reparameterise the appliance (red flashing LED)
Frost prevention alarm No connection to the temperature sensor or sensor faulty (red flashing LED)
Dew point alarm on cooling ceiling

Target value slide

You can change the target value for the day, night and comfort modes by ±0-3K (can be parameterised) using the knob on the front.
The target value slide is ignored in energy block mode and remote mode. This ensures that the frost prevention temperature cannot be lowered. It also ensures that the target value specified by the ISYGLT BUS system is implemented, the ISYGLT BUS system does not know the setting of the target value slide.

Temperature correction

A calibratable semiconductor sensor is used as the temperature sensor. If the room controller is installed somewhere with a temperature different to that of the area in use, you can adjust the target value again using the parameterisation software (ProgrammDesigner), and thus compensate for temperature gradients in the room.

Inputs

Window contact input

When window contact input E is activated, the energy block will be activated. The same function can also be set via the ISYGLT BUS system. The frost prevention temperature determines the target temperature for the controller. The direction of action of the input can be parameterised and can be analysed by the ISYGLT BUS system irrespective of the local lock.

Display on room controller:

An active input is signalled by the present and absent LEDs flashing alternately.
If the window contact is deactivated, the system returns to the respective operating mode (day or night as specified by the ISYGLT BUS system). The "present" mode (comfortable temperature) is always switched off when the window contact is activated and must be turned on again if necessary once the window is shut.

Presence sensor
A presence sensor can be integrated into the single room temperature control via the ISYGLT BUS system. The room controller mode switches from “absent” to “present” when the movement sensor is activated. When the presence sensor is activated, a timer, which can be retriggered, starts. Once the set time elapses, the mode switches back to that specified by the ISYGLT BUS system. The timer time can be parameterised [1min.... 255min].

Dew point sensor input (ISYGLT BUS system)
A dew point sensor can be integrated into the single room temperature control in “cool” mode via the ISYGLT BUS system. When the sensor is activated, the actuator is switched off in cool mode. The dew point LEDs light up to signal this status.

Outputs
ER-01U-G1A (with analogue output)
The single room controller has a 0-10V output with 8-bit resolution.

The output can carry a maximum load of 10mA. (Maximum 4 electromotive actuators e.g.. Heimeier EMO-1)
The 24V supply voltage for the actuators must not exceed 300mA.

ER-01U-G1D (with digital output)
One of the following functions can be issued at the digital output by means of parameterisation:

- Digital output from the master
- Output for radiator heating element
- Output for underfloor heating
- Output for cooling unit
- Load capacity: maximum Ub-1V 300mA continuous load (1 thermal actuator)

Design
- Flush mounted plastic casing suitable for GIRA S-Color pure white

Special function DIP switch 1
- Standby
  - Switch must be at OFF

Parameterisation

The parameters listed below can be configured using Programmdesigner and transferred via the master module.

Setting	Description	Parameterisation range	Presetting
Heating:			
Target temperatures			
	day without presence	0...50°C	21°C
	night without presence	0...50°C	17°C
	comfort with presence	0...50°C	24°C
Protection temperatures	frost prevention	0...50°C	7°C
Take into account outside temperature (requires an outside temperature sensor!)			
	Take into account outside temperature for heating		OUT
	Outside temperature for heating mode ON	0...50°C	15°C
Compensation			
	Winter compensation		ON
	Increase for winter compensation based on –20°C	1...7°C	2°C
Valve control Analogue output 0-10V			
	Heating boost P-component	0,5...15°C	1,6°C
	Heating reset time	1...240min	70min
	Min. correction variable analogue signal	0-10V	0V
	Max. correction variable analogue signal	0-10V	10V
Valve control Radiator (2-point PWM output)			
	Reset time, I-component	1...240min	90min
	PWM, cycle	1...60min	20min
	P-boost, Temp. for 100% response	1...15°C	4,5°C
	P-boost, fast heat, Temp. for 100% response	1...15°C	2,8°C
	Minimum opening time valve (PWM cycle)	0...60min	0min

