Metirius Installation Guide (EN)

Safety Notices

- Electrical safety: Before making any electrical connections, ensure the main isolator is switched OFF.
- Personal protective equipment: Wear steel-toe shoes, gloves, and a hard hat.
- Lifting operations: Use appropriate lifting equipment for heavy devices.
- Explosive atmosphere: If there is a risk of explosive gas on site, use ATEX-certified equipment.
- Environmental protection: In case of a hazardous material leak, implement the emergency response plan.

Product Overview

Metirius Pump Pro (45 kW)

- Power: 45 kW
- Supply voltage: 380 V AC (3-phase)
- Communication: GSM
- Battery charging: AC/DC
- VFD (variable-frequency drive): 45 kW
- HMI: 7" touch screen
- IoT support: PLC-based

Metirius Tank Pro

- Supply voltage: 220 V AC
- Communication: GSM
- Battery charging: AC/DC
- IoT support: PLC-based

Hydrostatic Level Sensors (2 units)

- Cable length: 10 m + 15 m extension (total 25 m)
- Submersible mounting
- Overflow/maximum liquid level measurement
- Protection class: IP68
- Output signal: 4–20 mA

Pressure Transmitters (2 units)

- Cable length: 15 m (extendable if necessary)
- Installed on pump suction and discharge lines (each line: 1 transmitter)
- Terminal (screw) connection
- Output signal: 4–20 mA

Electromagnetic Flowmeter (1 unit)

- Power cable: 15 m
- Signal cable: 15 m
- Flanged installation
- Required straight pipe run: 5D upstream / 2D downstream
- Output: RS-485

1. Unboxing

1.1. Package Inspection & Opening

- Check the package exterior for damage.
- Carefully remove the nails on the front-left face with a pry bar.
- Open the wooden panel slowly and inspect the contents.
- Verify the delivered items against the packing list.

1.2. Removing Sensors and Tank Pro

- Carefully remove the packaging materials.
- Take out the five sensors (2× pressure, 2× hydrostatic, 1× flowmeter).
- Remove Metirius Tank Pro from its protective packaging.
- Check cable lengths.

1.3. Removing Pump Pro

- Consider the weight before lifting (approx. 150 kg).
- Remove with at least two people or with a forklift, carefully.
- Prevent impacts during transport.
- Temporarily place the unit in a safe area.

2. Installing Metirius Tank Pro

2.1. Mechanical Installation

- Mount Tank Pro on the control room wall.
- Minimum mounting height: ≥ 1.5 m from floor level.
- Use M8 bolts and wall anchors to fasten.
- Ensure cover sealing for IP65 protection.
- Leave clear space for the communication antenna.

2.2. Electrical Installation

- Keep the main isolator switched OFF.
- Connect the 220 V AC power supply cable.
- Make the protective earth (PE) connection.
- Check the voltage with a multimeter first.
- Verify all connections before powering up the system.

2.3. Communication Settings

- Insert the SIM card into the device's SIM slot.
- After power-up, check GSM signal strength.
- Verify that the device is online in Predixi. If problems occur, contact Technical Service.
- Perform the initial connection test.

2.4. Hydrostatic Level Sensor — Installation & Calibration

2.4.1. Mechanical Installation

- Place the stainless probe at the bottom of the tank, away from flow turbulence.
- Total available cable length is 25 m (10 m main + 15 m extension).
- Route the cable via a cable tray to Metirius Tank Pro to prevent damage.
- Connect the sensor to the labeled terminal block on Tank Pro (verify labeling).

2.4.2. Sensor Settings

- Measure the vertical distance between the overflow level and the sensor bottom.
- Record this value in meters (e.g., 3.50 m).
- In Predixi, select the Tank Pro device.
- Open the Sensor Calibration menu.
- Enter the maximum level value.
- Set alarm levels (Low: 20%, High: 90%).
- Run the calibration test.

