Climate
Control

IMI TA

TA-6-way valve
– NPT threads

Standard control valves
6-way valve for change-over systems

Breakthrough
engineering for
a better world

TA-6-way valve – NPT threads

The 6-way valve solution enables various control set-ups for heating and cooling in sequence on one terminal unit. Provides automatically adopted settings of maximum flows for heating and cooling modes together with TA-Modulator and TA-Slider 160 CO or TA-Slider 160 BACnet/Modbus CO.

Key features

Easy commissioning and balancing
Provides automatically adopted settings of maximum flows for heating and cooling mode together with TA-Modulator and TA-Slider 160 CO or TA-Slider 160 BACnet/Modbus CO.

Precise flow control
Provides uniquely shaped EQM characteristic for best modulating control together with TA-Modulator.

Easy troubleshooting
Provides flow and differential pressure measuring for system diagnostic and pump optimization together with TA-Modulator.

Compact installation
Saves space by using one terminal unit for heating and cooling.

Technical description

Application:
Heating (not steam) and cooling systems. (Change-over system)

Function:
Control

Dimensions:
1/2” – 3/4”

Pressure class:
230 psi

Max. differential pressure (ΔpV):
30 psi

Temperature:
Max. working temperature: 248°F
Min. working temperature: 14°F

Media:
Water or neutral fluids, water-glycol mixtures (0-57%).

Leakage rate:
Level A (EN 12266-1/12 - P12)

Characteristics:
Linear, best suited for on/off control.

Material:
Body: Brass CW602N (EN 12167) CuZn36Pb2As
Balls: Brass CW614N (EN 12165) CuZn39Pb3
Spindles: Brass CW614N (EN 12164) CuZn39Pb3
Seats: PTFE
O-rings: EPDM (Perox)
End connections: Brass CW602N (EN 12167) CuZn36Pb2As

Surface treatment:
Body: Non-plated (raw finish)
Spindles and balls: Nickel-plated

Marking:
IMI TA, PN, DN.

Connection:
Internal thread according to ANSI/ASME B1.20.1-2013.

Connection to actuator:
F03 and F04 according to EN ISO 5211.

Angle of rotation:
90°

Actuator:
TA-M106 CO

Technical description – Actuator

Functions:
Proportional control (in combination with TA-Slider 160 CO)
3-point control
Manual override

Supply voltage:
24 VAC +6% -10%

Frequency:
50/60 Hz ±5%.

Power consumption:
3.5 VA

Input signal:
3-point

Actuating time:
130 s (at 50 Hz/90°)

Adjusting torque:
5.90 lbf.ft

Temperature:
Medium temperature: max. 176°F
Operating environment: 32°F - +122°F

Ingress protection:
IP43

Protection class:
EN 60730
24 VAC: III

End position switch-off:
Fixed at 90°

Cable:
4.92 ft., three wire 20 AWG (0.5 mm^2).
With connector to actuator TA-Slider 160 CO or TA-Slider 160 BACnet/Modbus CO.

Color:
Orange RAL 2011, grey RAL 7043.

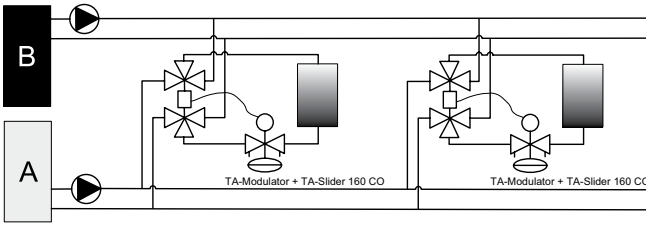
Marking:
Label: IMI TA, CE, product name and technical specification.

Connection to valve:
F04 according to EN ISO 5211.

Angle of rotation:
90°

Application examples

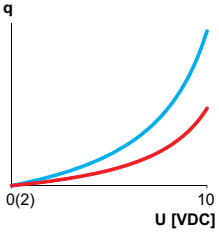
Control via the actuator TA-Slider 160 CO or TA-Slider 160 BACnet/Modbus CO and the pressure independent control valve TA-Modulator or TA-COMPACT-P
(See connection diagrams TA-Slider 160 CO + TA-M106 CO and TA-Slider 160 BACnet/Modbus CO + TA-M106 CO)

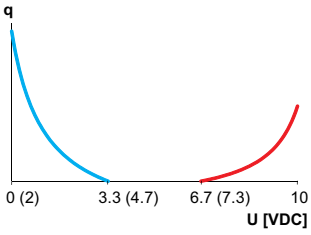


- EQM valve characteristic for best modulating control.
- High valve authority thanks to pressure independent control valve.
- Automatically adopted flow settings for heating and cooling mode.
- The 6-way valve for change-over between heating and cooling.

