

# TA-Slider 1250



## Actuators

Digitally configurable proportional push-pull actuator – 1250 N



Engineering  
**GREAT** Solutions

# TA-Slider 1250

Digitally configurable actuators for all control systems with or without Bus communication. Wide range of setup possibilities gives high flexibility to adapt parameters on-site. Fully programmable binary input, relay and adjustable max. stroke of the valve bring new opportunities for advanced hydronic control and balancing.

## Key features

- > **Convenient, reliable setup**  
Fully customisable by smartphone via Bluetooth using a TA-Dongle.
- > **Easy diagnostics**  
Tracks the last 10 errors to allow system faults to be found quickly.
- > **Fully configurable**  
More than 200 setup options allow input and output signals, binary input, relay, characteristics and many other parameters to be configured.
- > **Perfection in connectivity**  
Communication with the most used Bus protocols.



## Technical description

### Functions:

Proportional control  
3-point control  
On-off control  
Manual override  
Stroke detection  
Mode, status and position indication  
Output signal VDC  
Stroke limitation setting  
Valve blockage protection  
Valve clogging detection  
Error safe position  
Diagnostic/Logging

#### Plus version:

With optional Bus communication board  
+ ModBus or BACnet  
With optional relay board  
+ 1 binary input, max. 100  $\Omega$ , cable max. 10 m or shielded.  
+ 2 relays, max. 5A, 30 VDC/250 VAC on resistive load  
+ Output signal in mA

### Supply voltage:

24 VAC/VDC  $\pm 15\%$ .  
100-240 VAC  $\pm 10\%$ .  
Frequency 50/60 Hz  $\pm 3$  Hz.

### Power consumption:

24 VAC/VDC:  
Operation: < 10.8 VA (VAC); < 7.7 W (VDC)  
Standby: < 1 VA (VAC); < 0.5 W (VDC)  
100-240 VAC:  
Operation: < 14.2 VA (VAC)  
Standby: < 1.8 VA (VAC)

### Input signal:

0(2)-10 VDC,  $R_i$  47 k $\Omega$ .  
Adjustable sensitivity 0.1-0.5 VDC.  
0.33 Hz low pass filter.  
0(4)-20 mA  $R_i$  500  $\Omega$ .  
*Proportional:*  
0-10, 10-0, 2-10 or 10-2 VDC  
0-20, 20-0, 4-20 or 20-4 mA  
*Proportional split-range:*  
0-5, 5-0, 5-10 or 10-5 VDC  
0-4.5, 4.5-0, 5.5-10 or 10-5.5 VDC  
2-6, 6-2, 6-10 or 10-6 VDC  
0-10, 10-0, 10-20 or 20-10 mA  
4-12, 12-4, 12-20 or 20-12 mA  
*Proportional dual-range (for change-over):*  
0-3.3 / 6.7-10 VDC,  
10-6.7 / 3.3-0 VDC,  
2-4.7 / 7.3-10 VDC or  
10-7.3 / 4.7-2 VDC.  
Default setting: Proportional 0-10 VDC.

### Output signal:

0(2)-10 VDC, max. 8 mA, min. 1.25 k $\Omega$ .  
*Plus version:*  
0(4)-20 mA, max. 700  $\Omega$ .  
Ranges: See "Input signal".  
Default setting: Proportional 0-10 VDC.

### Characteristics:

Linear, EQM 0.25 and inverted EQM 0.25.  
Default setting: Linear.

### Control speed:

3, 4, 6, 8, 12 or 16 s/mm  
Default setting: 3 s/mm.

### Adjusting force:

1250 N

### Temperature:

Media temperature: 0°C – +120°C  
Operating environment: 0°C – +50°C  
(5-95%RH, non-condensing)  
Storage environment: -20°C – +70°C  
(5-95%RH, non-condensing)

### Ingress protection:

IP 54 (all directions)  
(according to EN 60529)

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**Protection class:**

(according to EN 61140).  
100-240 VAC: Class I.  
24 VAC/VDC: Plus version with optional relay board, Class I. All other versions, Class III safety extra low voltage.

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**Stroke:**

22 mm. Automatic detection of the valve lift (stroke detection).

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**Noise level:**

Max. 40 dBA

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**Weight:**

1,6 kg

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**Connection to valve:**

By two M8 screws to the valve and by quick connection to the stem.

