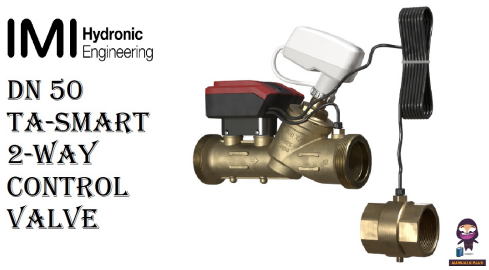


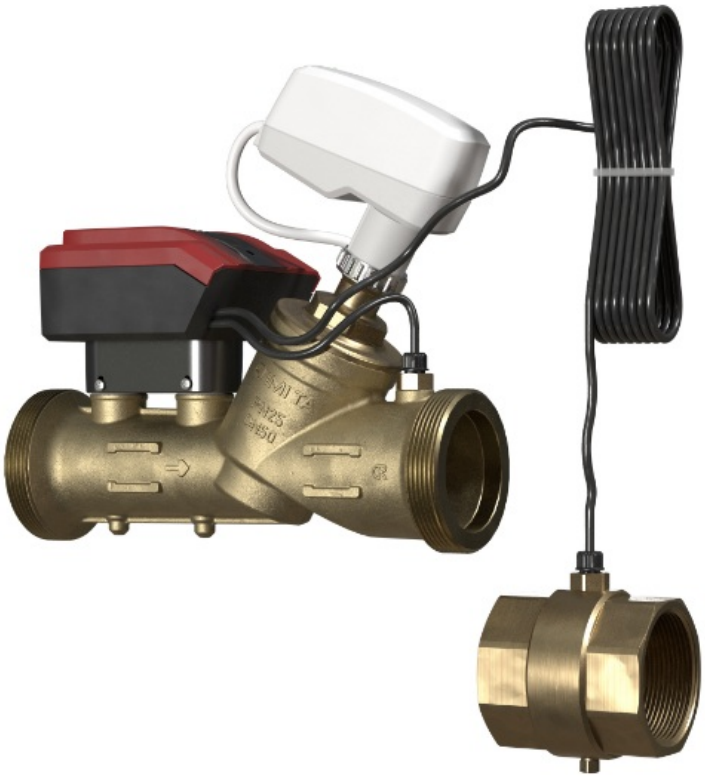

# IMI Hydronic Engineering DN 50 TA-Smart 2 Way Control Valve Instruction Manual



Contents

1 IMI Hydronic Engineering DN 50 TA-Smart 2 Way Control Valve
2 Product Specifications
3 Product Usage Instructions
4 Technical specifications
5 Dimensions
6 Tools
7 Wiring diagrams
8 Wiring
9 Wiring
10 LED
11 Frequently Asked Questions
12 Documents / Resources
12.1 References
13 Related Posts

## IMI Hydronic Engineering DN 50 TA-Smart 2 Way Control Valve



## Product Specifications

- **Model**: TA-Smart Fail-safe
- **DN (Nominal Diameter):** 15-50
- **Intended Use**: For measuring and control in heating and cooling systems
- **Pollution Degree:** 3
- **Classification:** Class III EN 61000-4-5 Category 3 IEC 60730
- **Communication Protocols**: BACnet MS/TP, BACnet IP, Modbus RTU, Modbus TCP
- **Input Voltage Range**: 0(2)-10 VDC 47 k
- **Output Current Range**: 0(4)-20 mA, 500 Ω
- **Pressure Rating**: PN 25 (362 psi)
- **Pressure Range**: min. 5 kPa (0.7 psi) – max. 400 kPa (58 psi)
- **Transmitter Module**: Contains Transmitter Module FCC ID: X8WBC840M

## Product Usage Instructions

### Cleaning and Maintenance

1. Clean the TA-Smart Fail-safe with a damped cloth and a mild cleaning agent.

### Installation Requirements

1. Ensure insulated wires and cables have a flammability rating of UL 2556 VW-1 or equivalent.
2. Install in accordance with the provided dimensions for different DN sizes.

### Operating Conditions

1. Use the product within the specified pressure range to ensure proper functionality.
2. Connect the product to compatible communication protocols for data exchange.

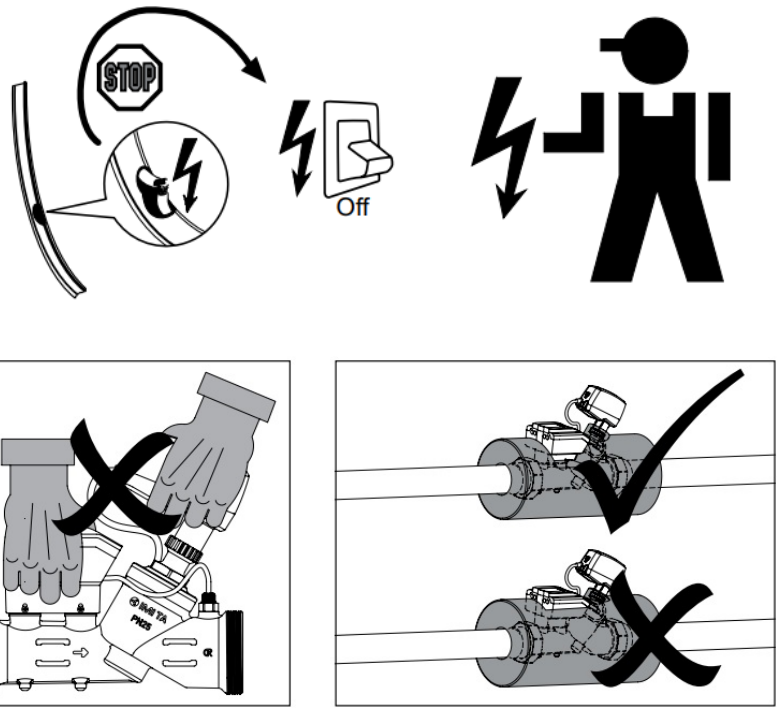
**Intended use**

For measuring and control in heating and cooling systems.

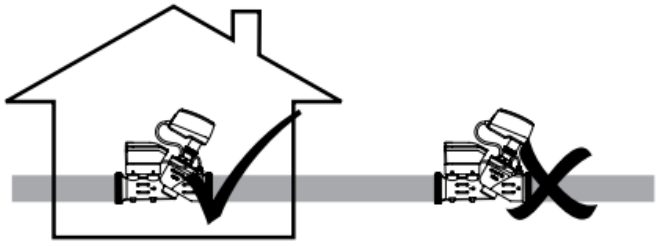
- The water quality requirements described in VDI2035 should be respected
- TA-Smart Fail-safe can be cleansed with a damped cloth and a lenient cleaning agent.
- Insulated wires and cables shall retard flame propagation with a flammability RATING of UL 2556 VW-1 or equivalent.

