

TA-Slider 500 Fail-safe



Actuators

Digitally configurable proportional push-pull actuator with electronic fail-safe function – 500/300 N

TA-Slider 500 Fail-safe

Digitally configurable fail-safe actuators with or without change-over, and a wide range of setup options provide extensive flexibility for on-site parameter adaptation. 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.
- > **Convenient, reliable setup**
Fully customisable by smartphone via Bluetooth using a TA-Dongle.
- > **Fully configurable**
More than 200 setup options allow input and output signals, binary input, relay, characteristics and many other parameters to be configured.
- > **Easy diagnostics**
Tracks the last 10 errors to allow system faults to be found quickly and health check of fail-safe function.
- > **Quick copying of settings**
Setup configuration can be copied quickly from the TA-Dongle to identical TA-Slider actuators.

Technical description

Functions:

Electronic fail-safe function
Proportional control
Manual override (TA-Dongle)
Stroke detection
Mode, status and position indication
Stroke limitation setting
Minimum stroke setting
Valve blockage protection
Valve clogging detection
Error safe position
Diagnostic/Logging
Delayed start-up

I/O version:

+ 1 binary input, max. 100 Ω , cable max. 10 m or shielded.
+ Output signal

R24 version:

+ 1 binary input, max. 100 Ω , cable max. 10 m or shielded.
+ 1 relay, max. 1A, 30 VAC/VDC on resistive load
+ Output signal

Fail-safe function:

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

Supply voltage:

24 VAC/VDC $\pm 15\%$.
Frequency 50/60 Hz ± 3 Hz.

Power consumption:

Peak: < 6.6 VA (VAC); < 3.2 W (VDC)
Operation: < 3.6 VA (VAC); < 1.8 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_i 47 k Ω .
Adjustable hysteresis sensitivity 0.1-0.5 VDC.
0.33 Hz low pass filter.
Proportional:
0-10, 10-0, 2-10 or 10-2 VDC.
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.
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 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:

4 or 6 s/mm.
Default setting: 4 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:

< 40 s

Adjusting force:

Push 500 N
Pull 300 N

Temperature:

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

Ingress protection:

IP54 (all directions)
(according to EN 60529)

Protection class:

(according to EN 61140)
III (SELV)

Cable:

1, 2 or 5 m.
Halogen free with wire end sleeves.
Fire class B2_{ca} – s1a, d1, a1 according to EN 50575.
Type LiYY, 5x0.25 mm².
Relay cable (R24 version):
1, 2 or 5 m.
Halogen free with wire end sleeves.
Fire class B2_{ca} – s1a, d1, a1 according to EN 50575.
Type LiYY, 3x0.34 mm².

Stroke:

16,2 mm
Automatic detection of the valve lift
(stroke detection).

Noise level:

Max. 30 dBA

Weight:

I/O:
0,23 kg, 1 m.
0,27 kg, 2 m.
0,40 kg, 5 m.
R24:
0,33 kg, 1 m.
0,44 kg, 2 m.
0,82 kg, 5 m.

Connection to valve:

Swivelling nut M30x1,5.

Material:

Cover: PC/ABS GF8
Housing: PA GF40.
Swivelling nut: Nickel-plated brass.

Colour:

White RAL 9016, grey RAL 7047.

Marking:

Label: IMI TA, CE, product name, article No. and technical specification.

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.

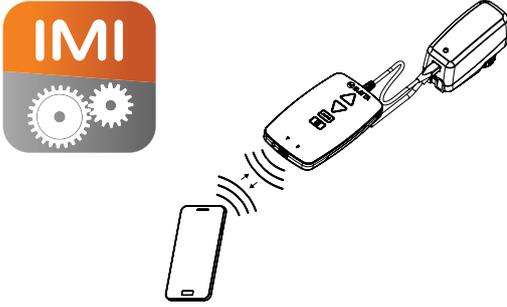
Product standard:

EN 60730.

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 using the TA-Dongle device. No power supply needed.

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

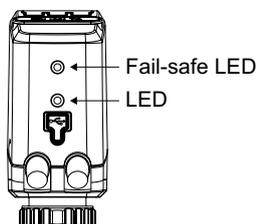
Switching between two different stroke limitation settings by toggling the binary input or using the dual-range input signal.

