

# TA-Slider 750 Fail-safe Plus



## Actuators

Digitally configurable proportional push-pull actuator with electronic fail-safe function – 750 N

# TA-Slider 750 Fail-safe Plus

Digitally configurable fail-safe actuators for all control systems with or without change-over. 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

- > **Fully configurable fail-safe**  
Setting of stroke position (extended, retracted or intermediate position) and delay feature for entering/leaving fail-safe mode for a reliable and optimal fail-safe function.
- > **Fully configurable**  
More than 200 setup options allow input and output signals, binary input, relay, characteristics and many other parameters to be configured.
- > **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 and health check of fail-safe function.



## Technical description

### Functions:

Electronic fail-safe function  
Proportional control  
3-point control  
On-off control  
Manual override  
Stroke detection  
Mode, status and position indication  
Output signal VDC  
Stroke limitation setting  
Minimum stroke setting  
Valve blockage protection  
Valve clogging detection  
Error safe position  
Diagnostic/Logging  
Delayed start-up

With relay board

- + 1 binary input, max. 100 Ω, cable max. 10 m or shielded.
- + 2 relays, max. 3A, 30 VDC/250 VAC on resistive load
- + Output signal in mA

### Fail-safe function:

Programmable actuator's stem extended, retracted or intermediate position on power failure.

### Supply voltage:

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

### Power consumption:

Peak: < 18.4 VA (VAC); < 9.1 W (VDC)  
Operation: < 9 VA (VAC); < 4.8 W (VDC)  
Standby: < 1.6 VA (VAC); < 0.7 W (VDC)  
Peak consumption occurs for a short period after a power cut for recharging capacitors.

### Input signal:

0(2)-10 VDC, R<sub>i</sub> 47 kΩ.  
Adjustable sensitivity 0.1-0.5 VDC.  
0.33 Hz low pass filter.  
0(4)-20 mA R<sub>i</sub> 500 Ω.  
*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 kΩ.  
0(4)-20 mA, max. 700 Ω.  
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

### Fail-safe delay:

Adjustable between 0 and 10 seconds.  
Default setting: 2 s

### Power supply stabilisation delay:

Adjustable between 1 and 5 seconds.  
Default setting: 2 s

### Pre-charging time:

< 60 s

### Adjusting force:

750 N

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**Temperature:**

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

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**Ingress protection:**

IP54 (all directions)  
(according to EN 60529)

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**Protection class:**

(according to EN 61140).  
100-240 VAC: Class I.  
24 VAC/VDC: Class I.

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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

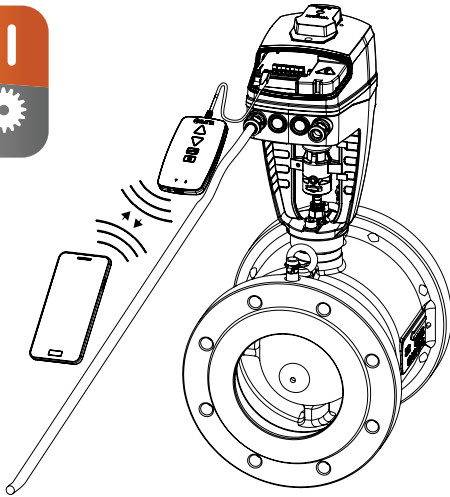
\*) **Note:** Wire cross-sections must be chosen according to actuator power consumption and line length, such as the voltage supply to the actuator does not go below 20.4 VAC/VDC (24 VAC/VDC minus 15%).

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.



### 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  $Kv_{max}/q_{max}$ .

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.

### Fail-safe

Goes to a pre-defined position when power supply is lost.

Pre-defined position settable to any position and delay before entering fail-safe mode after a power off settable between 0 and 10 seconds.

Default setting: Fully retracted and 2 seconds delay.

Going back to normal operation when power is back for more than a power supply stabilization delay settable between 1 and 5 seconds.

Default setting: 2 seconds.

Capacitor charge/health level of the fail-safe function is indicated by the colour of the fail-safe LED. A complete health check of the fail-safe function can be launched with the HyTune app.