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

**Service** → IMI Hydronic Engineering




If the TA-Smart Fail-safe is used in any other application than specified by IMI Hydronic Engineering the protection provided by the equipment may be impaired.



We reserve the right to introduce technical alterations without prior notice.

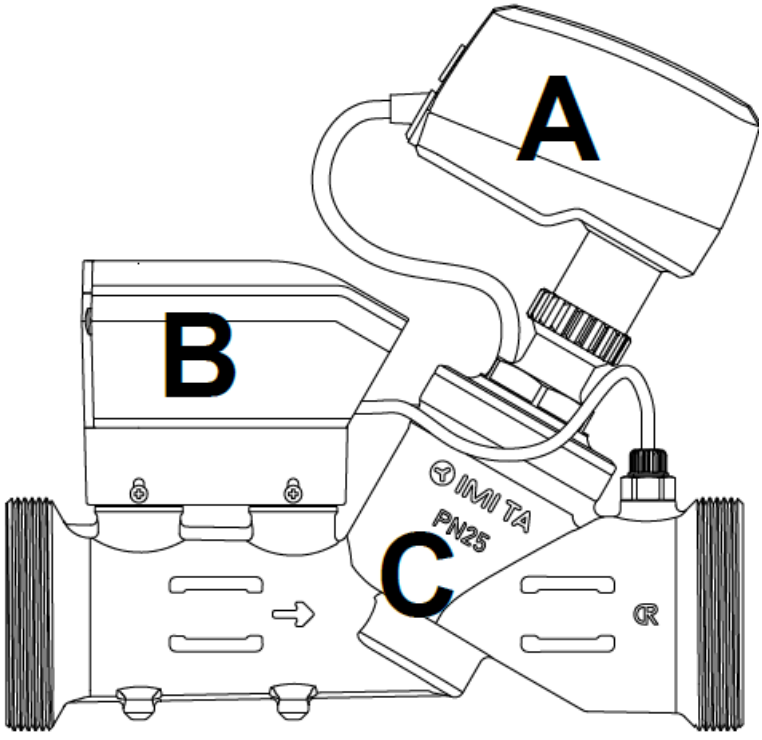
## Technical specifications

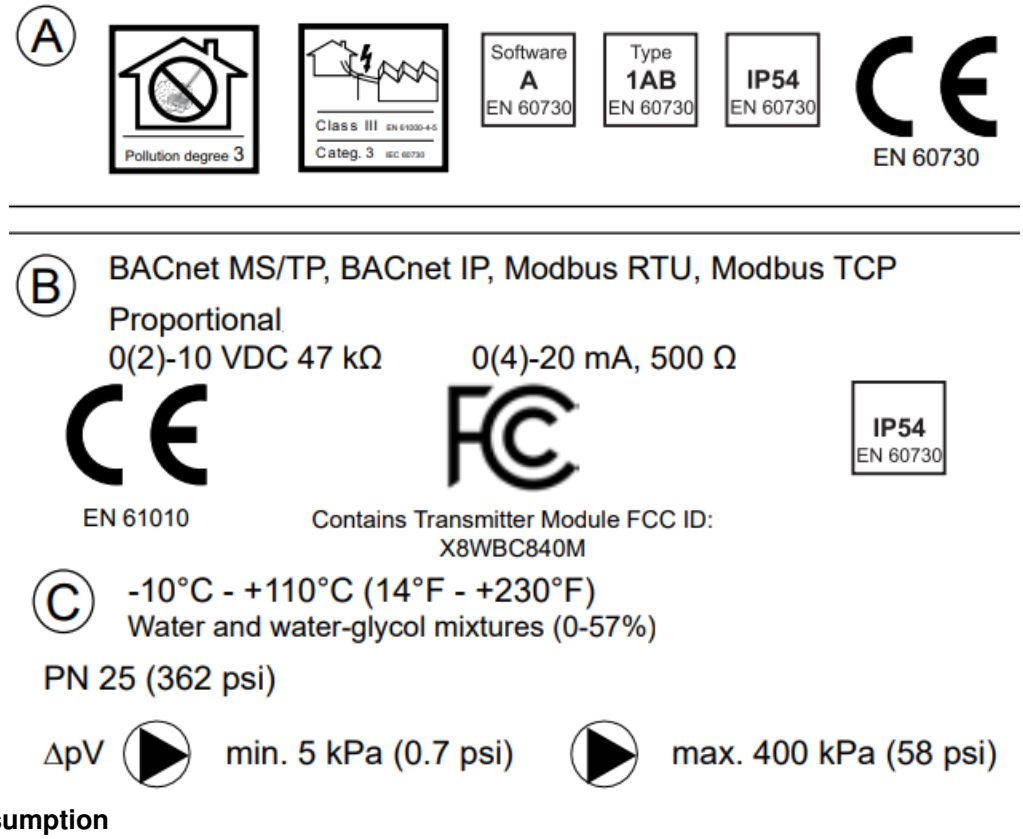
Valid at an altitude of max. 2000 m.