Setting	Description	Parameterisation range	Presetting
Valve control underfloor heating (2-point PWM output)			
	Target value offset, difference underfloor heating/radiator		
	Reset time, I-component		
	PWM cycle		
	P-boost, Temp. for 100% response		
	Minimum opening time valve (PWM cycle)		
	Temperature difference for switch-off minimum opening time		
Cooling:			
Target temperatures			
	day (without presence) night (without presence) comfort (with presence)		
Protection temperatures			
	Heat protection alarm		
Take into account outside temperature (requires an outside temperature sensor!)			
	Take into account outside temperature for cooling		
	Outside temperature for cool mode ON		
Control functions			
	General cooling function	ON/OFF	OFF
	Heating in cool mode	Heating permitted, always OFF	OFF
	Target cooling value	Only from single room controller, also from GLT system	Only from single room controller,
Compensation			
	Summer compensation (Outside temperature sensor required!)	ON/OFF	ON
	Max. temperature difference to outside temperature	0...30°C	10°C

Setting	Description	Parameterisation range	Presetting
Valve control			
	Reset time, I-component	1...240mins	60mins
	PWM cycle	1...60mins	20mins
	P-booster, temperature for 100% response	1...15°C	4°C
Times:			
Presence mode			
	Automatic presence mode switch-off after time (timer)	active/not active	not active
	Presence mode switch-off delay	1...255mins	30mins
	Restart block presence input on switch-off with key	1...240secs	15secs
Veto function (night)			
	Comfort extension (Veto in night mode)	1...255mins	60mins
Special functions:			
Keys			
	Presence key	locked/released	released
Window contact local input			
	Window contact input Release	Analysis/ no analysis	analysis local input
	Window open at Contact	closed/open	closed
Digital output			
	Output used for	radiator valve, underfloor heating valve, cooling unit contact, digital output from master	radiator valve
	Output effect	active/valve without current closed inactive/valve without current open	active/valve without current closed
Temperature sensor compensation	Temperature display error	displays too much displays too little	displays too much
	Absolute display error	0...5°C	0.0°C

Setting	Description	Parameterisation range	Presetting
Target value slide limit (setting controller)			
	Limit (effective positive and negative)	+/- 0...6°C	3.0°C
Forced flushing valves			
	1 flush per week	ON/OFF	ON
Analogue output feedback signal to master			
	Feedback signal channel used for	heating input signal, cooling input signal, heating target value deviation, cooling target value deviation, current heating target value , current cooling target value	input signal heating
	Feedback signal resolution	1°C = digit 0.5°C = 1 digit 0.25°C = 1 digit	1°C = 1 digit

Room controller output bits

The module has 8 output bits which are to be analysed in the master as inputs.

Ex.1 error bit	Bit = 1, if an error has occurred in the room controller (temperature sensor, parameter memory)
Ex.2 Input status Window contact	Bit reflects the current status of the input taking into account the direction of action Bit = 1, input active
Ex.3 Cooling switch (unit control)	Control bit for cooling e. g. for switching on the air-conditioning via the ISYGLT BUS system if room temperature is too high. Bit = 1, if cold air is required
Ex.4 Excess/insufficient temperature alarm	Bit = 1, if current room temperature is lower/higher than frost prevention target value heat protection target value
Ex.5 Comfort mode	Feedback signal when room controller in comfort mode Bit = 1, when comfort mode active
Ex.6 Status Energy ON/OFF	Feedback signal energy on/off Bit = 0, when energy OFF only frost prevention Bit = 1, when energy ON
Ex.7 Valve control	Control bit for radiator heating e. g. if actuators (thermal drives) are located on ground floor or in the other half of the room, they can be controlled via the BUS Radiator Bit = 1, when control valve OPEN
Ex.8 Valve control Underfloor	Control bit for underfloor heating e. g. if actuators (thermal drives) are located on ground floor or in the other half of the room, they can be controlled via the BUS (no actuator cable from room controller to valve) Bit = 1, when control valve OPEN

ME1 ACTUAL temperature	ACTUAL temperature value calulated in Merker using the ROOMREG command
ME2 Input signal	Input signal for the ext. electronic actuator of the room controller. You can select the following for ME2 by parameterisation: Heating input signal Cooling input signal Heating target value deviation Cooling target value deviation Current target value heating Current target value cooling

Room controller input bit

The module has 8 input bits which are to be analysed in the master as outputs.

