

Climate
Control

IMI TA

TA-Slider 160 Fail-safe



Actuators

Digitally configurable proportional push actuator with electronic fail-safe function – 36/45 lbf (160/200 N)

TA-Slider 160 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
- Self-adjusting force
- 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: < 2.0 VA (VAC); < 0.9 W (VDC)
Standby: < 1.4 VA (VAC); < 0.45 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 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,
2-4.7 / 7.3-10 VDC,
0-4.5 / 5.5-10 VDC or
2-5.5 / 6.5-10 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:

254 s/in (10 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:

< 20 s

Adjusting force:

36/45 lbf (160/200 N)
Self-adjusting for IMI valves.

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:

0.27 in (6.9 mm)
Automatic detection of the valve lift
(stroke detection).

Noise level:

Max. 30 dBA

Weight:

I/O:
0.44 lb, 3.28 ft
0.55 lb, 6.56 ft
0.84 lb, 16.4 ft
R24:
0.62 lb, 3.28 ft
0.83 lb, 6.56 ft
1.47 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.

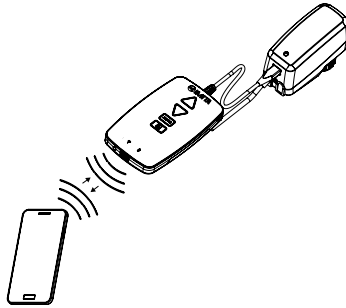
Product standard:

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.

Self-adjusting force

Automatic valve type detection, the force is set to 36 lbf or 45 lbf for IMI TA/IMI Heimeier valves.
Default setting: On.

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)
	--- --	Long pulse - Short pulse
	-- --	Short pulse - Long pulse
	--- --	Long pulses
	-----	Short pulses
	-- -- --	2 short pulses
		Off

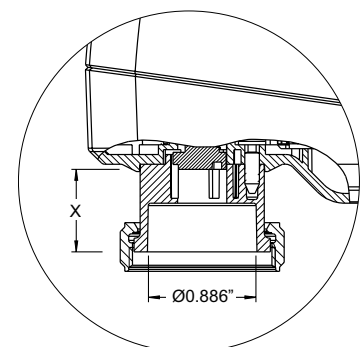
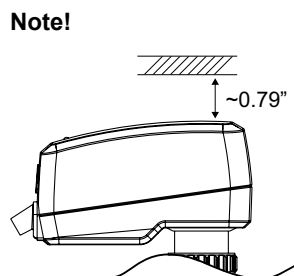
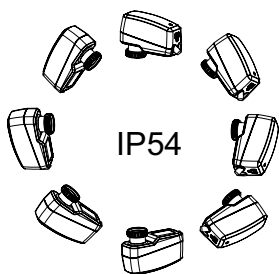
	Error code	Violet
	- - -	1 pulse
	-- --	2 pulses
	--- --	3 pulses
	-----	4 pulses

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.



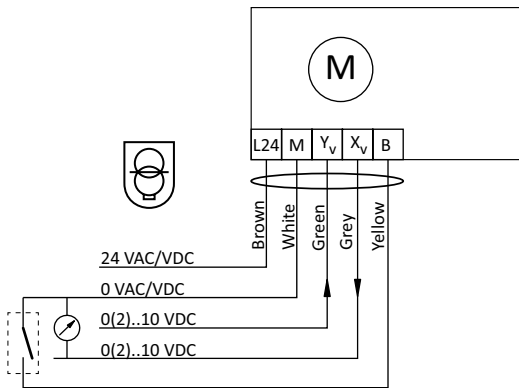
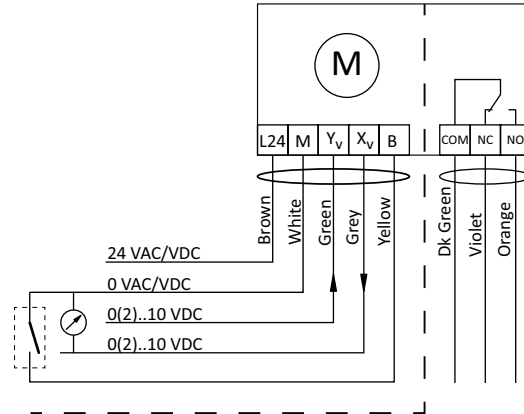
Fail-safe LED	Capacitor charge
Green	Good
Orange	Partial, fail-safe operation still possible
Red	Too low, fail-safe operation not assured

Installation



X = 0.394" - 0.665"

Connection diagram

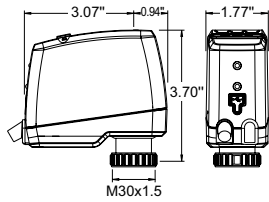
TA-Slider 160 Fail-safe I/O

TA-Slider 160 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 160 Fail-safe I/O



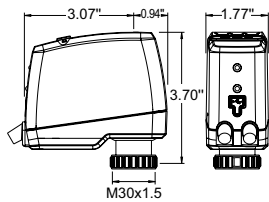
TA-Slider 160 Fail-safe I/O

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	322224-10614
6.56 ft. (2 m)	24 VAC/VDC	322224-10615
16.4 ft. (5 m)	24 VAC/VDC	322224-10616

Articles – TA-Slider 160 Fail-safe R24



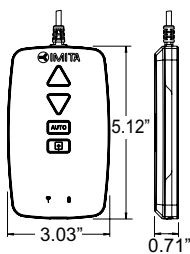
TA-Slider 160 Fail-safe R24

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	322224-10714
6.56 ft. (2 m)	24 VAC/VDC	322224-10715
16.4 ft. (5 m)	24 VAC/VDC	322224-10716

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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