- -20°C – +70°C (-4°F – +158°F) (5-95%RH, non-condensing

- 0°C – +50°C (32°F – +122°F) (5-95%RH, non-condensing

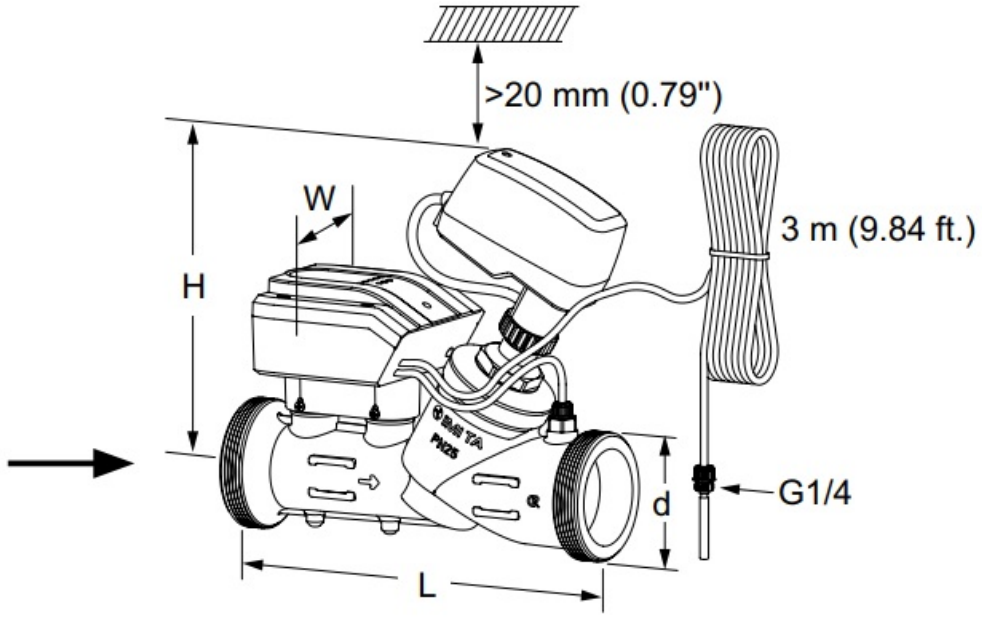
- Input signal
- Output signal
- Control mode
- Flow
- **Flow setting**: qnom
- **Media**: H2O
- **Characteristic**: EQM
- **Power supply:** 24 VAC +6%/-10%, 50/60 Hz ±15% 24 VDC +15%/-10%





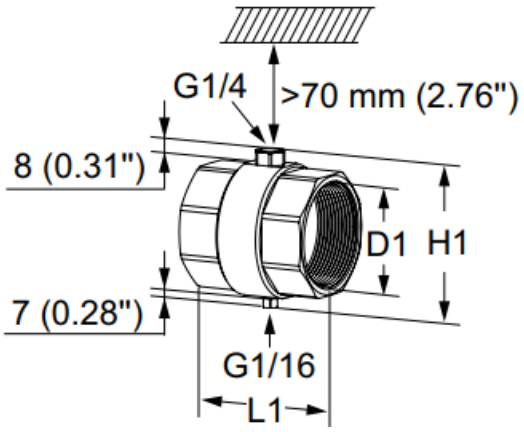

- **Power consumption**
  - **Peak**:< 4,5 W (24 VDC); < 6,6 VA (24 VAC)
  - **Operating**:< 4,2 W (24 VDC); < 6 VA (24 VAC)
  - **Standby**:< 2,0 W (24 VDC); < 3,6 VA (24 VAC)

## Dimensions



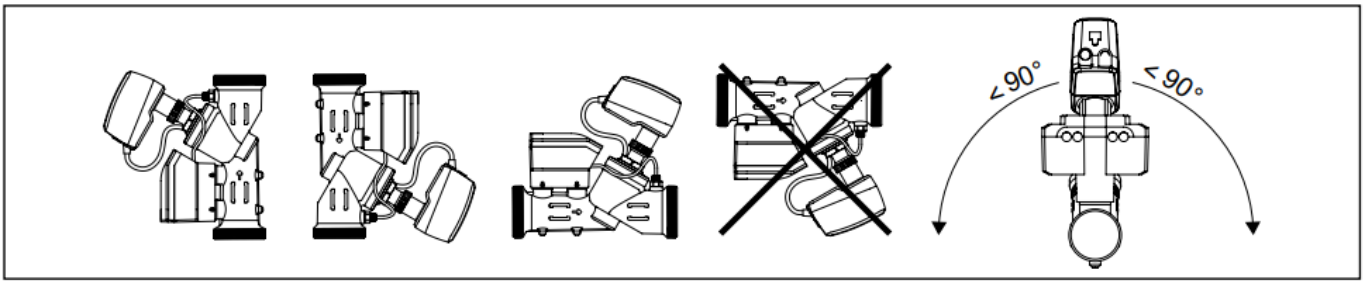
| ISO | | | | |
|---|---|---|---|---|
| **DN** | **d** | **L [mm]** | **H [mm]** | **W [mm]** |
| **15** | G3/4 | 167 | 173 | 97 |
| **20** | G1 | 180 | 174 | 97 |
| **25** | G1 1/4 | 187 | 174 | 97 |
| **32** | G1 1/2 | 200 | 199 | 97 |
| **40** | G2 | 218 | 198 | 97 |
| **50** | G2 1/2 | 239 | 198 | 97 |

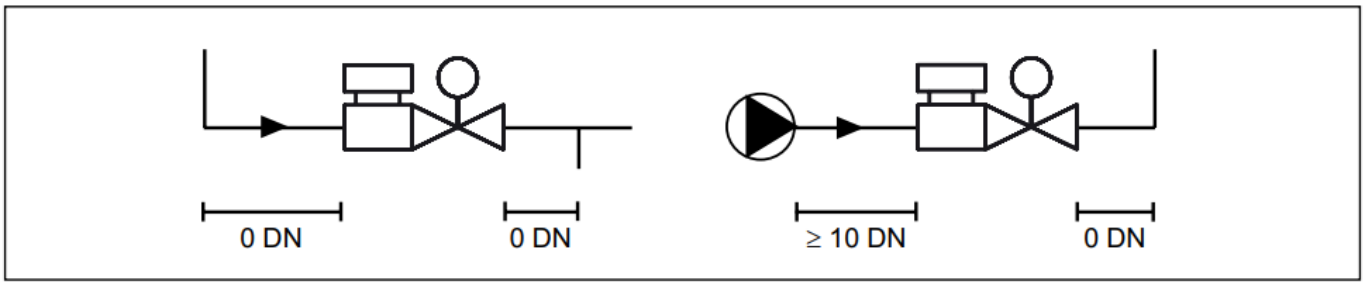
| Size | d | L [in] | H [in] | W [in] |
|---|---|---|---|---|
| **1/2”** | G3/4 | 6.57 | 6.81 | 3.82 |
| **3/4”** | G1 | 7.09 | 6.85 | 3.82 |
| **1”** | G1 /4 | 7.36 | 6.85 | 3.82 |
| **1 1/4”** | G1 1/2 | 7.87 | 7.83 | 3.82 |
| **1 1/2”** | G2 | 8.58 | 7.79 | 3.82 |
| **2”** | G2 1/2 | 9.41 | 7.79 | 3.82 |

