Climate
Control

IMI TA

TA-Slider 160 T-2T

Actuators

Digitally configurable proportional push actuator with temperature measurement capability – 36/45 lbf (160/200 N)

Breakthrough
engineering for
a better world

TA-Slider 160 T-2T

Digitally configurable actuators with temperature measurement capability and operation, to be used as a terminal unit actuator mounted on a PIBCV for tackling ΔT syndrome or for handling changeover based on T supply or ΔT sign detection. 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

Optional ΔT and temperature return limitation
Optimize the efficiency of your production units by ensuring optimal temperature regimes.

Change-over functionality
Switch between heating/cooling flows according to input signal or automatically using T supply or ΔT sign detection.

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.

Quick copy of settings
Identical settings can be quickly copied from TA-Dongle to several TA-Slider actuators.

Technical description

Functions:
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
ΔT and temperature return limitation
Reading (supply/return temperature, ΔT, position)
Automatic change-over function

T version:
+ 1 pre-mounted Pt1000 to be inserted in valve measuring point.
+ 1 binary input, max. 100 Ω, cable max. 32.8 ft or shielded.
+ Output signal

2T version:
+ 1 pre-mounted cable with possibility to connect 2 Pt1000 (see section “Sensors”)
+ 1 binary input, max. 100 Ω, cable max. 32.8 ft or shielded.
+ Output signal

Supply voltage:
24 VAC/VDC ±15%.
Frequency 50/60 Hz ±3 Hz.

Power consumption:
Operation: < 1.3 VA (VAC); < 0.7 W (VDC)
Standby: < 0.5 VA (VAC); < 0.25 W (VDC)

Input signal:
0(2)-10 VDC, R_i 47 kΩ.
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 kΩ.
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)

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 158°F (5-95%RH, non-condensing)

Measurement accuracy:
Temperature pocket: Class AA
In valve measuring point: Class B
Surface mounted: Class B

Absolute temperature:
Pt1000 Class AA: ±32.2 °F at 32 °F
Pt1000 Class B: ±32.5 °F at 32 °F

Time constant τ (63%):
In valve measuring point: 5s
Temperature pocket: 9s
Surface mounted: 20s

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 mm^2).

Temperature sensor cable:
Halogen free, fire class IEC 60332-3-24 (cat. C).
T version: Length 6.30 in.
2T version: Length, see section “Sensors”.

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

Noise level:
Max. 30 dBA

Weight:
TA-Slider 160 T:
0.53 lb, 3.28 ft cable
0.64 lb, 6.56 ft cable
0.97 lb, 16.4 ft cable
TA-Slider 160 2T:
0.64 lb, 3.28 ft cable
0.75 lb, 6.56 ft cable
1.08 lb, 16.4 ft cable

Connection to valve:
Retainer nut M30x1.5.

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

Color:
White RAL 9016, grey RAL 7047.

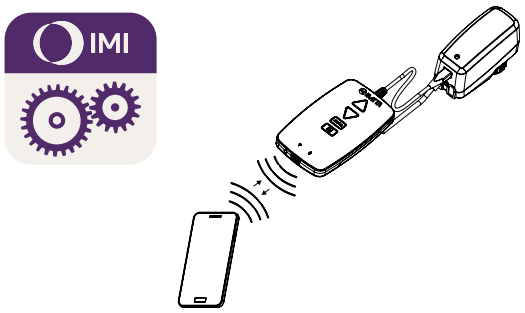
Marking:
Label: IMI TA, CE, product name, article No. and technical specification.

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 63000.

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.

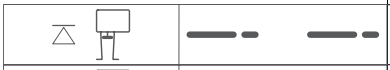
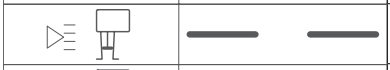
Delayed start-up
The actuator can be specified a delay (0 to 1275 sec.) before starting up after a power supply cut. This is useful when used with a control system that has itself a long start-up time.
Default setting: 0 seconds.

