:hager

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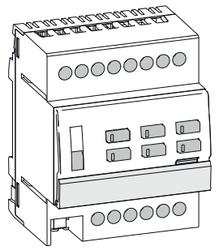


6LE005186A

TP | RF | 230V~ | 24V ~ | Bus 30V

TYM646R
TYM646T

6 heating outputs with regul. mod.
6 heating outputs mod.

TXM646R
TXM646T

6 heating outputs with regul. mod. (new easy)
6 heating outputs mod (new easy)

Safety instructions

Electrical devices must only be installed and assembled by a qualified electrician. The accident prevention recommendations applicable in the country must be followed. Failure to follow the installation instructions may result in damage to the device, fire or other dangers. Please follow the recommendations and standards applicable for SELV electrical circuits during installation and when laying cables. Before any work on the device or the load, switch off the power to the installation. Do not forget all the circuit breakers that deliver voltages which are potentially dangerous to the device or the load. Risk of electric shock. The device is not suitable for disconnection/sectioning. These instructions are an integral part of the product and must be kept by the end user.

How to dispose of this product (electrical and electronic equipment waste). (Applicable in European Union countries and other European countries with selective waste collection systems). This symbol on the product or its documentation indicates that it must not be disposed of with other household waste at the end of its life cycle. As disposing of waste inappropriately may harm the environment or human health, please separate it from other types of waste and recycle it responsibly. In this way you will contribute to the sustainable re-use of material resources.
Individuals should contact the retailer who sold them the product or contact their local council to find out where and how they can dispose of this product for recycling in an environmentally friendly manner. Companies should contact their suppliers and read the terms of their sales contract. This product must not be disposed of with the other commercial waste.

Presentation of the device

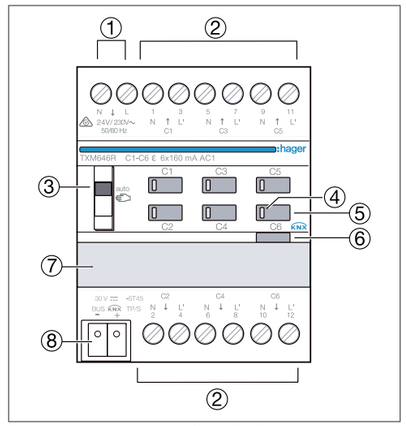


Image 1: presentation of the device

① Connection to the power supply (N, L)
② Connection of thermal actuators
- upper group: outputs C1 + C3 + C5
- lower group: outputs C2 + C4 + C6

③ Auto/Manu switch (☜)
④ Status LED
⑤ Local command buttons
⑥ Illuminated physical addressing button
⑦ Label holder
⑧ KNX bus connection terminals (-, +)

Function

System information

This device is a product of KNX system and complies with KNX guidelines. Detailed, specialised knowledge obtained through specific KNX training courses is required for full understanding of the system. The device is programmed, installed and started up with certified KNX software.

ETS start-up

The functions of this device are software- and configuration-dependent. The application software is available in the product database. The product database, technical descriptions and conversion programmes as well a other up-to-date assistance software are available on our website.

Easy start-up

The functions of this device are software- and configuration-dependent. It can also be configured a tool specifically developed for easy set-up and start-up.
This configuration method is only possible with devices which are compatible with the Easy system. The Easy configuration method allows for simple set-up through a graphic interface. Preconfigured standard functions are assigned to the in/outputs by means of the configuration tool.

Functional description

The device receives telegrams from the sensors or other controllers via the KNX installation bus and switches the valves equipped with electrothermal motors (actuators) with its 6 triac type outputs. The triac used at output enables the valves to switch silently. This product comes in 4 variants which are distinguished by:

	6 heating outputs	6 heating & regulation outputs (t°)
e	TXM646T	TXM646R
S	TYM646T	TYM646R

Typical scenario

- Switching by electrothermal actuators (230 V~ or 24 V~) contact (triac type).
- Integration in the electrical box and rail mounting according to DIN EN 60715.
- Integration in a hot water distribution cabinet and installation in a wall mounted box (TGC600 accessory).

Product features

- ON/OFF switch or pulse width modulation (PWM) mode.
- Compatible with 230 V~ or 24 V~ actuators.
- Possibility of manually controlling outputs on the device, site mode.
- Product secured against overloading and short-circuits (see chapter: Meaning of LEDs),
- Valve blocking function,
- Valve failure detection,
- Product power supply failure detection,
- Temperature sensor failure detection: application of fallback mode.
- Bus connection with the KNX connection terminals.