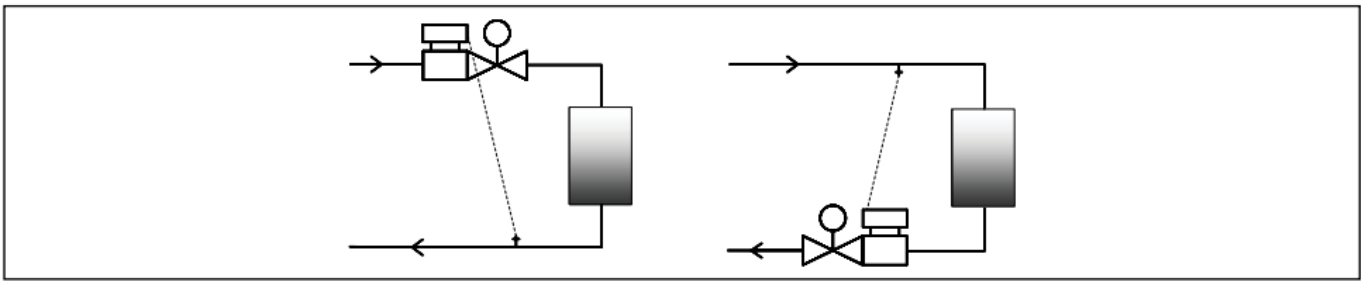


| **ISO** | | | **NPT** | | |
|---|---|---|---|---|---|
| **D1** | **L1 [mm]** | **H1 [mm]** | **D1** | **L1 [mm]** | **H1 [mm]** |
| G1/2 | 48 | 55 | 1/2” | 52 | 55 |
| G3/4 | 60 | 56 | 3/4” | 55 | 56 |
| G1 | 62 | 61 | 1” | 64 | 61 |
| G1 1/4 | 70 | 71 | 1 1/4” | 66 | 71 |
| G1 1/2 | 70 | 77 | 1 1/2” | 67 | 77 |
| G2 | 78 | 89 | 2” | 68 | 89 |

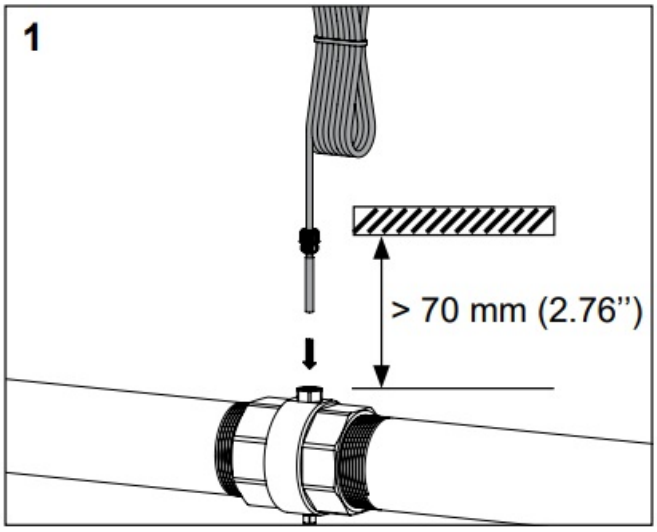

| **ISO** | | | **NPT** | | |
|---|---|---|---|---|---|
| **D1** | **L1 [mm]** | **H1 [mm]** | **D1** | **L1 [mm]** | **H1 [mm]** |
| G1/2 | 48 | 55 | 1/2” | 52 | 55 |
| G3/4 | 60 | 56 | 3/4” | 55 | 56 |
| G1 | 62 | 61 | 1” | 64 | 61 |
| G1 1/4 | 70 | 71 | 1 1/4” | 66 | 71 |
| G1 1/2 | 70 | 77 | 1 1/2” | 67 | 77 |
| G2 | 78 | 89 | 2” | 68 | 89 |