Ax.1 Relay output	PNP transistor output for actuator on controller
Ax.2 Energy on/off	Switch standby and normal mode
Ax.3 Comfort on/off	Switch comfort mode on/off
Ax.4 Dew point sensor	Analysis of external dew point sensor
Ax.5 Lock Presence key	Presence key lock on/off
Ax.6 Presence sensor	Analysis of presence sensor by BUS system
Ax.7 Window contact	Analysis of window contact by BUS system
Ax.8 day/night	Switch day (1) / night (0)
MA	Room temperature target value, specified by ISYGLT BUS system (Merker, ROOMREG command)

Room controller error messages

The room controller conducts an internal self test and signals any errors by means of LEDs.

- Frost prevention and dew point LEDs flash alternately:
  Saved parameter data is destroyed. Notify the service engineer. The appliance needs to be reparameterised.
  The appliance will use default values, thus sustaining functionality!
  The default settings are as follows: day 20°C, night 17°C comfort 24°C, frost 8°C.
- Frost prevention LED flashes:
  no connection to temperature sensor or sensor faulty.
- LED BUS does not flash
  The module is not connected to the master module via the ISYGLT BUS. If this error occurs the controller will work independently of the ISYGLT BUS system. It is, however, still in day mode (no night mode) as the module has no information about the current time.

Assembly

The single room controller can be screwed to the wall on a flush mounted socket or by means of an optional AP frame.

Please note the following when assembling:

Assemble in the zone in use approx. 1.5m above the floor and at least 0.5m away from nearest wall. Do not expose to direct sunlight. Do not mount on an outside wall, in recesses, behind curtains, near doors or near heat sources (lamps, fireplaces).

Technical data

Type	ER-01U-G1A (analog output)	ER-01U-G1D (digit output)
Art. Nr.	80080151	80080152
Operating voltage	12-35V DC 12-27V AC	
Current consumption	max. at 12V 30mA; at 24V 30mA ; 35V 30mA (without exposure of the outputs)	
Binary inputs	Input E connection window contact (optical coupler input) sense of effect programmable (5mA at 24V)	
Analog output UA1 (only ER-01U-G1A)	0-10V for connection of the electr. valve gears with 0-10V interface max. 10 mA loadable	
Switch output (only ER-01U-G1D)	Transistor output (PNP) max. Ub-1V / 0,3A	
Output current for actuators	max. 300mA (operating voltage -1V)	
Alignment temperatur of actual value	± 3K (per parameter software)	
Setting range nominal value slider	± 0...3K (per parameter software)	
Measuring element	semiconductor sensor calibrated ± 0,5K	
Subnet (RS-485)	max. 5,6V limited by Z-diodes	
Dimensions	HxBxT 70x70x20mm (+30mm in UP-box)	
Weight	90g	
Connections	Screw terminals 1,5mm²	
Operating temperatue	0...+50°C	
Storage temperature	-25...+70°C	
Humidity	0 ...85 % r.F. non condensing	
Protection class	III	
Protection grade	IP00	
ESD immunity	Category 3 according to IEC-1000-4-2	
EMV immunity	Use in typical industrial enviroment. Category 3 according to IEC-1000-4-4 (Test was carried out within a whole system)	
CE sign	yes	