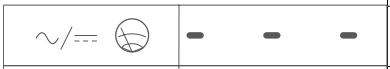
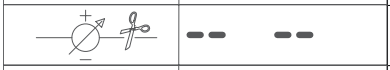
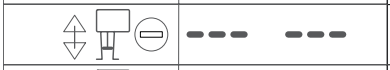
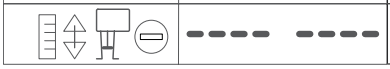
Binary input
If the binary input circuit is open, the actuator will go to a set stroke, switch to a second stroke limitation setting or drive to its full stroke regardless of any limitations for flushing purpose.

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

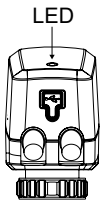
ΔT and temperature return limitation
Ensure your installation is properly balanced and optimize the efficiency of your production units by ensuring optimal temperature regimes.

LED indication

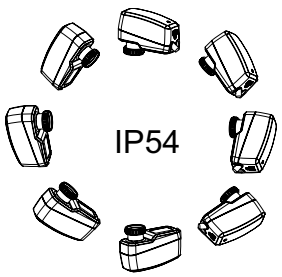
	Status	Red (heating) / Blue (cooling)
	Fully retracted (actuator stem)	Long pulse - Short pulse
	Fully extended (actuator stem)	Short pulse - Long pulse
	Intermediate position	Long pulses
	Moving	Short pulses
	Calibrating	2 short pulses
	Manual mode or no power supply	Off

	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

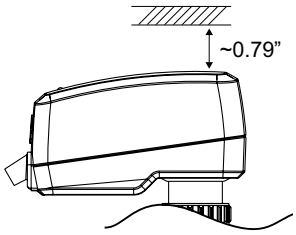
If an error is detected, violet pulses are displayed as the red or blue status lights flash alternately.
More detailed information, please see the HyTune app + TA-Dongle.

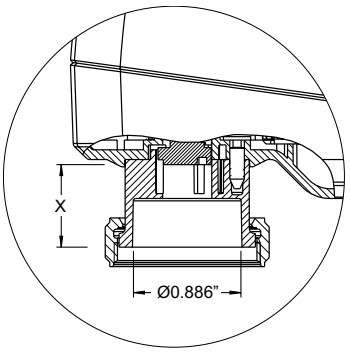


Installation



Note!

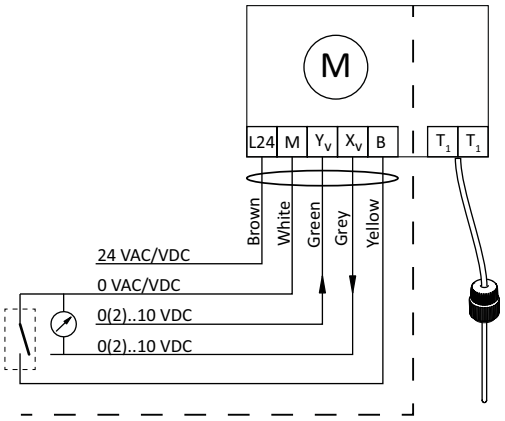




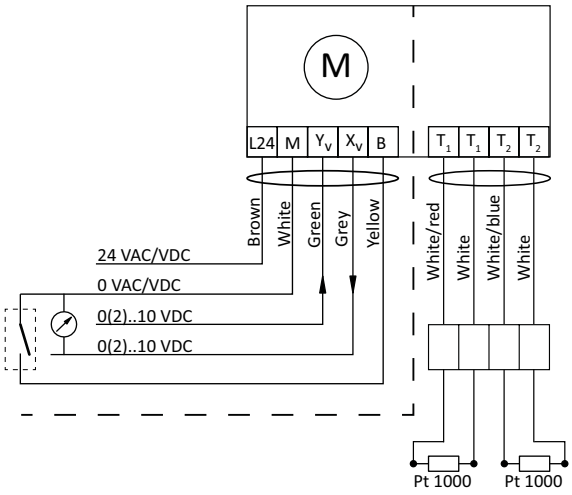
X = 0.394” - 0.665”