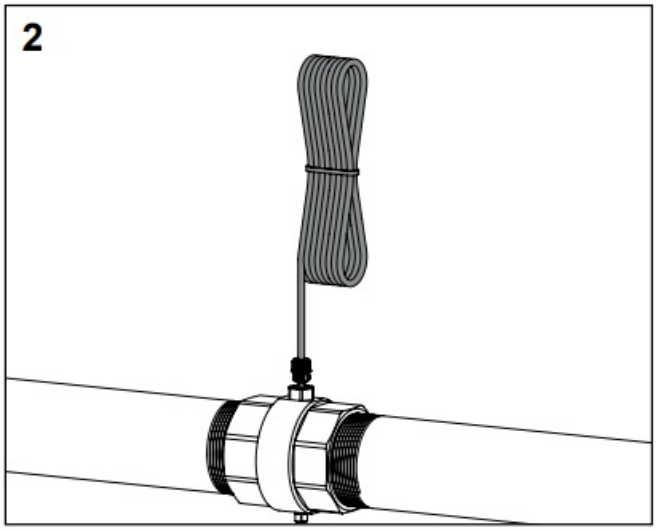


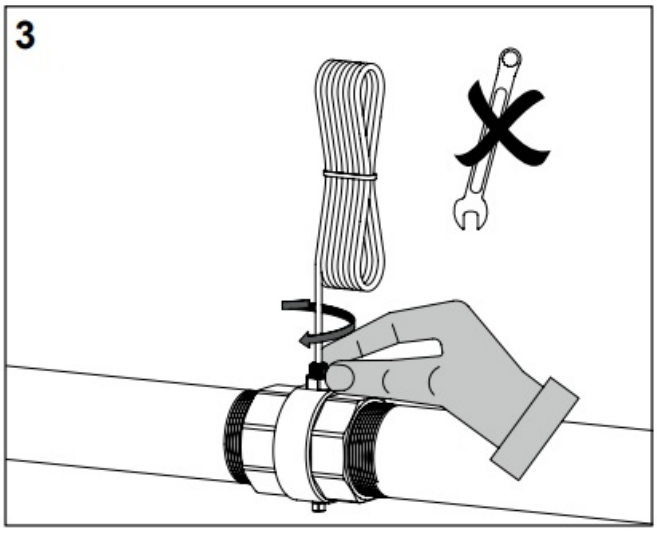



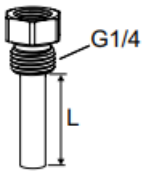
**Tools**



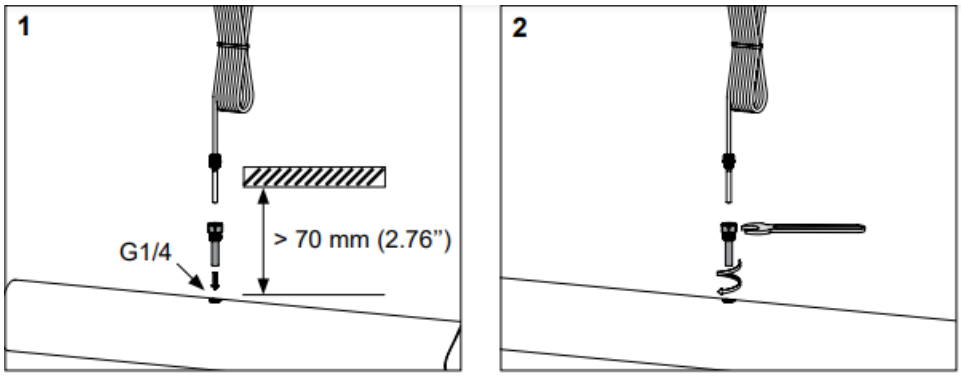



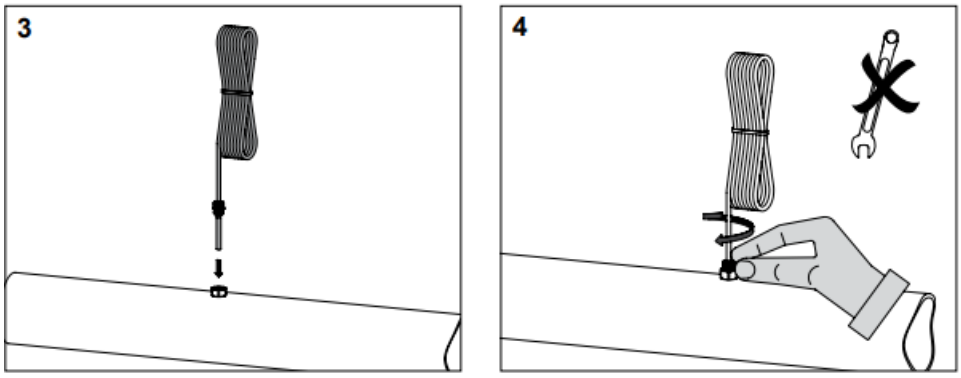

**Optional!**

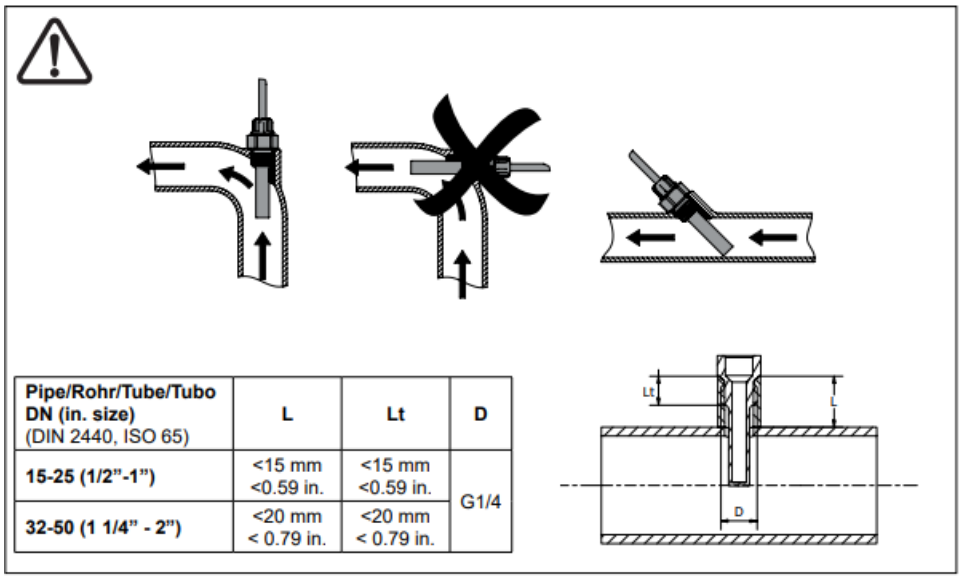



**Art. No.**

- DN 15-25 (3/4" – 1") : 322230-00401, L = 14 mm (0.55 in.)
- DN 32-50 (1 1/4" – 2"): 322230-00400, L = 30 mm (1.18 in.)



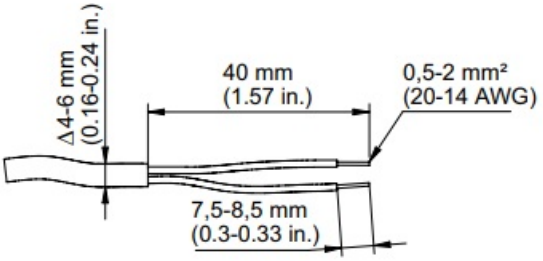



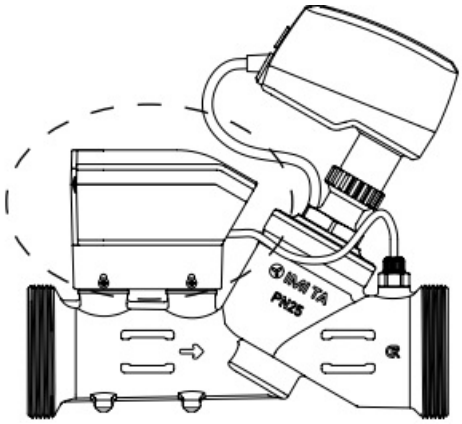



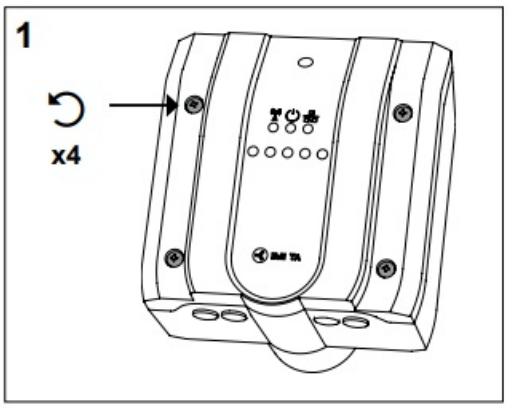
| Pipe/Rohr/Tube/Tubo DN (in. size) (DIN 2440, ISO 65) | L | Lt | D |
|---|---|---|---|
| **15-25 (1/2"-1")** | <15 mm <0.59 in. | <15 mm <0.59 in. | G1/4 |
| **32-50 (1 1/4" - 2")** | <20 mm < 0.79 in. | <20 mm < 0.79 in. | |

