

Climate  
Control

IMI TA

## TA-Slider 500 Fail-safe



### **Actuators**

Digitally configurable proportional push-pull actuator  
with electronic fail-safe function –  
112/67 lbf (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 copy of settings

Identical settings can be quickly copied from TA-Dongle to several 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  $\Omega$ , cable max. 32.8 ft or shielded.
- + Output signal

#### R24 version:

- + 1 binary input, max. 100  $\Omega$ , cable max. 32.8 ft 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  $\pm 3$  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, 47 k $\Omega$ .  
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 $\Omega$ .  
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:**

101.6 or 154 s/in (4 or 6 s/mm).  
Default setting: 101.6 s/in (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 112 lbf (500 N)  
Pull 67 lbf (300 N)

**Temperature:**

Media temperature: max. 248°F  
Operating environment: 32°F to 122°F  
(5-95%RH, non-condensing)  
Storage environment: -4°F to 122°F  
(5-95%RH, non-condensing)

**Ingress protection:**

IP54 (all directions)  
(according to EN 60529)

**Protection class:**

(according to EN 61140)  
III (SELV)

**Cable:**

3.28 ft, 6.56 ft or 16.4 ft. Halogen free  
with wire end sleeves.  
Fire class B2<sub>ca</sub> – s1a, d1, a1 according to  
EN 50575.  
Type LiYY, 5x23 AWG (5x0.25 mm<sup>2</sup>).  
Relay cable (R24 version):  
3.28 ft, 6.56 ft or 16.4 ft. Halogen free  
with wire end sleeves.  
Fire class B2<sub>ca</sub> – s1a, d1, a1 according to  
EN 50575.  
Type LiYY, 3x22 AWG (3x0.34 mm<sup>2</sup>).

**Stroke:**

0.64 in (16.2 mm)  
Automatic detection of the valve lift  
(stroke detection).

**Noise level:**

Max. 30 dBA

**Weight:**

I/O:  
0.51 lb, 3.28 ft.  
0.60 lb, 6.56 ft.  
0.88 lb, 16.4 ft.  
R24:  
0.73 lb, 3.28 ft.  
0.97 lb, 6.56 ft.  
1.81 lb, 16.4 ft.

**Connection to valve:**

Retainer nut M30x1.5.

**Material:**

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

**Color:**

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.

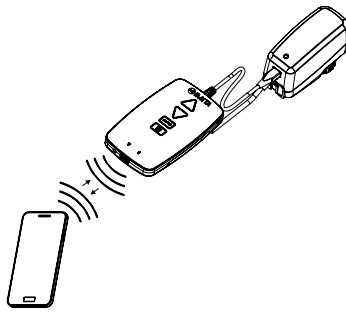
**Product standard:**

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. Press the configuration button on the TA-Dongle, after connecting to the actuator. HyTune can be downloaded from the Apple 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 IMI TA/IMI Heimeier valves it can also be set to a  $Cv_{max}/q_{max}$ .

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 IMI TA/IMI Heimeier valves, it can also be set to a  $q_{min}$ .  
Default setting: No minimum stroke (0%).

### Valve blockage protection

If no actuation is performed for one week or one month, the actuator will perform one full stroke cycle.

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 are readable by the HyTune app + TA-Dongle device. Time-stamps of past 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)
	--- --	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

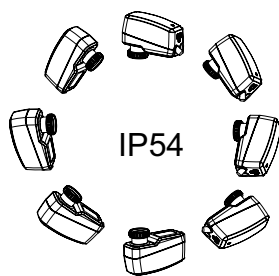
		Error code	Violet
	- - -	Power supply too low	1 pulse
	-- --	Line broken (2-10 V)	2 pulses
	--- --	Valve clogging or foreign object	3 pulses
	-----	Stroke detection failure	4 pulses

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.

