

ER-03A

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.

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 signalled 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 tempera-

ture 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 (presence) input (external button or presence sensor) on the room temperature controller

It's to be recognized that either a comfort button or an presence sensor can be connected. By using the software it will be parametered if a button or a sensor had been connected. It isn't possible to connect both.

The button controls the change between „comfort temperature“ and „day or night mode“. Each new button click cancels the previous state. So it consists the possibility for the room user to select between two different set temperatures. For both operating modes are the set temperatures freely programmable. When during the operation mode „day and present“ is

changed by the ISYGLT BUS system, the controller changes into the operation mode „night mode and absent“. If the ISYGLT Bus system changes the operation mode „day“ again, the controller remains in the operation mode „absent“. The operating modes are settable by the ISYGLT BUS system. It is possible to pretend a operation mode and then lock the button e.g. in schools etc. by the ISYGLT BUS system. It is also possible to switch a room into an other operating mode by the ISYGLT BUS system and then grant a further drain via a button on the controller to the room user. The function is freely programmable and adaptive to 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"

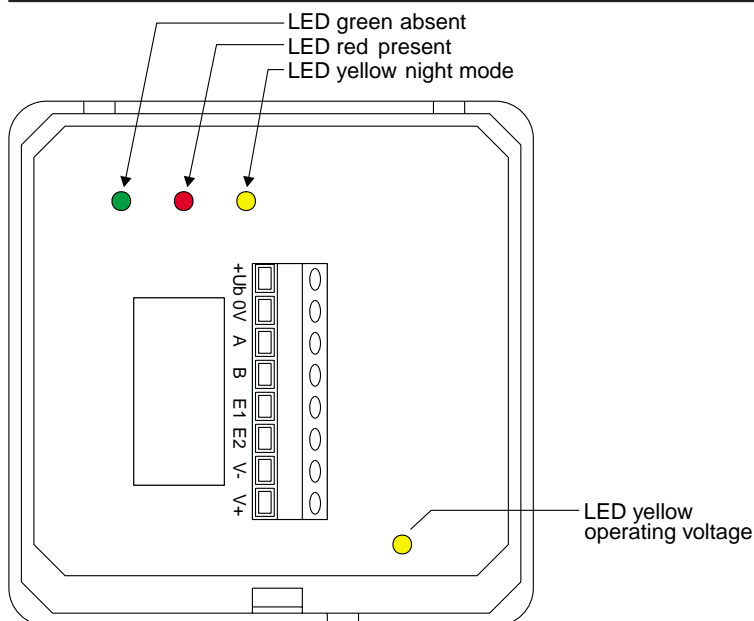
From "night mode + absent" to "day mode + absent"

Function displays

• 1 green LED absent	LED lights up when the controller is in stand-by mode (day or night mode). The current target value then depends on the day or night mode
• 1 red LED present	LED lights up when the comfortable temperature target value has been activated (presence button or presence sensor)
• 1 yellow LED night mode	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.
• 1 yellow LED BUS/power	LED lights up when input is active. Flashing indicates communication with the MASTER via the BUS

The LED are visible by the slots of the room controller from above.

LED grün	LED rot	LED gelb	Operating mode
			Basic day temperature (green)
			Comfortable temperature during the day
			Comfortable temperature during the night
			Night mode
			Window open (green flashing LED)



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 input (or comfort button)

For activating of the input E2 the parametered function is activ (comfort button or presence detector). 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

The room controller possesses a transistor output for the control of thermal actuators. The output is loadable with max 500mA

One of the following functions can be issued at the digital output by means of parameterisation:

- digit output from the master
- output for radiator heatings
- output for floor heating
- output for cooling unit
- Load capacity: maximum U_b -1V 300mA continuous load (1 thermal actuator)