3. Installing Metirius Pump Pro

3.1. Mechanical Installation

- Move Pump Pro to the control room.
- Leave clear space for the communication antenna.
- Position the feet so they rest on rubber pads.

3.2. Electrical Installation

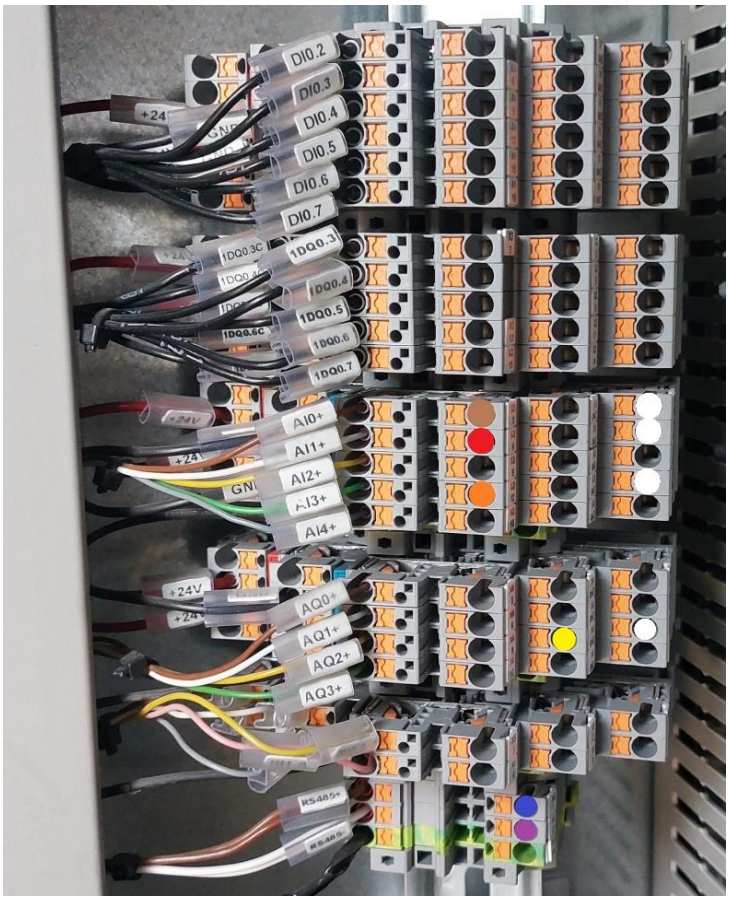
- Keep the main isolator switched OFF.
- Connect 380 V AC, 3-phase supply cables (appropriate cross-section).
- Connect motor output cables to the pump terminals.
- Make the protective earth (PE) connection.

3.3. Communication Settings

- Insert the SIM card into the device's SIM slot.
- After power-up, check GSM signal strength.
- Verify that the device is online in Predixi. If problems occur, contact Technical Service.
- Perform the initial connection test.

3.4. Terminal Wiring

Use the following terminal assignments and wire colors for Pump Pro connections:



Sensor	Color of Pointer	Terminal	Wire Color
Inlet Tank Level Sensor		AI0+	White
		+24V	Brown
Discharge Pressure Sensor		AI1+	White
		+24V	Brown
Suction Pressure Sensor		AI3+	White
		+24V	Brown
Electromagnetic Flowmeter		RS485+	White/Brown
		RS485-	White/Brown
		+24V	White
		GND	Brown

3.5. Hydrostatic Level Sensor Installation and Settings

- For the inlet tank of the booster station, adjust the installation and settings of the Hydrostatic Level Sensor according to section 2.4.

3.6. Pressure Transmitter Installation and Settings

- Repeat all procedures for a total of two units, one on the pump suction line and one on the pump discharge line.

3.6.1. Mechanical Installation

- Install the transmitters on 1/2" threaded ball valves on the pump suction and discharge lines (one per line).