### 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

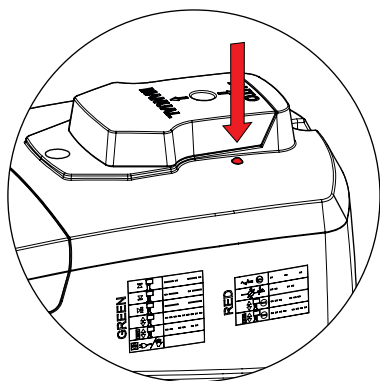
Switching between two different stroke limitation settings by toggling the binary input or using the dual-range input signal.

## LED indication

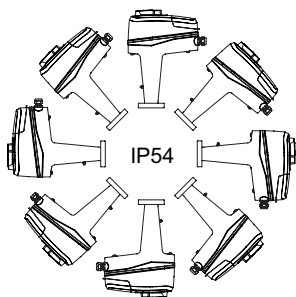
	Status	Green
	Fully retracted (actuator stem)	Long pulse - Short pulse
	Fully extended (actuator stem)	Short pulse - Long pulse
	Intermediate position	Long pulses
	Moving	Short pulses
	Calibrating	2 short pulses
	Manual mode or no power supply	Off

	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

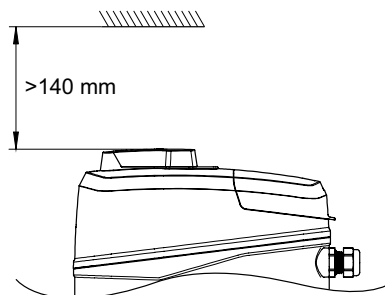
If an error is detected, red pulses are displayed as the green status lights flash alternately. More detailed information, please see the HyTune app + TA-Dongle.



## Installation



### Note!



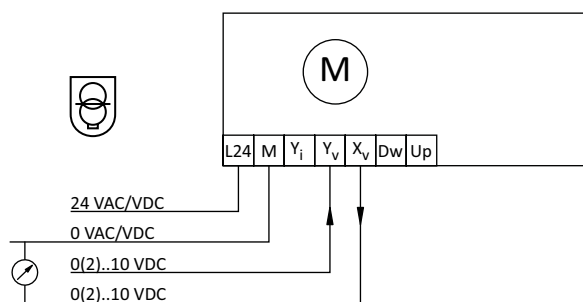
## Connection diagram – Terminal/Description

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

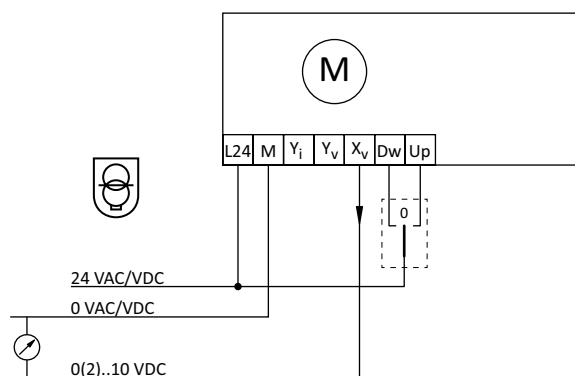
\*) All M terminals are internally connected.