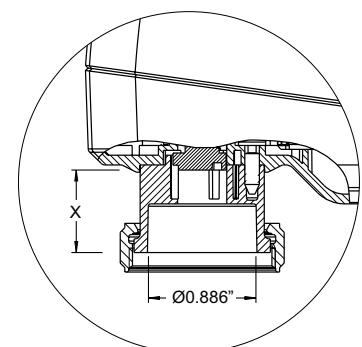
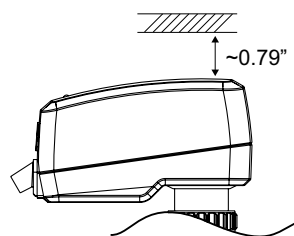


Fail-safe LED	Capacitor charge
Green	Good
Orange	Partial, fail-safe operation still possible
Red	Too low, fail-safe operation not assured

## Installation

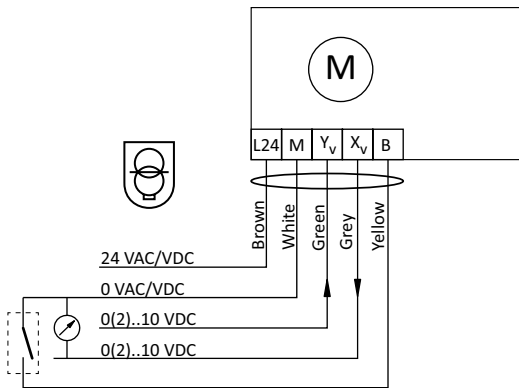
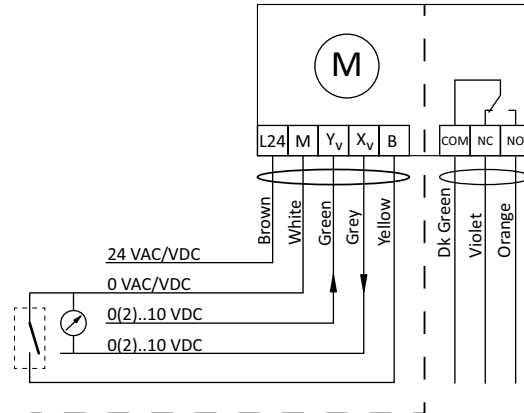


Note!



X = 0.394" - 0.665"

## Connection diagram

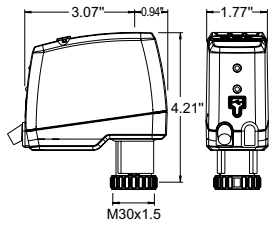
**TA-Slider 500 Fail-safe I/O**

**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 <sub>v</sub>	Input signal for proportional control 0(2)-10 VDC, 47 kΩ
X <sub>v</sub>	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. 32.8 ft (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



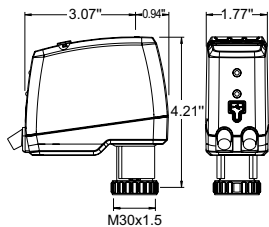
### TA-Slider 500 Fail-safe I/O

Input signal: 0(2)-10 VDC

With binary input, VDC output signal

Cable length	Supply voltage	Article No
<b>With halogen free cable</b>		
3.28 ft. (1 m)	24 VAC/VDC	322225-10614
6.56 ft. (2 m)	24 VAC/VDC	322225-10615
16.4 ft. (5 m)	24 VAC/VDC	322225-10616

## Articles – TA-Slider 500 Fail-safe R24



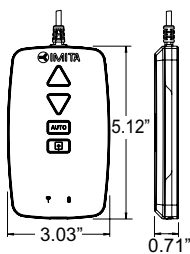
### TA-Slider 500 Fail-safe R24

Input signal: 0(2)-10 VDC

With binary input, VDC output signal and relay 24V

Cable length	Supply voltage	Article No
<b>With halogen free cable</b>		
3.28 ft. (1 m)	24 VAC/VDC	322225-10714
6.56 ft. (2 m)	24 VAC/VDC	322225-10715
16.4 ft. (5 m)	24 VAC/VDC	322225-10716

## Additional equipment



### TA-Dongle

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

Article No
322228-00001



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