- A 15 m cable is factory-mounted; extend the cable if necessary.
- Route the cable via a cable tray to Metirius Pump Pro to prevent damage.
- Connect using the labeled terminals on Pump Pro:
- Inlet (suction) Pressure Transmitter → **AI3+**
- Discharge Pressure Transmitter → **AI1+**

3.6.2. Sensor Settings

- Note the minimum and maximum pressure ranges printed on each sensor [(-1 bar) – (16 bar)].
- In Predixi, select the Metirius Pump Pro device and open the Sensor Calibration menu.
- Enter the sensor's Min and Max values.
- Set alarm levels according to operating points (Low: 20%, High: 20%).
- Run the calibration test.

3.7. Electromagnetic Flowmeter — Installation & Settings

- Select the installation location by referencing the recommended mounting diagram (Figure 1).

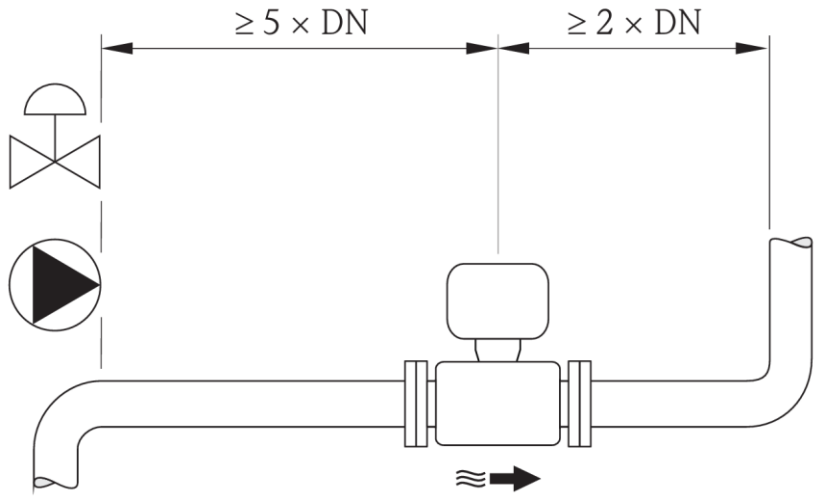


Figure 1: Installation of Electromagnetic Flowmeter

- Mount the flowmeter onto the pipeline using two flanges. Ensure correct alignment.
- Check the flow direction arrow; it must match the actual flow direction.
- Bring the two 15 m cables (power and signal) to Metirius Pump Pro via a cable tray.
  - Terminate as follows: +24V → "+24V" terminal;
  - RS485 signal → "RS485+" and "RS485-" terminals.

3.8. VFD Parameter Setup (Quick Setup)

- 0-01 Language
- 0-02 Motor speed unit
- 1-20 Motor power [kW]
- 1-22 Motor voltage
- 1-23 Motor frequency
- 1-24 Motor current
- 1-25 Motor nominal speed
- 3-41 Ramp 1 acceleration time
- 3-42 Ramp 1 deceleration time
- 4-11 Minimum motor speed [RPM]
- 4-13 Maximum motor speed [RPM]
- 1-29 Automatic Motor Adaptation (AMA)

4. Commissioning

Verify the pump system analysis and re-check all mechanical and electrical connections. Proceed according to whether the discharge line in front of the station is empty or full.

4.1. If the line is empty

- Fully close the pump discharge valve.
- On the VFD, switch to manual mode and start at 35 Hz; monitor current while slowly increasing the frequency up to 50 Hz.
- While increasing frequency, simultaneously monitor the pressure; as pressure rises, slowly open the discharge valve.
- Continue until the line is completely filled (identified when the valve is fully open and pressure is stable).
- Switch the VFD from "HandOn" mode to "AutoOn" mode.
- Then, in Predixi, activate the "Auto" and "On" modes.

4.2. If the line is full

- Check that all valves are open.
- Review system status in Predixi.
- Set the desired operating parameters in automatic mode.
- Issue the Start command and observe the system response.
- Monitor continuously for the first 30 minutes.