## Connection diagram – 24 V

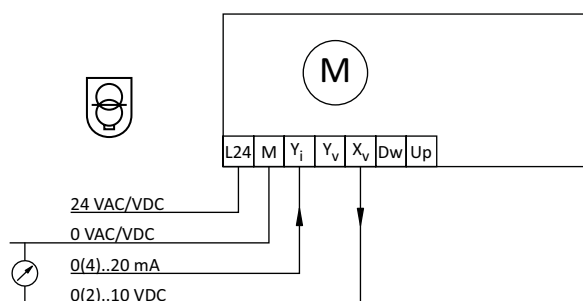
### 0(2)-10 VDC



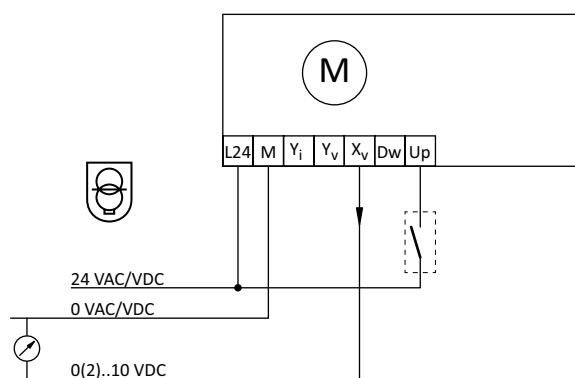
### 3-point




### 0(4)-20 mA



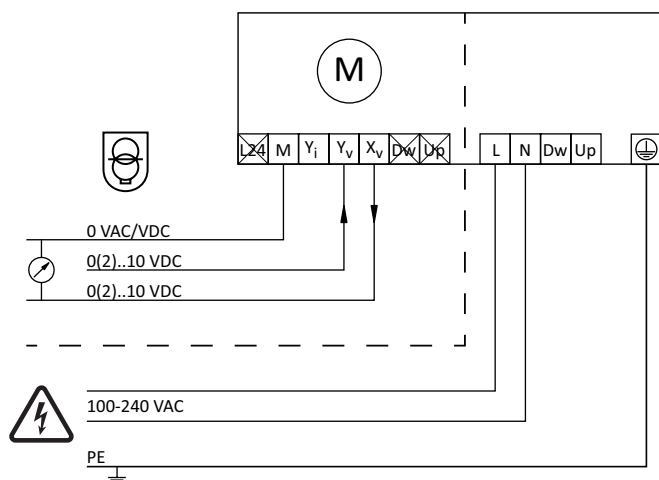
### On-off



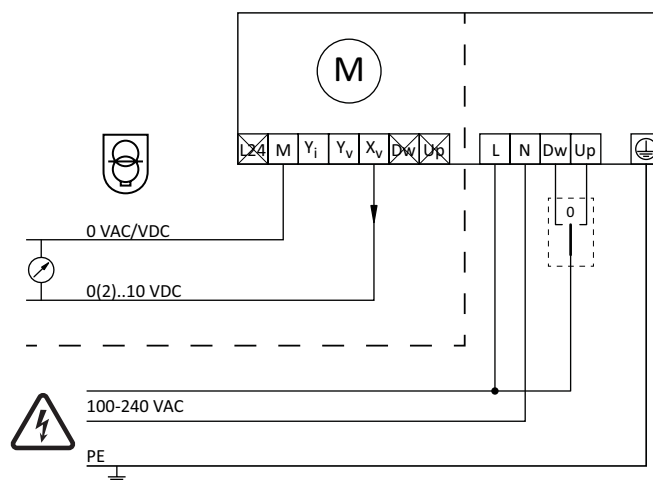
 24 VAC/VDC operating only with safety transformer according to EN 61558-2-6.