Connection diagram

TA-Slider 160 T



TA-Slider 160 2T



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
T1	Connection to first Pt1000 temperature sensor, max. 32.8 ft (10 m) total cable length between actuator and sensor head.
T2	Connection to second Pt1000 temperature sensor, max. 32.8 ft (10 m) total cable length between actuator and sensor head.

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

Sensors

For applications that require only one temperature measurement, the T version is suitable, as it comes equipped with an integrated sensor. **No additional temperature sensors are necessary.**
For applications where two temperature measurements are necessary, order the 2T version along with two temperature sensors. IMI offers a range of temperature sensors that are compatible with the actuator. Note that the sensors do not have to be of the same type. For article numbers see section “Sensors”.

Insertion in temperature pocket
Sensor type: Pt1000, Ø 0.197 in. (5 mm), 9.84 ft. (3 m) cable.

Pocket length	Cable length	For pipe size			
[in]	[ft]	3/8” - 1”	1 1 /4” - 2”	2 1/2” - 3”	4” - 10”
0.98	9.84	X			
1.57	9.84		X		
2.76	9.84			X	
3.94	9.84				X

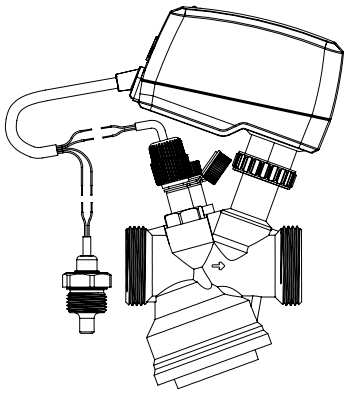
Insertion in valve measuring point
Sensor type: Pt1000, Ø 0.118 in. (3 mm), 9.84 ft. (3 m) or 16.4 ft. (5 m) cable.

Sensor length	Cable length	TA-Modulator	TBV-CM	TA-COMPACT -P/-DP	STAD	STAF/ STAF-SG	STAF/ STAF-SG	STAF-SG	STAF-SG
[in]	[ft]	Size 3/8” - 2”	Size 1/2” - 1”	Size 3/8” - 1 1/4”	Size 3/8” - 2”	Size 2 1/2” - 5”	Size 6”	Size 8” - 10”	Size 12” - 16”
2.36	9.84	X	X	X	X				
5.12	16.4					X		X	
6.69	16.4						X		X

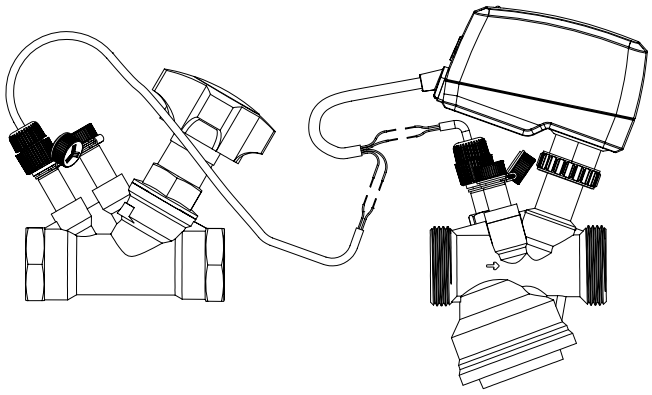
Surface mounted temperature sensor
Sensor type: Pt1000, 9.84 ft. (3 m).