For more details on TA-Slider actuators, see separate technical leaflets.

The TA-6-way valve should not be installed as stand-alone, only in combination with TA-Modulator pressure independent control valve.

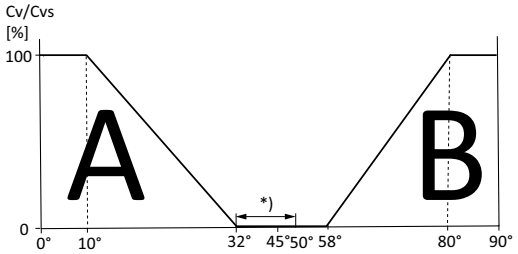


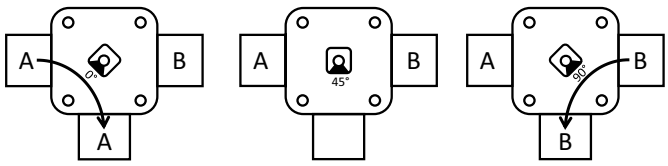


Installation

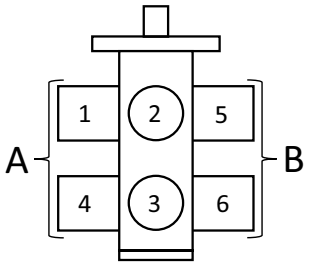
The TA-6-way valve should not be installed as stand-alone, only in combination with TA-Modulator pressure independent control valve.

Flow distribution





*) Pressure balance function: Pressure connection between port 1 and 2, at 32° to 50°, for proper pressurisation of the terminal at zero flow. **NOTE!** Any control valve should be connected to port 3.

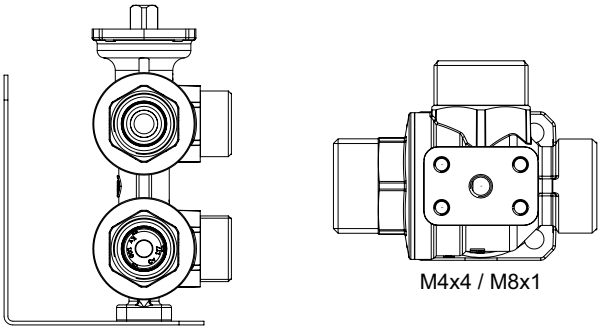


Pressurization

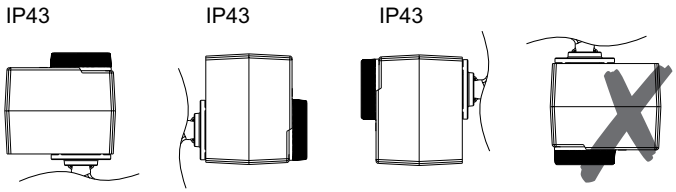
NOTE! When designing the pressurization system: please consider that change-over systems have hydraulic interaction between the cooling and the heating system via the terminals, which cause a fluid mass transfer from the cooling to the heating system. For further information please contact your local sales office.

Example valve + bracket

See “Accessories”



TA-M106 CO



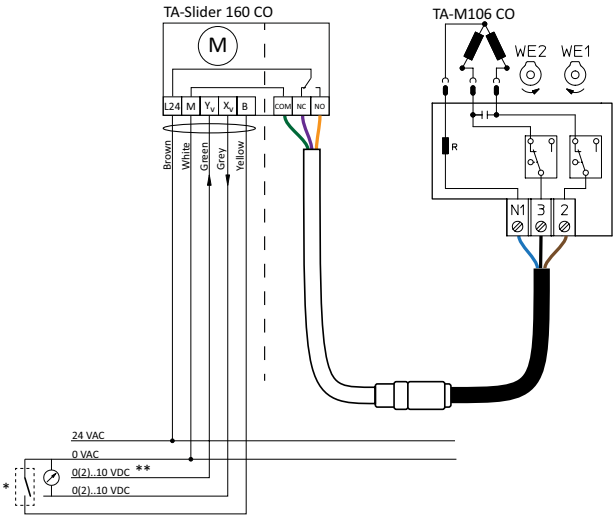
Connection diagram – Terminal/Description