Terminal assignment

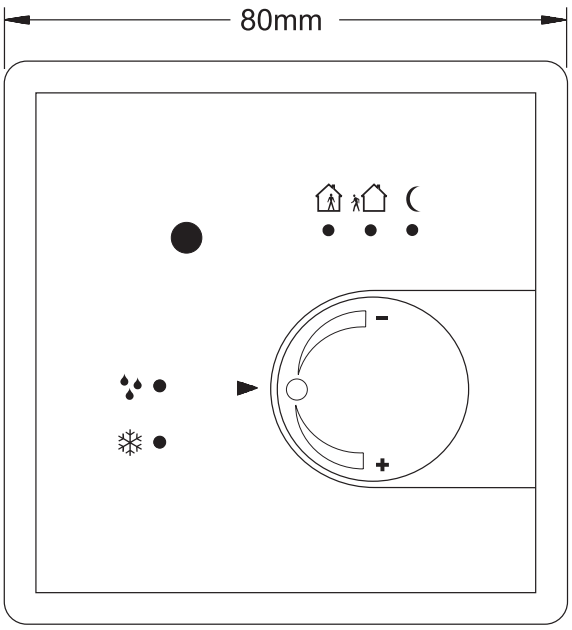
Terminal assignment for ER-01U-G1A

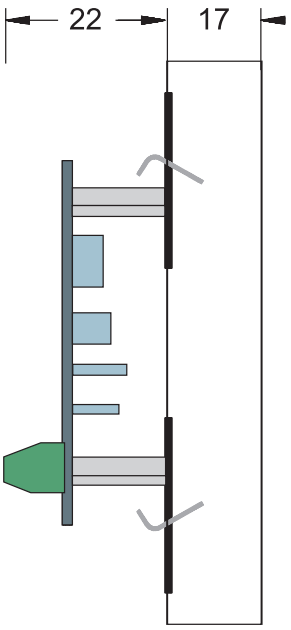
≅Ub	Operating voltage
0V	Operating voltage
A	Subnet (BUS A, RS-485)
B	Subnet (BUS B, RS-485)
E	Input window contact
UbV	24V supply of the actuators
GND	0V for actuators (control signal)
UaV	Analog output 0-10V

Terminal assignment for ER-01U-G1D

≅Ub	Operating voltage
0V	Operating voltage
A	Subnet (BUS A, RS-485)
B	Subnet (BUS B, RS-485)
E	Input window contact
UbV	free
GND	0V for actuators (control signal)
UaV	Digit output (+Ub-1V) PWM

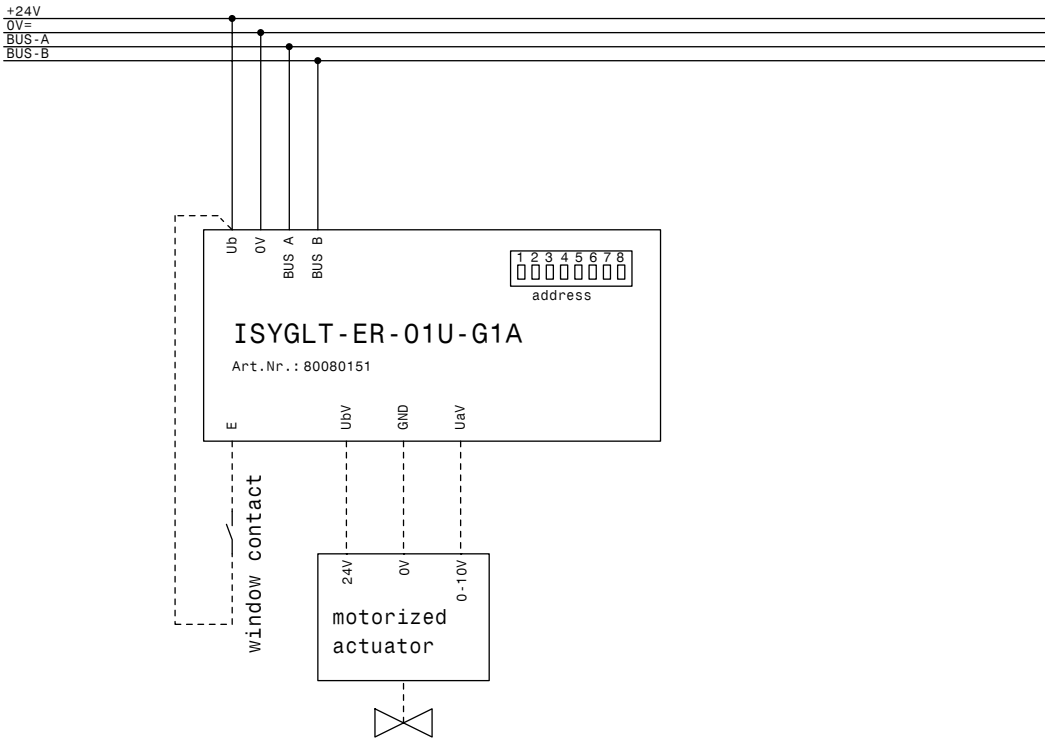
View





Wiring diagram

ER-01U-G1A



Wiring diagram

ER-01U-G1D