## Connection diagram – 100-240 V

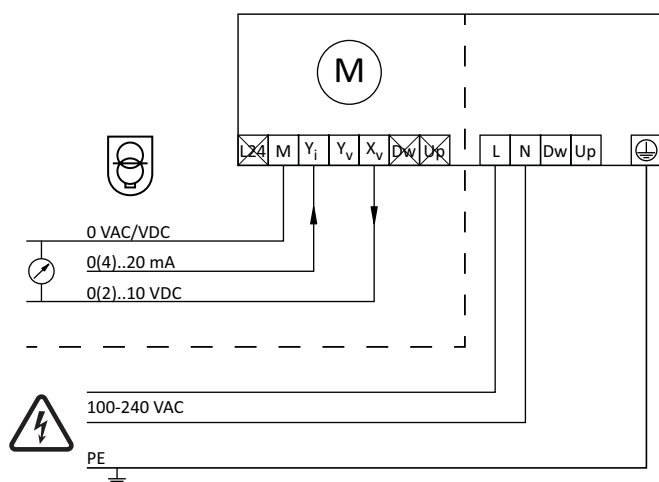
0(2)-10 VDC



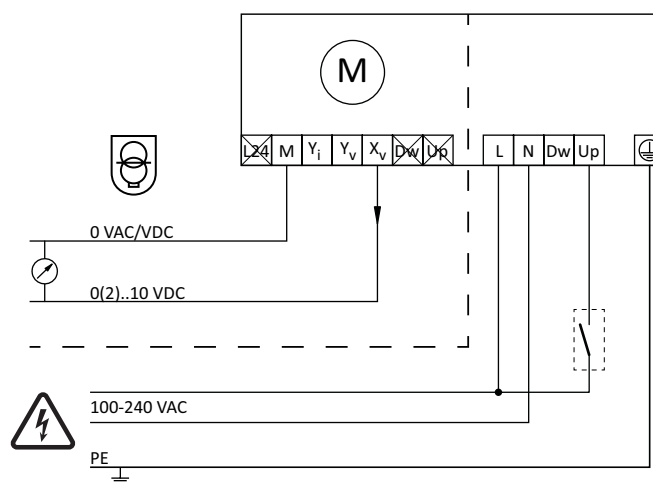
3-point



0(4)-20 mA



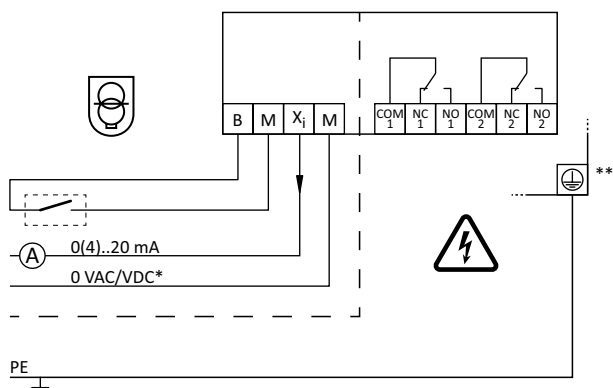
On-off



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

## Connection diagram – Relay

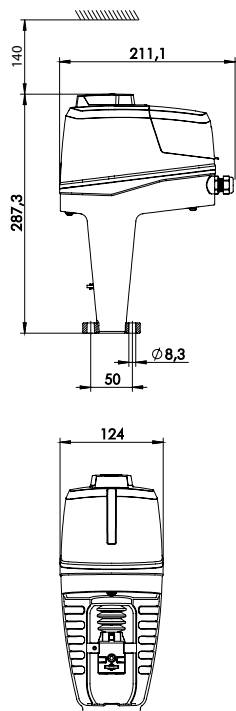
Optional relay board



\*) Low voltage neutral

\*\*) Ground connection required.

## Articles



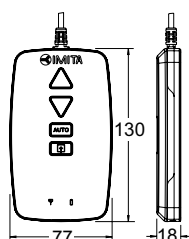
### TA-Slider 750 Fail-safe Plus

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

With binary input, relays, mA output signal

Supply voltage	EAN	Article No
24 VAC/VDC	5902276898822	322226-10319
100-240 VAC	5902276898839	322226-40319

## Additional equipment



### TA-Dongle

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

EAN	Article No
5901688828632	322228-00001

## Accessories

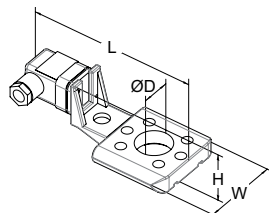
### Stem heater

Including spindle top (extension) and extended screws.

Temperature range till  $-10\text{ }^{\circ}\text{C}$ .

Voltage 24 VAC  $\pm 10\%$  50/60 Hz  $\pm 5\%$ . Power  $P_N$  approx. 30 W.

Current 1,4 A. Surface temperature max.  $50\text{ }^{\circ}\text{C}$ .



For valve	DN	L	H	W	D	EAN	Article No
		146	49	70	30		
TA-Modulator	40-50					383112534841	322042-80011
TA-Modulator	65-125					383112534834	322042-80010
TA-Modulator	150						68-013-015
TA-FUSION	32-50					383112533509	322042-80901
TA-FUSION	65-150					383112533448	322042-81400
KTM 512	15-50					383112533431	322042-80900
KTM 512	65-125					383112533455	322042-81401

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