Terminal	Description
S	Shielding, line should be connected at one end to a specific shielding terminal connected itself to EARTH.
L24	Power supply 24 VAC
M	Neutral for power supply 24 VAC and signals
A (Data+)	Data+ (RS 485)
B (Data-)	Data- (RS 485)
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 for Pt1000 temperature sensor, to be connected between T1 and M, max. 32.8 ft (10 m) total cable length between actuator and sensor head.
T2	Second connection for Pt1000 temperature sensor, to be connected between T2 and M, max. 32.8 ft (10 m) total cable length between actuator and sensor head.
COM	Common relay contact; to connect TA-M106 CO actuator.
NC	Normally closed contact for relay
NO	Normally open contact for relay

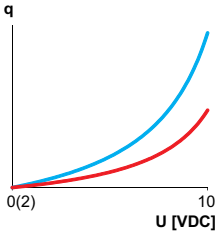
24 VAC/VDC operating only with safety transformer according to EN 61558-2-6.

Connection diagram

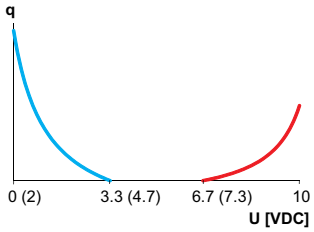
TA-Slider 160 CO + TA-M106 CO
(See Application example 1)