LED indication

	Status	Red (heating) / Blue (cooling)
	— — — —	Long pulse - Short pulse
	— — — —	Short pulse - Long pulse
	— — — —	Long pulses
	— — — —	Short pulses
	— — — —	2 short pulses
		Off

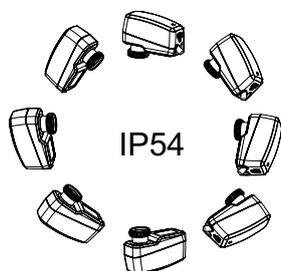
	Error code	Violet
	- - -	1 pulse
	- - - -	2 pulses
	- - - -	3 pulses
	- - - -	4 pulses

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

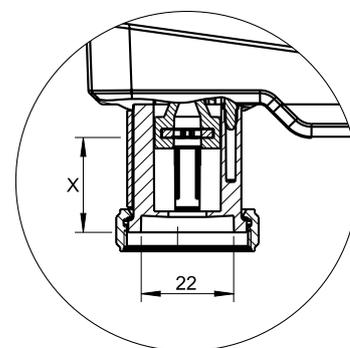
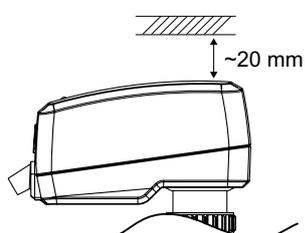


Fail-safe LED	Capacitor charge
Green	Good
Orange	Partial, fail-safe operation still possible
Red	Too low, fail-safe operation not assured

Installation



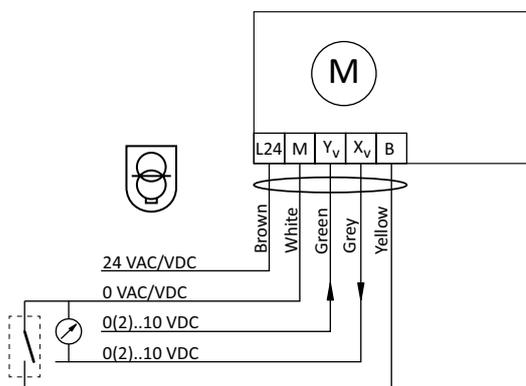
Note!



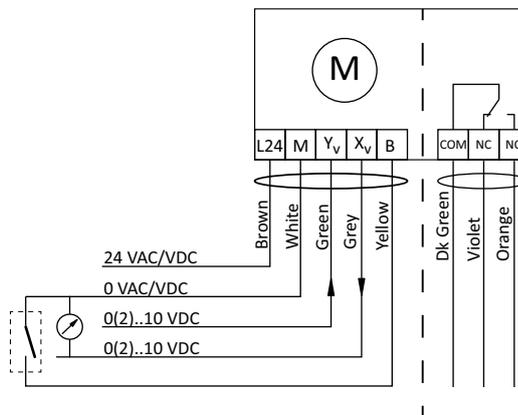
X = 10.0 - 16.9

Connection diagram

TA-Slider 500 Fail-safe I/O



TA-Slider 500 Fail-safe R24

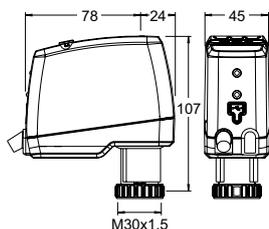


Terminal	Description
L24	Power supply 24 VAC/VDC
M	Neutral for power supply 24 VAC/VDC and signals.
Y _v	Input signal for proportional control 0(2)-10 VDC, 47 kΩ
X _v	Output signal 0(2)-10 VDC, max. 8 mA or min. load resistance 1.25 kΩ
B	Connection for potential free contact (e.g. open window detection), max. 100 Ω, max. 10 m cable or shielded
COM	R24: Common relay contact, max. 1A @ 30 VAC/VDC on resistive load.
NC	Normally closed contact for relay
NO	Normally open contact for relay



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

Articles – TA-Slider 500 Fail-safe I/O



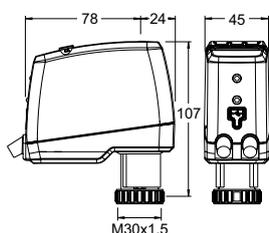
TA-Slider 500 Fail-safe I/O

Input signal: 0(2)-10 VDC

With binary input, VDC output signal

Cable length [m]	Supply voltage	EAN	Article No
With halogen free cable			
1	24 VAC/VDC	5902276898761	322225-10614
2	24 VAC/VDC	5902276898778	322225-10615
5	24 VAC/VDC	5902276898785	322225-10616

Articles – TA-Slider 500 Fail-safe R24



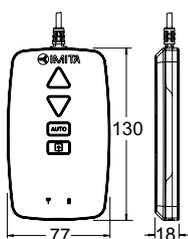
TA-Slider 500 Fail-safe R24

Input signal: 0(2)-10 VDC

With binary input, VDC output signal and relay 24V

Cable length [m]	Supply voltage	EAN	Article No
With halogen free cable			
1	24 VAC/VDC	5902276898792	322225-10714
2	24 VAC/VDC	5902276898808	322225-10715
5	24 VAC/VDC	5902276898815	322225-10716

Additional equipment



TA-Dongle

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

EAN	Article No
5901688828632	322228-00001