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**Material:**

Cover: PBT  
Bracket: Alu EN44200

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**Colour:**

Orange RAL 2011, grey RAL 7043.

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**Marking:**

IMI TA, product name, article No. and technical specification.  
LED indication description.

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**Certification CE:**

LV-D. 2014/35/EU: EN 60730-1, -2-14.  
EMC-D. 2014/30/EU: EN 60730-1, -2-14.  
RoHS-D. 2011/65/EU: EN 50581.

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**Product standard:**

EN 60730.  
(for Residential and industrial areas)

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**Cable:**

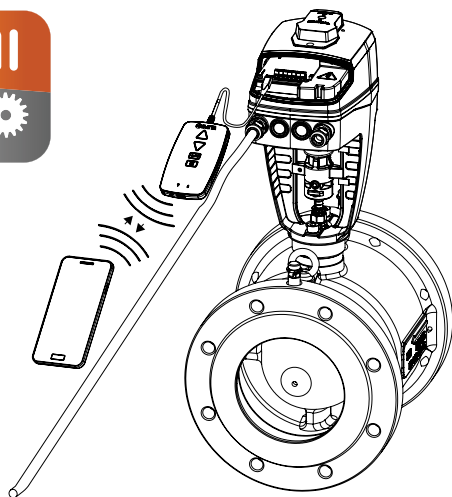
Wire cross-section\*: 0.5-2.0 mm<sup>2</sup>  
Protection class I: H05VV-F or similar  
Protection class III: LiYY or similar

\*) **Note:** Wire cross-sections must be chosen according to actuator power consumption and line length, such as the voltage supply to the actuator does not go below 20.4 VAC/VDC (24 VAC/VDC minus 15%).  
In case of VDC input signal on a 24 VAC/VDC powered actuator, the voltage drop on neutral line must be smaller than the defined hysteresis level for the VDC input signal.

## Function

### Setting

The actuator can be set by the HyTune app (iOS version 8 or later on iPhone 4S or later, Android version 4.3 or later) + the TA-Dongle device, with or without the actuator power supplied. The setting configuration can be stored in the TA-Dongle for setting of one or several actuators. Connect the TA-Dongle to the actuator and press the configuration button. HyTune can be downloaded from the App Store or Google Play.



### Setting Bus communication parameters

Configuration of Bus parameters such as address, baud rate, parity and more is to be carried out by the HyTune app + the TA-Dongle device, with or without the actuator power supplied. More detailed information, please see TA-Slider 750/1250 Bus protocol implementation documents.

### Manual override

By 5 mm Allen key or by the TA-Dongle device.

**Note:** Power supply needed when TA-Dongle is used.

### Position indicator

Visible mechanical stroke indication on the bracket.

### Calibration/Stroke detection

According to selected settings in the table.

| Type of calibration            | At power on | After manual override |
|--------------------------------|-------------|-----------------------|
| Both end positions (full)      | √ *         | √                     |
| Fully extended position (fast) | √           | √ *                   |
| None                           | √           |                       |

\*) Default

**Note:** A calibration refresh can be automatically repeated monthly or weekly.

Default setting: Off.

### Stroke limitation setting

A maximum stroke smaller than or equal to the detected valve lift can be set to the actuator.

For some TA/HEIMEIER valves it can also be set to a  $K_{v_{max}}/q_{max}$ .

Default setting: No stroke limitation (100%).

### Minimum stroke setting

The actuator can be set with a minimum stroke below which it will not go (except for calibration).

For some TA/HEIMEIER valves, it can also be set to a  $q_{min}$ .

Default setting: No minimum stroke (0%).

### Valve blockage protection

The actuator will perform a quarter of a full stroke and then back to desired value if no actuation takes place for one week or one month.

Default setting: Off.

### Valve clogging detection

If actuation stops before the desired value is reached, the actuator moves back ready to make a new attempt. The actuator will move to the configured error safe position after three attempts.

Default setting: On.

### Error safe position

Fully extended or retracted position when following errors occur; low power, line break, valve clogging or stroke detection failure.

Default setting: Fully extended position.

### Diagnostics/logging

The last 10 errors (low power, line break, valve clogging, stroke detection failure) with time stamps can be read using the HyTune app + TA-Dongle device. Logged errors will be cleared if the power is disconnected.