Modulating control



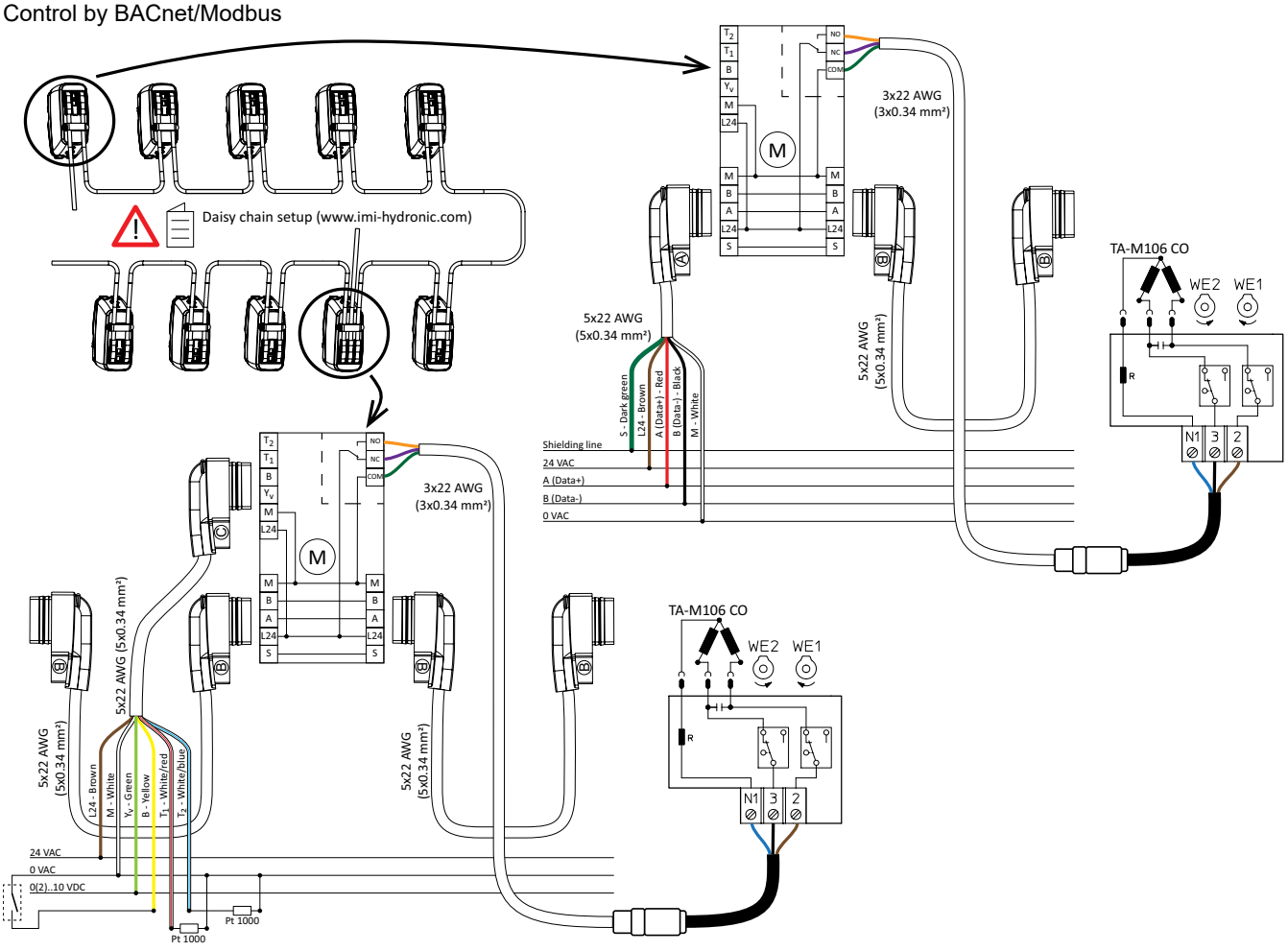
Dual range modulating control



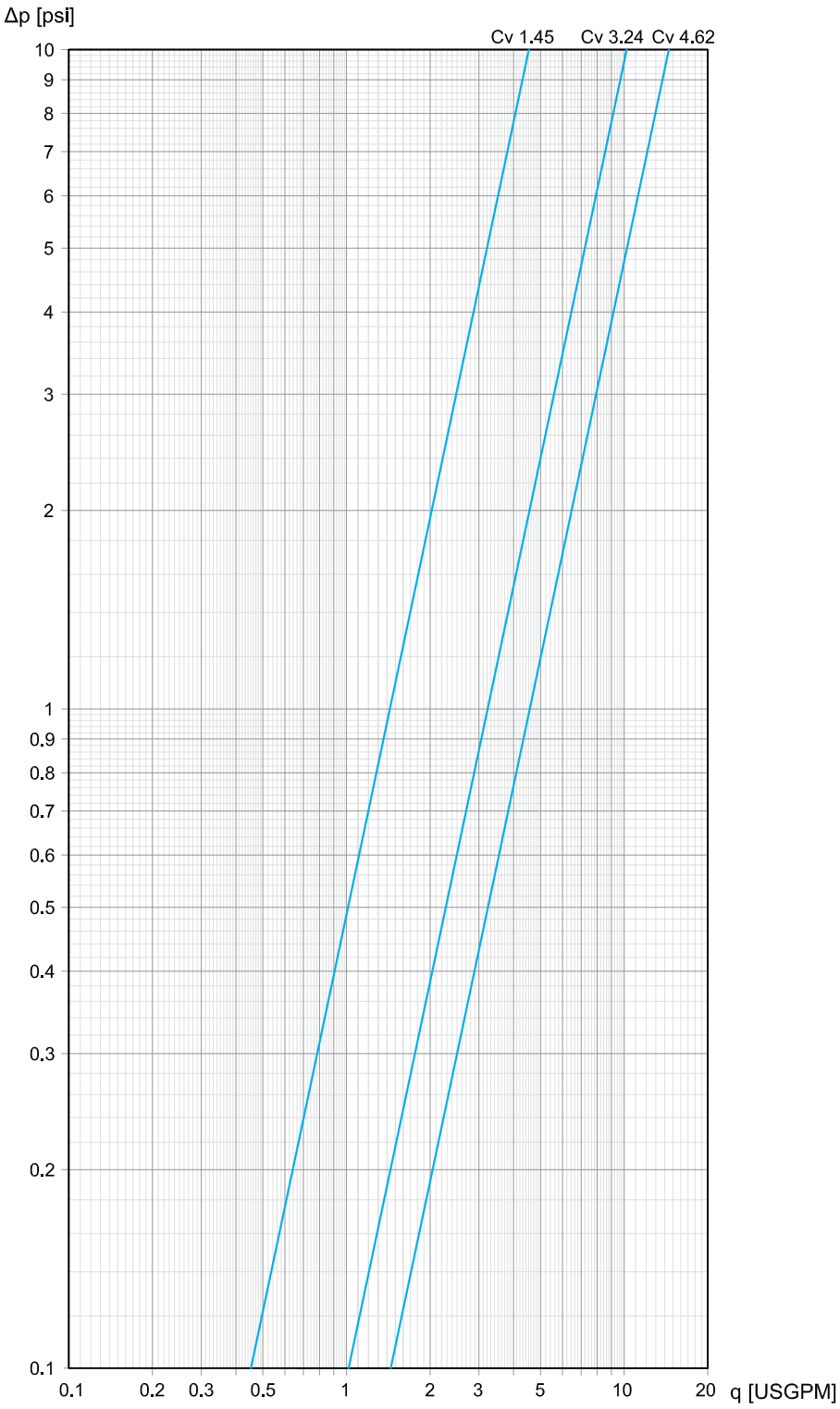
*) Binary input can be used to toggle between heating and cooling mode as an alternative to the dual-range signal.
**) Dual range signal 0-3.3/6.7-10 VDC, 2-4.7/7.3-10 VDC, 0-4.5/5.5-10 VDC or 2-5.5/6.5-10 VDC.