Protection against overloading

To protect the device and the connected actuators, in case of overloading or short-circuit, the device determines the output concerned. During this search cycle, the product disables the output group (C1 + C3 + C5) or (C2 + C4 + C6) according to the defective outputs. Once identified, the latter remain disabled, and the others return to automatic mode.

Test and start-up

Auto/Manu switch ③ and local command buttons ⑤:

- In switch Manu (☜) position ③, the buttons ⑤ enable you to control the actuators connected to the outputs. Pressing once changes the output status to 0%, pressing twice changes it to 50% and pressing a third time changes it to 100%. This cycle is repeated after the 3rd press.

ⓘ The cycle time applied manually is defined at configuration or 20 minutes by default.

- Use the Switch Auto position ③ in operating mode or to configure the product.
In switch Auto position ③, the buttons ⑤ are inactive and the outputs respond to orders from the KNX bus.

Meaning of LEDs ④

LED	LED/Operation status
Cx Red	heating mode OK
	heating in safety mode
Cx Blue	cooling mode OK
	cooling in safety mode
Cx Orange	short-circuit detection in progress
	short-circuit detected
Cx White	overload detected, load shedding in progress
C1 → C6 Orange	loss of power (lighting moved from C1 to C6 until main power returns)
C1 → C6 Green	manual mode, output 50%
	manual mode, output 100%

Image 2: LED operation and status

ⓘ If the product has the temperature regulation function, you can use the temperature sensors built in to the communicating buttons. In this case, for optimal temperature regulation, it is recommended to use buttons that are not equipped with LEDs.

Illuminated physical addressing button ⑥

Press the illuminated button ⑥ to physically address the product or check the presence of the bus (LED lit = bus presence and product physically addressed).

Assembling the device

Irrespective of the assembly used (in an electrical box on DIN rail or in a wall mounted box), you must ensure the device is at the right temperature with sufficient cooling. For wall mounting in a box outside the electrical cabinet, Hager recommends the item TGC600.

Connection diagram

⚠
- Device must only be installed by an electrician.
- Follow the SELV installation rules.