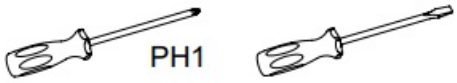


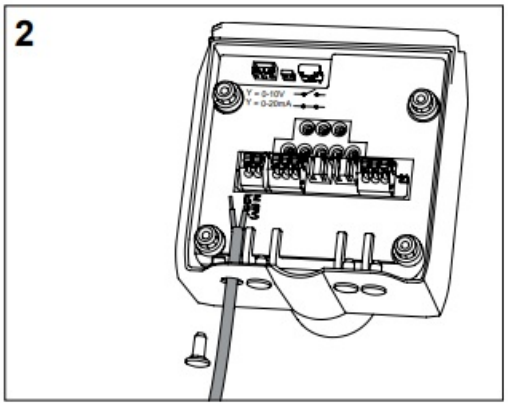
**LiYY or similar**

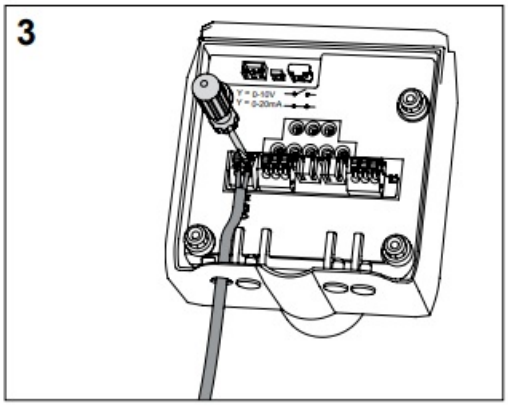


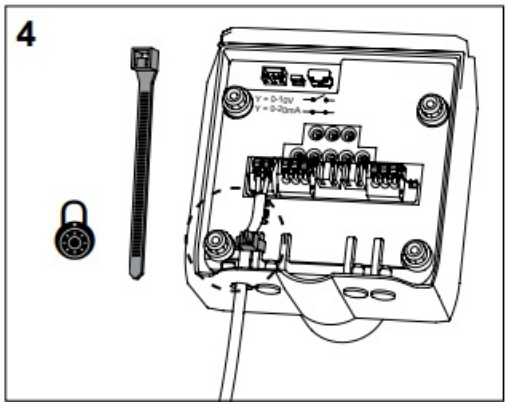



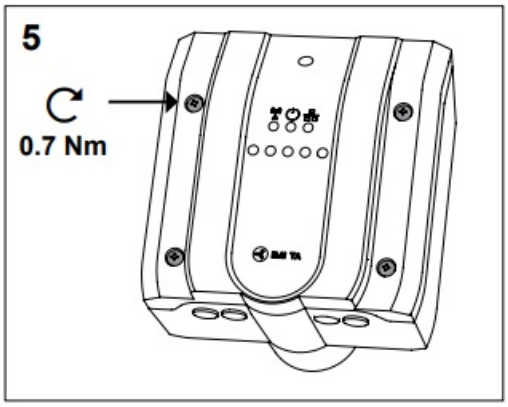



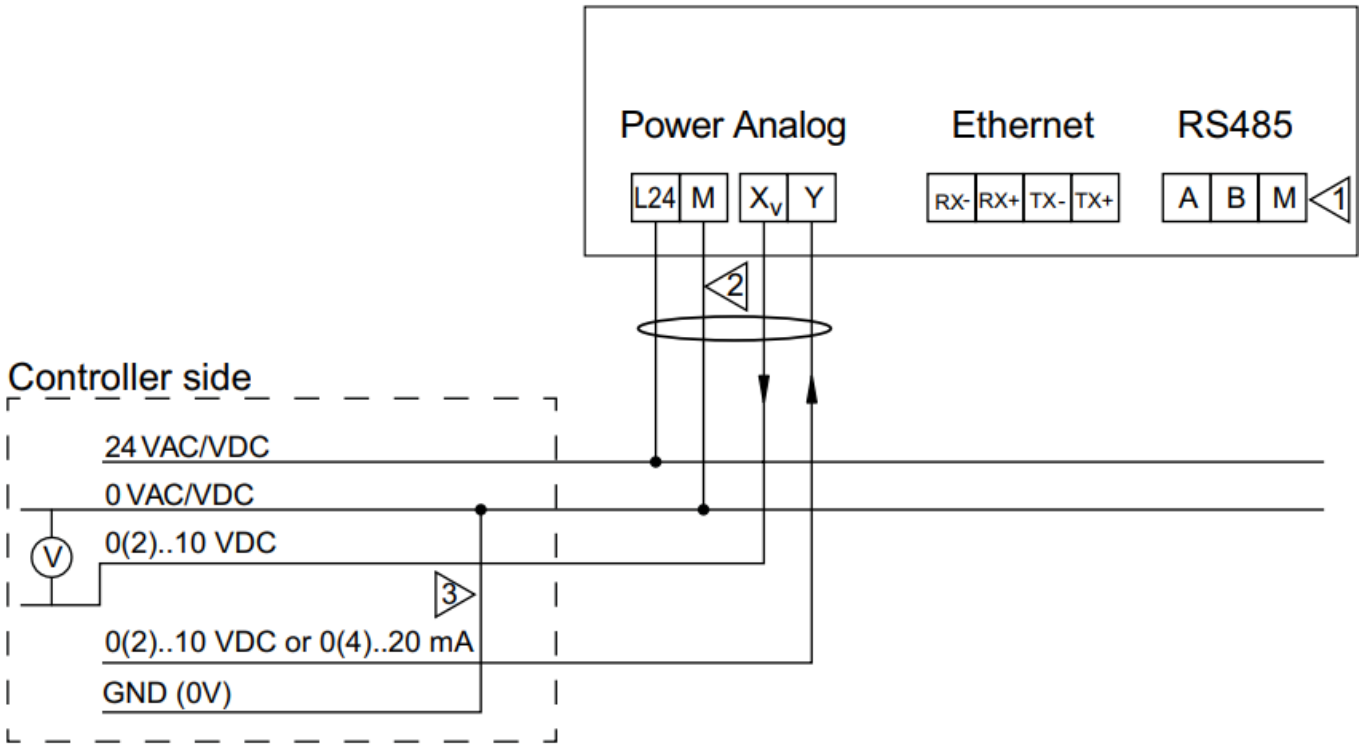

**Wiring diagrams**

| Terminal | Description |
|---|---|
| L24 | Power supply 24 VAC/VDC. |
| M* | Neutral for power supply 24 VAC/VDC and signals. |
| XV | Output signal 0(2)-10 VDC, max. 8 mA or min. load resistance 1.25 kΩ. |
| M (0V)* | Neutral for signal. |
| Y | Input signal 0(2)-10 VDC, 47 kΩ or 0(4)-20 mA, 500 Ω (selectable by jumper XX). |
| **Wiring** | |
| **Ethernet** | |
| RX – | Ethernet connector wire position 6 |
| RX + | Ethernet connector wire position |
| TX – | Ethernet connector wire position |
| TX + | Ethernet connector wire position |
| **Wiring** | |
| **RS485** | |
| A | RS485 Data + |
| B | RS485 Data – |
| M (0V)* | Neutral for signal. |

**USB:** Only for IMI use.
**Serial Debug:** Only for IMI use.

All M terminals are internally connected./Alle M (0V) Klemmen sind intern verbunden!./Toutes les bornes M sont connectées en interne./Los terminales M están interconectados internamente.

