

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 Ω , cable max. 32.8 ft or shielded.
+ Output signal

R24 version:

+ 1 binary input, max. 100 Ω , 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 ± 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:

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_{ca} – s1a, d1, a1 according to EN 50575.
Type LiYY, 5x23 AWG (5x0.25 mm²).
Relay cable (R24 version):
3.28 ft, 6.56 ft or 16.4 ft. Halogen free with wire end sleeves.
Fire class B2_{ca} – s1a, d1, a1 according to EN 50575.
Type LiYY, 3x22 AWG (3x0.34 mm²).

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.

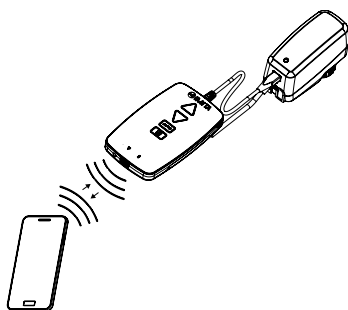
Product standard:

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 TA/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 TA/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






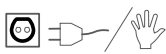
If the binary input circuit is open, the actuator will go to a set stroke, switch to a second stroke limitation setting or drive to its full stroke regardless of any limitations for flushing purpose. See also Change-over system detection.





Default setting: Off

Change-over system detection

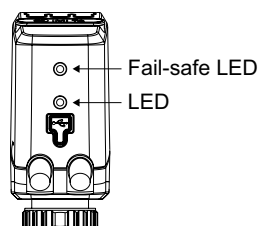
Switching between two different stroke limitation settings by toggling the binary input or using the dual-range input signal.

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

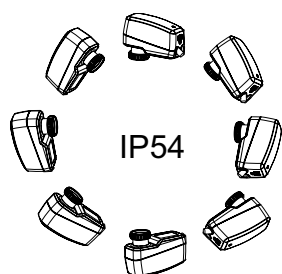
		Error code	Violet
	— — — —	Power supply too low	1 pulse
	— — — —	Line broken (2-10 V)	2 pulses
	— — — —	Valve clogging or foreign object	3 pulses
	— — — —	Stroke detection failure	4 pulses

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.

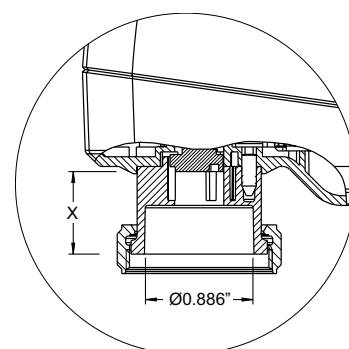
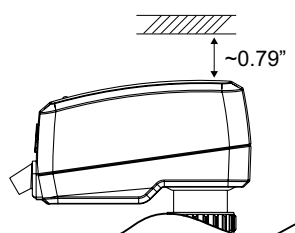


Fail-safe LED	Capacitor charge
Green	Good
Orange	Partial, fail-safe operation still possible
Red	Too low, fail-safe operation not assured

Installation



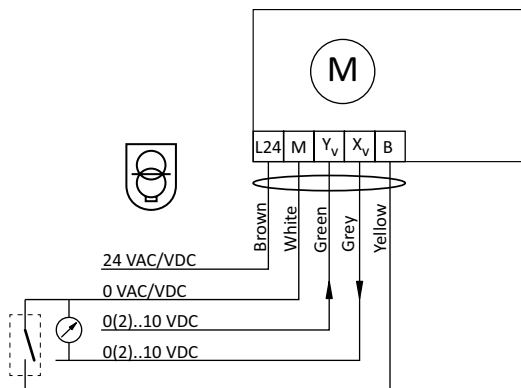
Note!



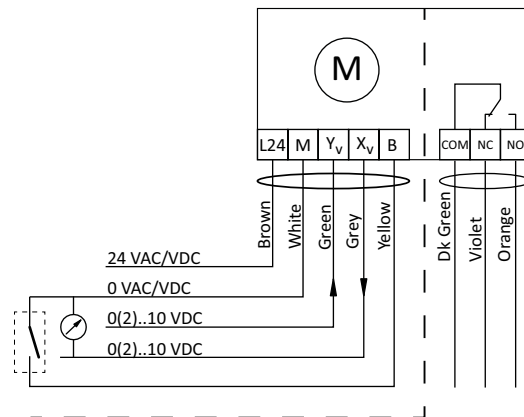
$$X = 0.394'' - 0.665''$$

Connection diagram

TA-Slider 500 Fail-safe I/O



TA-Slider 500 Fail-safe R24

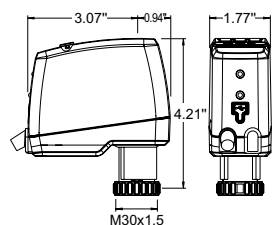


Terminal	Description
L24	Power supply 24 VAC/VDC
M	Neutral for power supply 24 VAC/VDC and signals.
Y _v	Input signal for proportional control 0(2)-10 VDC, 47 kΩ
X _v	Output signal 0(2)-10 VDC, max. 8 mA or min. load resistance 1.25 kΩ
B	Connection for potential free contact (e.g. open window detection), max. 100 Ω, max. 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



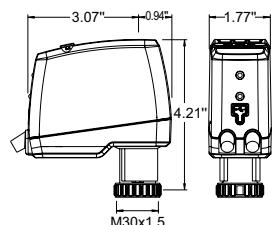
TA-Slider 500 Fail-safe I/O

Input signal: 0(2)-10 VDC

With binary input, VDC output signal

Cable length	Supply voltage	Article No
With halogen free cable		
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



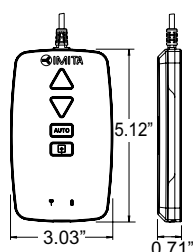
TA-Slider 500 Fail-safe R24

Input signal: 0(2)-10 VDC

With binary input, VDC output signal and relay 24V

Cable length	Supply voltage	Article No
With halogen free cable		
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