Examples

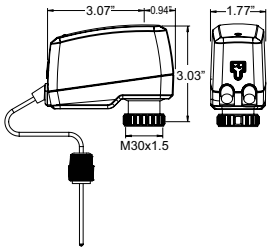
TA-Modulator with 2T version
In this setup, 2 sensors should be ordered.
One sensor is used for insertion in a measuring point, and another sensor is inserted into a temperature pocket.



TA-Modulator with 2T version and STAD
In this setup, 2 sensors should be ordered.
One sensor is used for measuring point in TA-Modulator, and another sensor is inserted into the measuring point from STAD.

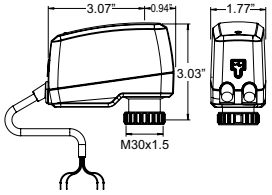


Articles



TA-Slider 160 T
Pre-mounted Pt1000 for valve measuring point insertion.
Input signal: 0(2)-10 VDC

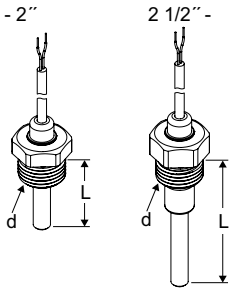
Cable length	Sensor cable length	Supply voltage	Article No
3.28 ft. (1 m)	6.30 in. (160 mm)	24 VAC/VDC	322224-10814
6.56 ft. (2 m)	6.30 in. (160 mm)	24 VAC/VDC	322224-10815
16.4 ft. (5 m)	6.30 in. (160 mm)	24 VAC/VDC	322224-10816



TA-Slider 160 2T
Without pre-mounted Pt1000. Sensors ordered separately.
Input signal: 0(2)-10 VDC

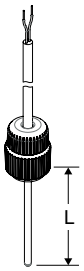
Cable length	Sensor cable length	Supply voltage	Article No
3.28 ft. (1 m)	6.30 in. (160 mm)	24 VAC/VDC	322224-10914
6.56 ft. (2 m)	6.30 in. (160 mm)	24 VAC/VDC	322224-10915
16.4 ft. (5 m)	6.30 in. (160 mm)	24 VAC/VDC	322224-10916

Sensors



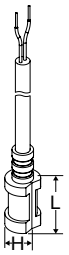
Temperature pocket withe sensor
Pt1000
For mounting directly on pipe. Free space >2.76 in. is required above the temperature pocket.

For pipe size	d	L [in]	Cable length	Article No
3/8” - 1”	G1/2	0.98	9.84 ft. (3 m)	322428-00020
1 1/4” - 2”	G1/2	1.57	9.84 ft. (3 m)	322428-00521
2 1/2” - 3”	G1/2	2.76	9.84 ft. (3 m)	322428-00621
4” - 10”	G1/2	3.94	9.84 ft. (3 m)	322428-00721



Temperature sensor for valve measuring point
Pt1000
Applicable to families: TA-Modulator, TBV-CM, TA-COMPACT-P/-DP, STAD, STAF-SG

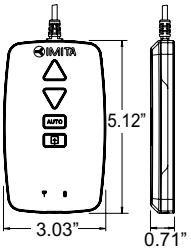
For valve size	L [in]	Cable length	Article No
3/8” - 2”	2.36	9.84 ft. (3 m)	322428-00122
2 1/2” - 10”	5.12	16.4 ft. (5 m)	322428-00134
12” - 16”	6.69	16.4 ft. (5 m)	322428-00135



Surface temperature sensor
Pt1000
For mounting directly on pipe surface.

H [in]	L [in]	Cable length	Article No
0.39	0.63	9.1 ft. (3 m)	322428-00429

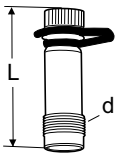
Additional equipment



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

Article No
322228-00001

Accessories



Measuring point
AMETAL®/EPDM
For mounting directly on pipe and insertion of temperature sensor for measuring point.

d	L [in]	Article No
R1/4	1.535	52 179-009
R1/4	4.055	52 179-609
R3/8	1.772	52 179-008
R3/8	3.976	52 179-608