**Standard**

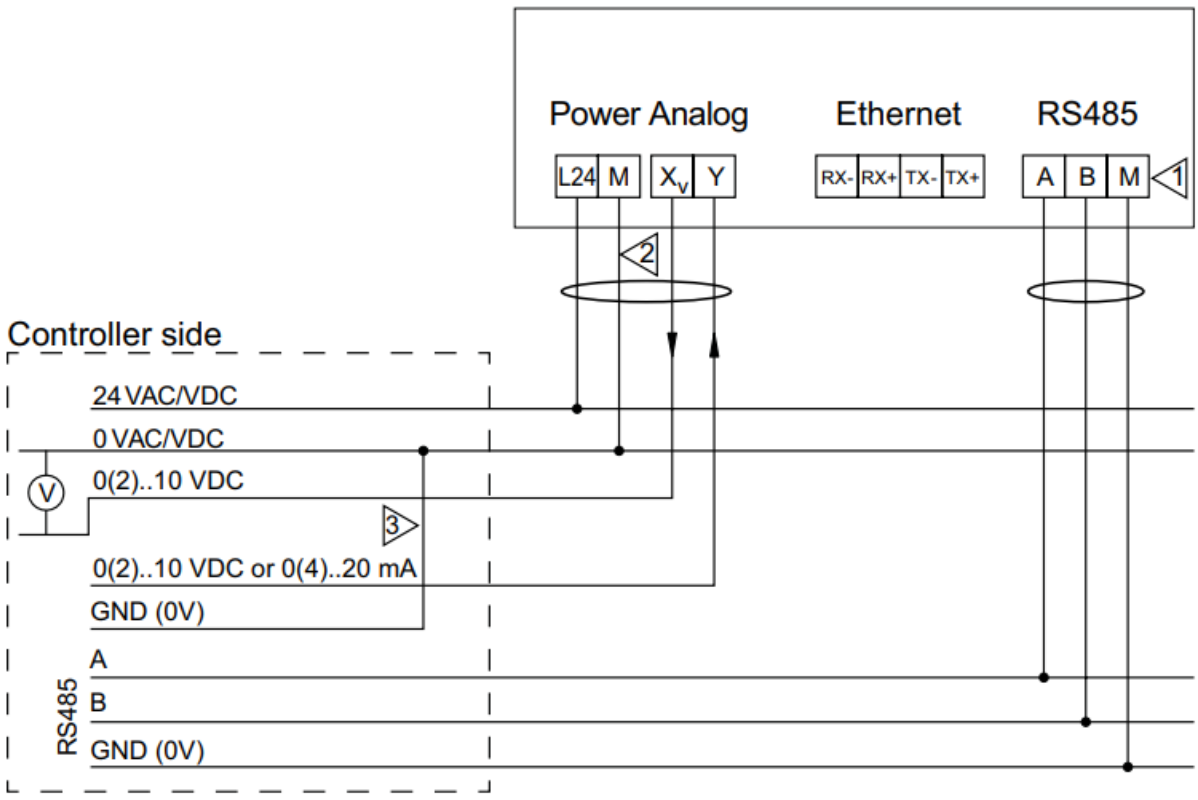



**Note**

1. A, B and M terminals are isolated from all other terminals.
2. GND (M – 0V) is common to power supply and analog signals.
3. GND (0V) of analog input/output should be connected to 0 VAC/VDC on the controller side.

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

**Modbus RTU**



**Note:**

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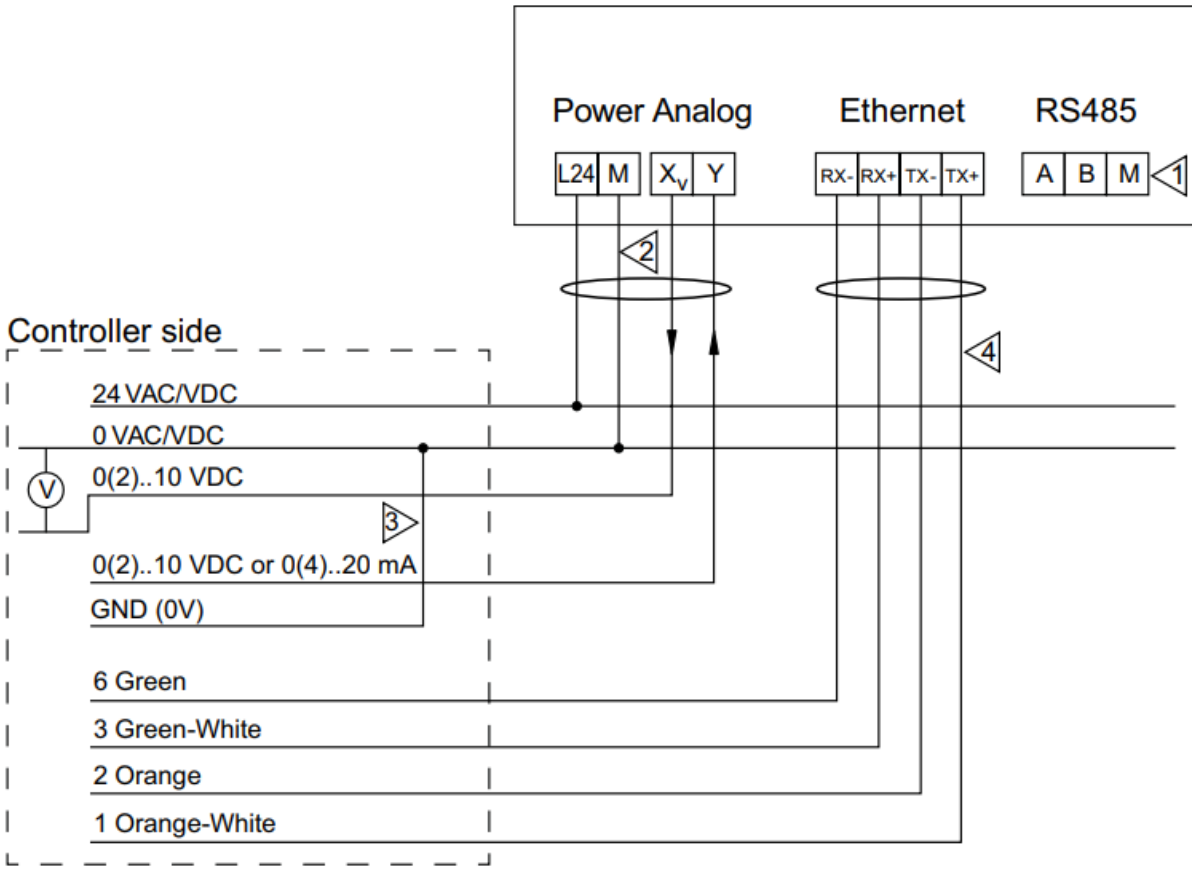
24 VAC/VDC operating only with safety isolating transformer according EN 61558-2-6.