### Delayed start-up

The actuator can be specified a delay (0 to 1275 sec.) before starting up after a power supply cut. This is useful when used with a control system that has itself a long start-up time.

Default setting: 0 seconds.

### Plus version:

#### Connection interfaces for Bus communication

- RS485; BACnet MS/TP, Modbus/RTU
- Ethernet; BACnet/IP, Modbus/TCP

### Binary input







If the binary input circuit is open, the actuator will go to a set stroke, switch to a second stroke limitation setting or drive to its full stroke regardless of any limitations for flushing purpose. See also Change-over system detection.





Default setting: Off

### Change-over system detection

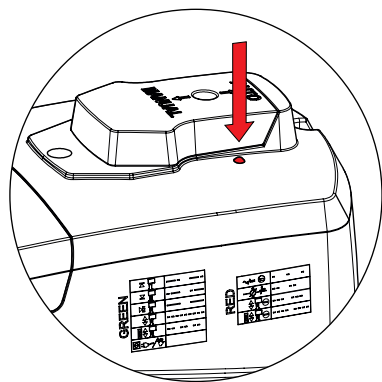
Switching between two different stroke limitation settings by toggling the binary input or using the dual-range input signal. For the Bus versions, this switching may also be made via the Bus.

## LED indication

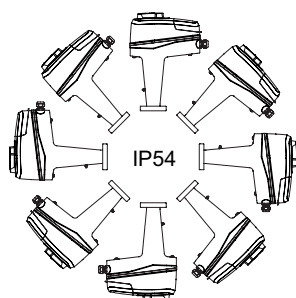
|   |         | Status                          | Green                    |
|---|---------|---------------------------------|--------------------------|
|  | — — — — | Fully retracted (actuator stem) | Long pulse - Short pulse |
|  | — — — — | Fully extended (actuator stem)  | Short pulse - Long pulse |
|  | — — — — | Intermediate position           | Long pulses              |
|  | — — — — | Moving                          | Short pulses             |
|  | — — — — | Calibrating                     | 2 short pulses           |
|  |         | Manual mode or no power supply  | Off                      |

|   |         | Error code                       | Red      |
|---|---------|----------------------------------|----------|
|    | — — — — | Power supply too low             | 1 pulse  |
|    | — — — — | Line broken (2-10 V or 4-20 mA)  | 2 pulses |
|    | — — — — | Valve clogging or foreign object | 3 pulses |
|  | — — — — | Stroke detection failure         | 4 pulses |

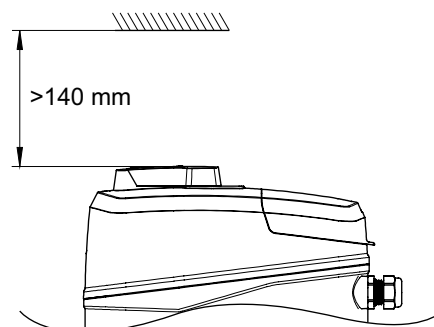
If an error is detected, red pulses are displayed as the green status lights flash alternately.  
More detailed information, please see the HyTune app + TA-Dongle.



## Installation



### Note!



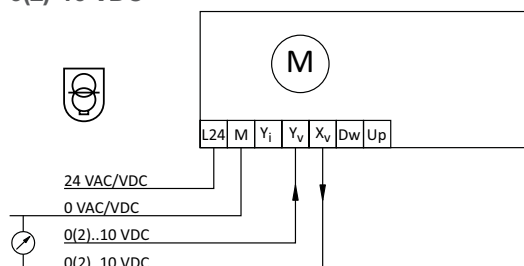
## Connection diagram – Terminal/Description