TA-Slider 160 BACnet/Modbus CO + TA-M106 CO
(See Application example 1)

Control by BACnet/Modbus

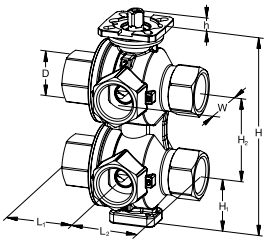


Diagram



Cvs = Cv of both ball valves fully open (A and B side equal)

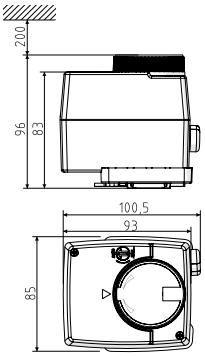
Articles



Internal threads
Threads according to ANSI/ASME B1.20.1-2013.

Non-plated (raw finish)

Size	D	L1 [in]	L2 [in]	H [in]	H1 [in]	H2 [in]	h [in]	W [in]	Cvs	lb.	Article No
1/2”	1/2 NPT	1.52	1.50	4.61	1.14	1.97	0.37	1.34	1.45	2.2	322031-30404
3/4”	3/4 NPT	1.87	1.89	5.55	1.50	2.36	0.37	1.57	3.24	4.2	322031-30506
3/4”	3/4 NPT	1.87	1.89	5.55	1.50	2.36	0.37	1.57	4.62	4.2	322031-30507



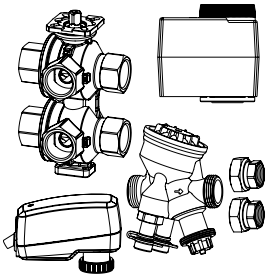
TA-M106 CO actuator

	Supply voltage	Input signal	lb.	Article No
TA-M106 CO	24 VAC	3-point	1.10	322042-90000

Valve and actuator to be ordered and delivered separately.

TA-Modulator pressure independent balancing and control valve and TA-Slider 160 actuator – see separate leaflets.

Articles – Kits

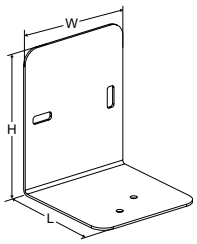


Kits – TA-6-way valve + TA-COMPACT-P
The kits consist of; TA-6-way valve, TA-M106 CO actuator, TA-COMPACT-P valve incl tailpieces, TA-Slider 160 CO actuator.

		Article No
Kit 1	TA-6-way valve 1/2 NPT Cv 1.45 with TA-COMPACT-P (1/2”)	339010-50400
Kit 2	TA-6-way valve 3/4 NPT Cv 3.24 with TA-COMPACT-P (3/4”)	339010-50500

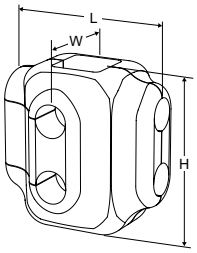
TA-COMPACT-P pressure independent balancing and control valve and TA-Slider 160 actuator – see separate leaflets.

Accessories



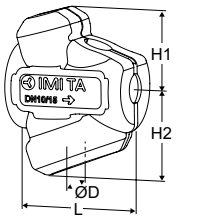
Bracket
For easier mounting on walls or ceilings.
2 pcs of M4 screws for fixing the valve to the bracket are included in the package.

L [in]	H [in]	W [in]	Article No
3.15	3.94	3.15	322031-30000



Insulation
For heating and cooling.
Max. temperature: 194°F.
Shell thickness: 0.63 in.
Material: Cross-linked polyethylene foam, density external layer 5 lbs/ft^3, internal layer 1.8 lbs/ft^3.
Fire class: B2 – DIN 4102 and 1 – UNI 9177.

Valve size	L [in]	H [in]	W [in]	Article No
1/2”	4.92	4.92	3.54	322031-30405
3/4”	4.72	5.51	3.94	322031-30508



Insulation TA-COMPACT
For heating/comfort cooling.
Material: EPP.
Fire class: E (EN 13501-1), B2 (DIN 4102).

Valve size	L [in]	H1 [in]	H2 [in]	D [in]	Article No
1/2”	3.94	2.40	2.79	3.31	52 164-901
3/4”	4.65	2.64	3.11	3.54	52 164-902