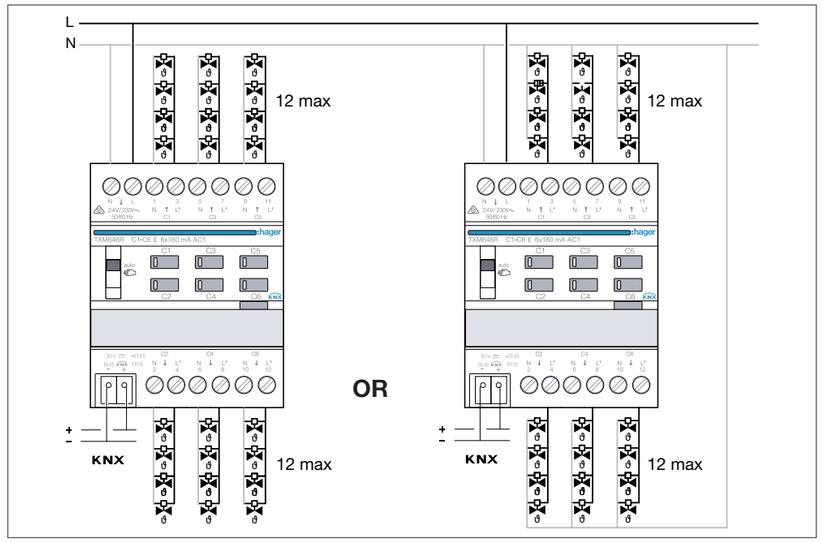


Image 3: valves equipped with thermal actuators with 230 V ~ power supply

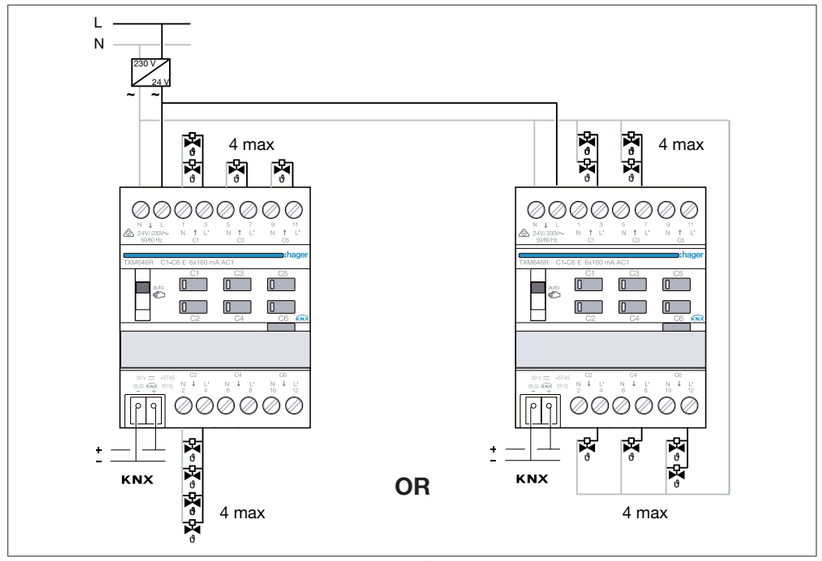


Image 4: valves equipped with thermal actuators with 24 V ~ power supply

ⓘ Depending on the number of valves to be supplied with 24 V ~, Hager provides the following 230 V/24 V~ transformers: ST312-25 VA, ST313-16 VA, ST314-40 VA or ST315-63 VA.

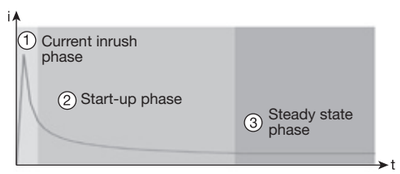
Number of valves to connect

To adjust the size of your installation, you must check 2 criteria:
- the number of valves connected to each output,
- the number of valves connected to the group of 3 outputs:
  - upper group: outputs C1 + C3 + C5
  - lower group: outputs C2 + C4 + C6

For Hager valves, please refer to the table below:

	By output	By group of 3 outputs
Maximum number of EK723 Valves (230V~)	4	12
Maximum number of EK724 Valves (24 V~)	4	4

For valves of other brands, please observe the maximum current consumptions described below. Typically, a valve's consumption is divided into 3 separate phases:



Depending on the brands, the maximum current consumptions during these 3 phases, as well as the length of these 3 phases, vary. You must refer to the tables below and the valves' technical sheet to adjust the size of your installation. You must of course take into account the most unfavourable scenario:

230 V ~ valves	By output	By group of 3 outputs
Max inrush current t < 200 ms	2.2 A	6.6 A
Max start-up current 200 ms < t < 3 min 30 s	0.6 A	1.8 A
Max current at steady state t > 3 min 30 s	45 mA	135 mA
24 V ~ valves	**By output**	**By group of 3 outputs**
Max inrush current t < 200 ms	2.2 A	2.2 A
Max start-up current 200 ms < t < 4 min 30 s	0.9 A	0.9 A
Max current at steady state t > 4 min 30 s	500 mA	500 mA

ⓘ The continual overload detection function built in to the product can detect whether too many valves are connected to an output or a group of 3 outputs (see Protection against overloading).

Start-up

ETS
Loading the physical and application software address:
- switch on the bus voltage,
- press the programming key,
- load the physical address in the device,
- download the application software to the device,
- note the physical address on the device label,
- stick the label to the device.

ⓘ If an incorrect ETS application is loaded, we observe a chase of LEDs C1-C3 → C2-C4 → C3-C6 in red.

Easy
Consult the detailed description of the easy link service module for more information on the configuration of the installation.

Technical features

Configuration mode..... ETS and Easy
KNX communication media..... TP1

Power supply
KNX power supply voltage..... 20 ... 30 V= SELV
Product and valves power supply voltage:
- 230 V~.....+10/-15%
- 240 V~.....+/-6%
- 24 V~.....+/-5%

Network frequency ..... 50/60 Hz
Consumption on the KNX bus:
- typical..... 18.5 mA
- in standby ..... 5 mA

Ambient conditions
Operating temperature ..... -5°C…+45°C
Storage / transport temperature ..... -25°C … +70°C
Relative humidity ..... 95% at 25°C
Pollution level 2
Insulation class..... 2
Box protection rating: IP 20
Protection rating .box under faceplate: IP30
Impact resistance IK04
Maximum operating altitude..... 2,000 m
Action type 2Y
Surge voltage ..... 4 kV
Circuit breaker protection..... 16 A
Voltage and current declared for EMC emission testing..... 230 V~ 1 A / 24 V~ 1A

Box
Footprint ..... 72 mm / 4 modules
Installation method DIN rail according to EN 60715

Output connection
Type of KNX connection KNX terminals
Type of connection..... Screw terminal
- rigid ..... 0.5... 2.5 mm²
- flexible..... 0.5... 2.5 mm²

Type of screw impression PZ1
Maximum tightening torque ..... 0.5 Nm