| Terminal       | Description  |
|----------------|--|
| L24            | Power supply 24 VAC/VDC  |
| M*             | Neutral for power supply 24 VAC/VDC and signals  |
| L              | Power supply 100-240 VAC   |
| N              | Neutral for power supply 100-240 VAC   |
| Y <sub>i</sub> | Input signal for proportional control 0(4)-20 mA, 500 Ω  |
| Y <sub>v</sub> | Input signal for proportional control 0(2)-10 VDC, 47 kΩ   |
| X <sub>i</sub> | Output signal 0(4)-20 mA, max. resistance 700 Ω  |
| X <sub>v</sub> | Output signal 0(2)-10 VDC, max. 8 mA or min. load resistance 1.25 kΩ   |
| Dw             | 3-point control signal for extending actuator spindle (24 VAC/VDC or 100-240 VAC)                            |
| Up             | 3-point control signal for retracting actuator spindle (24 VAC/VDC or 100-240 VAC)                           |
| B              | Connection for potential free contact (e.g. open window detection), max. 100 Ω, max. 10 m cable or shielded  |
| COM1, COM2     | Common relay contacts, max. 250 VAC, max. 5A @ 250 VAC on resistive load, max. 5A @ 30 VDC on resistive load |
| NC1, NC2       | Normally closed contacts for relays 1 and 2  |
| NO1, NO2       | Normally open contacts for relays 1 and 2  |

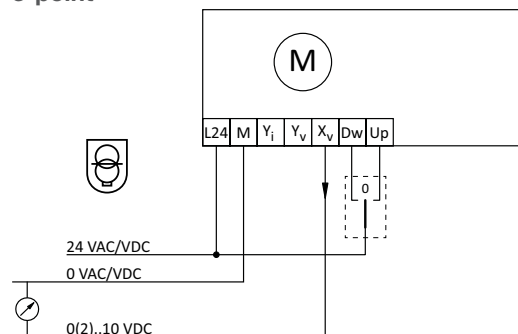
\*) All M terminals are internally connected.

## Connection diagram – 24 V

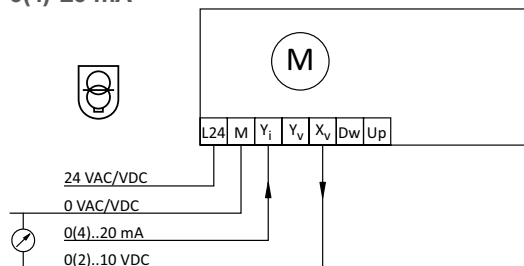
### 0(2)-10 VDC



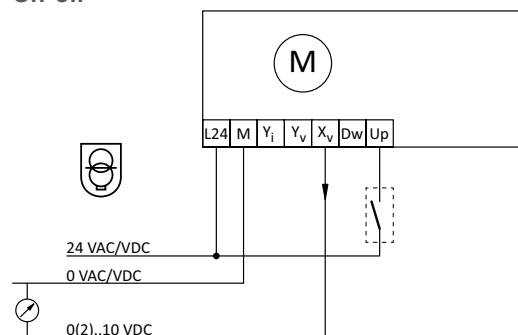
### 3-point



### 0(4)-20 mA



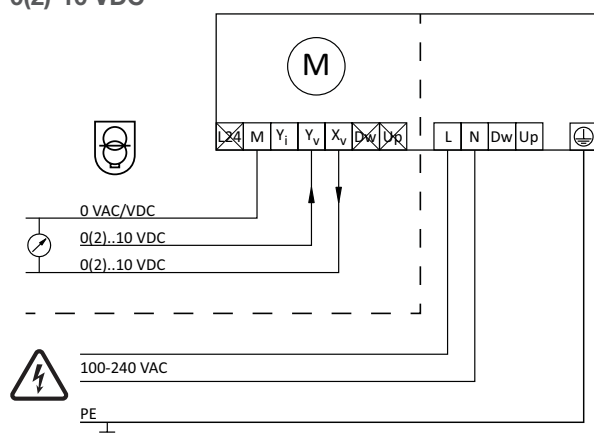
### On-off



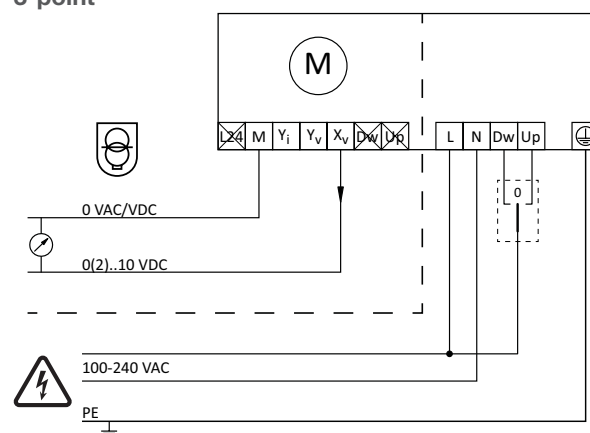
24 VAC/DC operating only with safety transformer according EN 61558-2-6