**Modbus TCP**

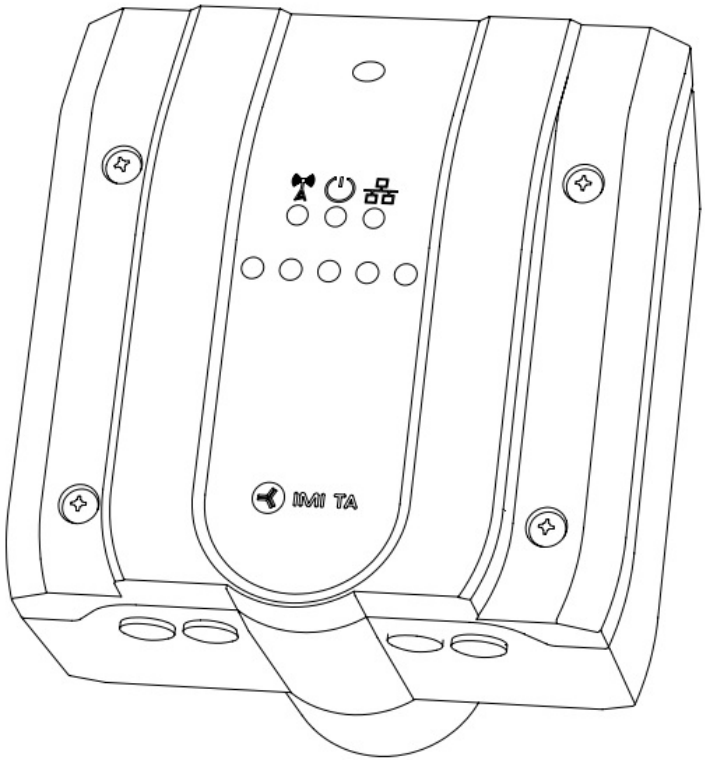



**Note**

1. A, B and M terminals are isolated from all other terminals.
2. GND (M – 0V) is common to power supply and analog signals.
3. GND (0V) of analog input/output should be connected to 0 VAC/VDC on the controller side.
4. Ethernet cable shall be Cat 5e or Cat 6 cable. Wire colour indication is for T568B pinout.

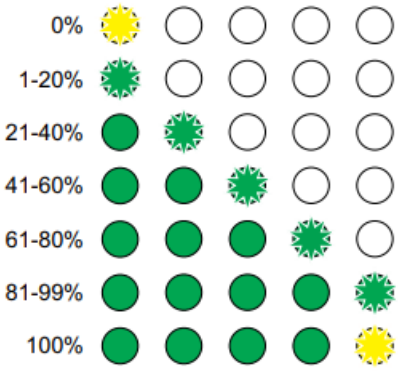
24 VAC/VDC operating only with safety isolating transformer according EN 61558-2-6.

## LED

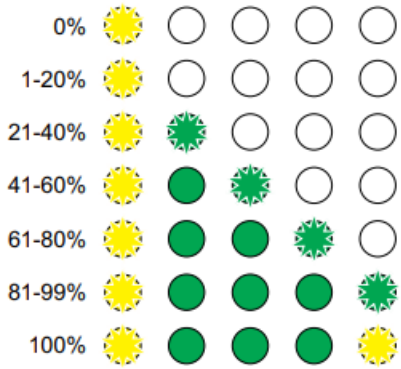



| LED | Colour | | Description |
|---|---|---|---|
| ⏻ | Green | – – – – – | Status OK |
| | Green | – – – – – – – – – – | Initiating (start up) |
| | Red | – – – – – | Error (→ HyTune, Cloud, Bus) |
| | Off | | No power supply |
| 📡 | Blue | ———— | Bluetooth active |
| | Blue | – – – – – | Bluetooth active (no device connected) |
| | Off | | Wireless disactivated (or no power supply) |
| 🖧 | Green | ———— | Ethernet connected |
| | Green | – – – – – – – – – – | Data being transferred (Ethernet or RS485, if Ethernet not connected) |
| | Off | | Ethernet and RS485 not connected (or no power supply) |

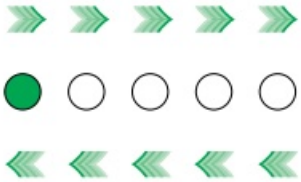
**Operation**



**Calibration**



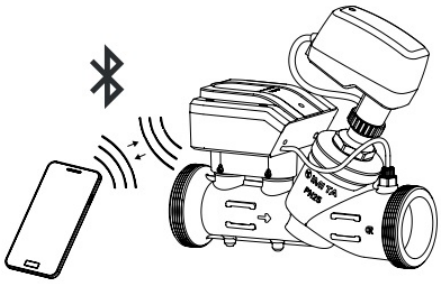

**Identification**



**HyTune app**

For setting of control parameters use HyTune app.



We reserve the right to introduce technical alterations without prior notice. IMI Hydronic Engineering AB, 524 80 Ljung, Sweden. [www.imi-hydronic.com](http://www.imi-hydronic.com)

## Frequently Asked Questions

**Q: What is the recommended method for cleaning the TA-Smart Fail-safe?**
A: Use a damped cloth and a mild cleaning agent to cleanse the product.

**Q: What pressure range is suitable for the TA-Smart Fail-safe?**
A: The product operates within a pressure range of min. 5 kPa (0.7 psi) to max. 400 kPa (58 psi).

## Documents / Resources

| | |
|---|---|
|  | **IMI Hydronic Engineering DN 50 TA-Smart 2 Way Control Valve** [pdf] Instruction Manual<br>DN 15, DN 20, DN 25, DN 32, DN 40, DN 50, DN 50 TA-Smart 2 Way Control Valve, DN 50, TA-Smart 2 Way Control Valve, 2 Way Control Valve, Control Valve |

## References

- **User Manual**