Design

- AP plastic casing pure white

Special function DIP switch 1

- reserve
 - 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 without 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		OFF
	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	0...5°C	1°C
	Reset time, I-component	1...240min	180min
	PWM cycle	1...60min	25min
	P-boost, Temp. for 100% response	1...15°C	3,6°C
	Minimum opening time valve (PWM cycle)	0...60min	5min
	Temperature difference for switch-off minimum opening time	0...7°C	2°C
Cooling:			
Target temperatures			
	Day (without presence)	10...50°C	28°C
	Night (without presence)	10...50°C	25°C
	Comfort (with presence)	10...50°C	26°C
Protection temperatures			
	Heat protection alarm	0...80°C	50°C
	Take into account outside temperature (requires an outside temperature sensor!)		
	Take into account outside temperature for cooling	ON / OFF	ON
	Outside temperature for cool mode ON	10...50°C	28°C
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 the 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...240min	60min
	PWM cycle	1...60min	20min
	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
Forced flushing valves			
	1 flush per week	ON/OFF	
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 = 1 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	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 Bit = 1, when control valve OPEN
Ex.8	Control bit for underfloor heating e. g. if actuators (thermal drives) are located on ground floor Valve control or in the other half of the room, they can be controlled via the BUS underfloor (no actuator cable from room controller to valve) Bit = 1, when control valve OPEN

ME 1 Actual temperature	ACTUAL temperature value calculated in Merker using the ROOMREG command
ME 2 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

- LED BUS doesn't flash:

The module has no connection to the master module via the ISYGLT BUS. With this error the controller works independent to the ISYGLT BUS system. It is in day mode however (no night mode), because the module have no information about the current time.

Mounting

The single temperature controller will be mounted on walls.

Please notice the following points:

Please mount the controller in the rest room ca. 1,5m high above ground and min. 0,5m from the next wall. Do not place the controller to directly insolation. Don't mount the controller on the outside wall, in nishes, behind curtains, in the near of doors or heat sources (lamps, chimneys).

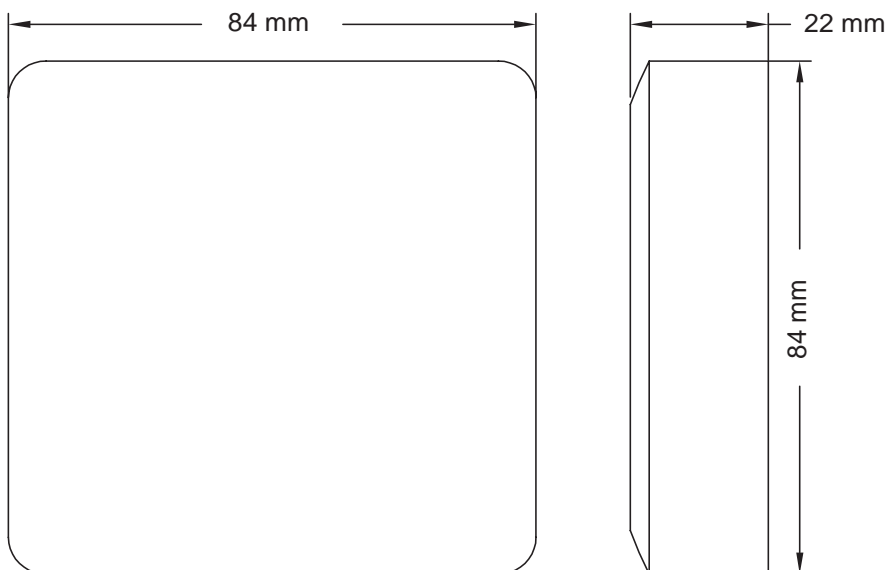
Technical data

Type	ER-03A
Art. Nr.	80080131
Operating voltage	12-35V DC 12-27V AC
Power consumption	Max. 30mA at 24V (without charge on outputs)
Binary inputs	Input E1 window contact connection (optical coupler input) direction of action programmable (5mA at 24V). Input E2 comfort button or Präsenzsens- sor contact(optical coupler input) direction of action programmable (5mA at 24V)
Switching output	Transistor output (PNP) max. Ub-2V / 0,5A short circuit proof
Adjustment actual value tem- perature	± 3K (via parameter software)
measuring element	semiconductor rsensor calibrated ± 0,5K
Subnet (RS-485)	max. 5,6V limited by Z-diodes
Dimensions	HxBxT 84x84x22mm
Weight	65g
Connection	Screw terminals 1,5mm ²
Operating temperature	-10...+50°C
Storage temperature	-25...+70°C
Humidity	0 ...85 % r.F. non condensing
Protection class	III
Protection grade	IP20
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

$\approx U_b$	Operating voltage
0V	Operating voltage
A	Subnet (BUS A, RS-485)
B	Subnet (BUS B, RS-485)
E1	Input window contact
E2	Input comfort button or presence sensor (parameterable)
V+	U_b (-2V) for thermal actuator
V-	0V for thermal actuator

View



Wiring diagram