## Connection diagram – 100-240 V

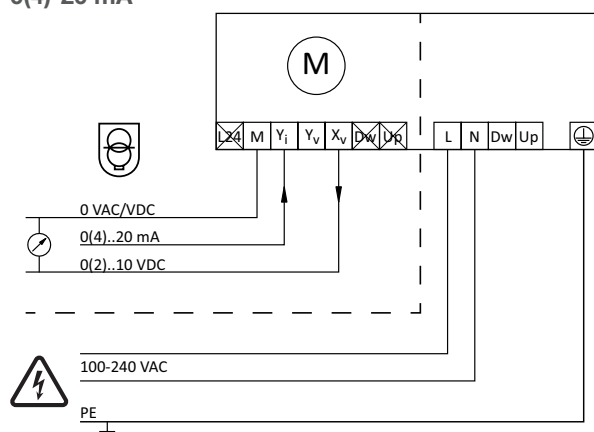
0(2)-10 VDC



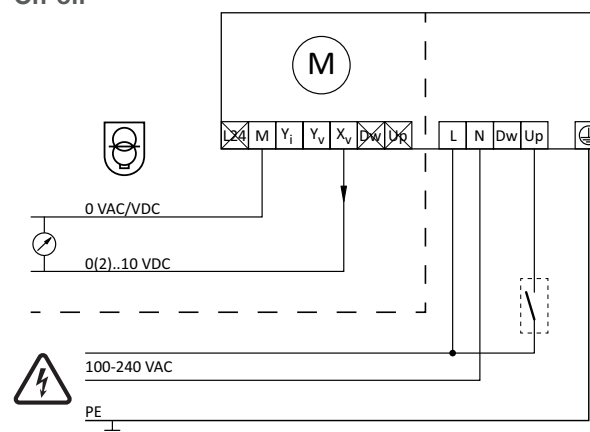
3-point



0(4)-20 mA



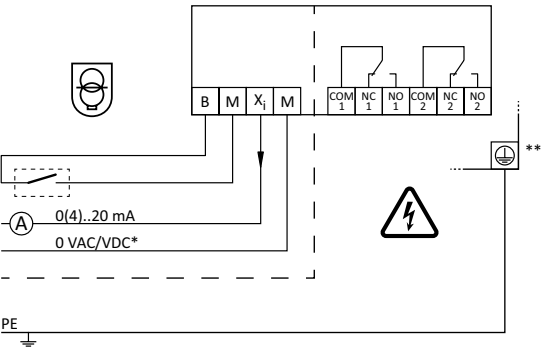
On-off



24 VAC/DC operating only with safety transformer according to EN 61558-2-6

Connection diagram – Relay (for Plus version only)

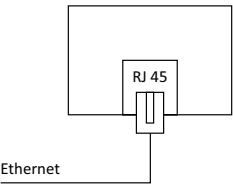
Optional relay board



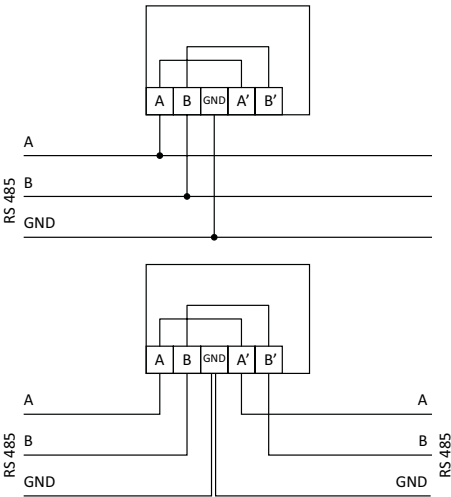
\*) Low voltage neutral  
\*\*) Ground connection required.

Connection diagram – Bus communication (for Plus version only)

Optional Ethernet communication board  
BACnet/IP, Modbus/TCP



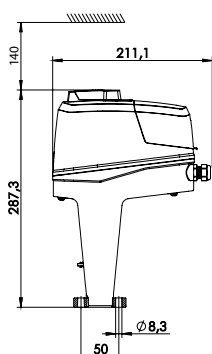
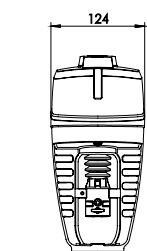
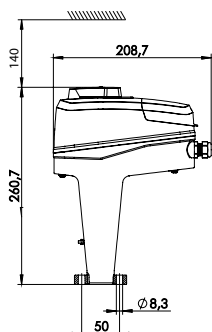
Optional RS 485 board  
BACnet MS/TP, Modbus/RTU



**Note:** A, B, A', B' and GND terminals are isolated from all other terminals.



## Articles



### TA-Slider 1250

Input signal: 0(2)-10 VDC, 0(4)-20 mA, 3-point, on-off

| Supply voltage | EAN           | Article No   |
|----------------|---------------|--------------|
| 24 VAC/VDC     | 5901688828533 | 322227-10110 |
| 100-240 VAC    | 5902276883828 | 322227-40110 |

### TA-Slider 1250 Plus

Input signal: 0(2)-10 VDC, 0(4)-20 mA, 3-point, on-off

With binary input, relays, mA output

| Supply voltage | Bus | EAN           | Article No   |
|----------------|-----|---------------|--------------|
| 24 VAC/VDC     | -   | 5902276883989 | 322227-10219 |
| 100-240 VAC    | -   | 5902276883996 | 322227-40219 |

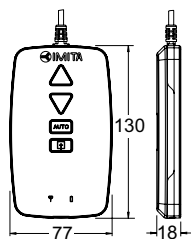
With BUS communication (without binary input, relays, mA output)

| Supply voltage | Bus          | EAN      | Article No    |
|----------------|--------------|----------|---------------|
| 24 VAC/VDC     | Modbus/RTU   | RS 485   | 5901688828564 |
|                | BACnet MS/TP | RS 485   | 5901688828571 |
|                | Modbus/TCP   | Ethernet | 5901688828588 |
|                | BACnet/IP    | Ethernet | 5901688828601 |
| 100-240 VAC    | Modbus/RTU   | RS 485   | 5902276883859 |
|                | BACnet MS/TP | RS 485   | 5902276883866 |
|                | Modbus/TCP   | Ethernet | 5902276883873 |
|                | BACnet/IP    | Ethernet | 5902276883897 |

With BUS communication, binary input, relays, mA output

| Supply voltage | Bus          | EAN      | Article No    |
|----------------|--------------|----------|---------------|
| 24 VAC/VDC     | Modbus/RTU   | RS 485   | 5902276883774 |
|                | BACnet MS/TP | RS 485   | 5902276883781 |
|                | Modbus/TCP   | Ethernet | 5902276883798 |
|                | BACnet/IP    | Ethernet | 5902276883811 |
| 100-240 VAC    | Modbus/RTU   | RS 485   | 5902276883910 |
|                | BACnet MS/TP | RS 485   | 5902276883927 |
|                | Modbus/TCP   | Ethernet | 5902276883934 |
|                | BACnet/IP    | Ethernet | 5902276883958 |

## Additional equipment



### TA-Dongle

For Bluetooth communication with the HyTune app, transfer configuration settings and manual override.

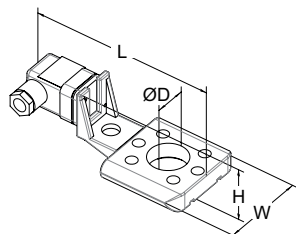
#### EAN

5901688828632

#### Article No

322228-00001

## Accessories



### Stem heater

Including spindle top (extension) and extended screws.

Temperature range till -10°C.

Voltage 24 VAC  $\pm$  10%, 50/60 Hz  $\pm$  5%.

Power  $P_N$  approx. 30 W.

Current 1,4 A.

Surface temperature max. 50°C.

| For valve           | L   | H  | W  | D  | EAN           | Article No   |
|---------------------|-----|----|----|----|---------------|--------------|
|                     | 146 | 49 | 70 | 30 |               |              |
| TA-FUSION DN 65-150 |     |    |    |    | 3831112533448 | 322042-81400 |
| KTM 512 DN 80-125   |     |    |    |    | 3831112533455 | 322042-81401 |