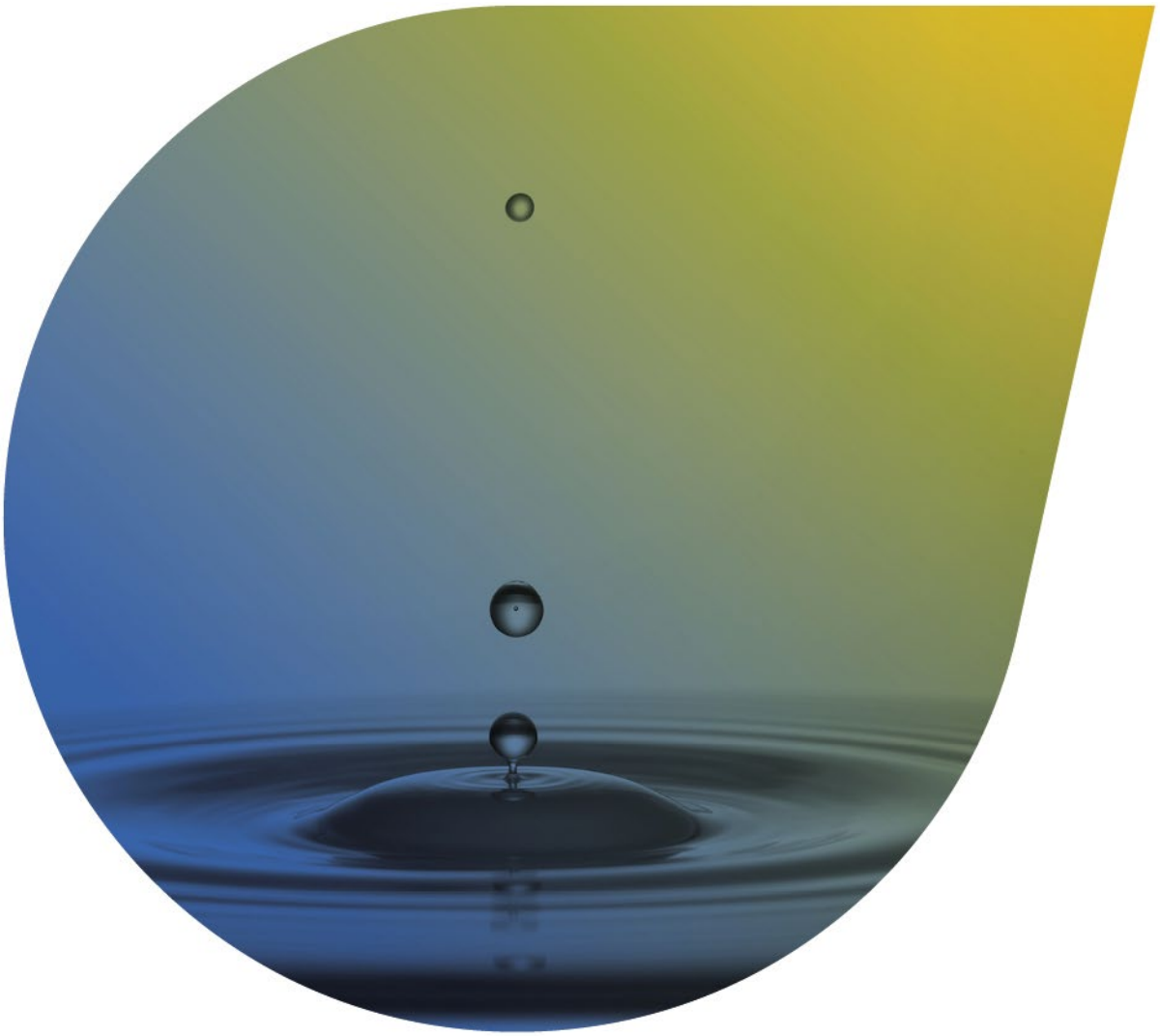
Faure Herman

Counting every drop



HELIFLU™ TZN

Quick start reference guide

WARNING identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

CAUTION indicates actions or procedures which if not performed correctly may lead to personal injury or incorrect functioning of the instrument or connected equipment.

If the equipment is used in a manner not specified by Faure Herman, the protection provided by the meter's safety features may be impaired.

The user is responsible to make sure all local, national and international codes, regulations, rules and laws related to safety and safe operating conditions are met for the installation.

Faure Herman is not responsible for damages or injuries sustained as a result of inappropriate use; this may also void the manufacturer's warranty.

Make sure that operators and maintenance personnel have all safety equipment applicable to the area (safety glasses, protective headgear, safety shoes) and are trained to operate the meter.

For any additional information about safety, certification, integration, operation or maintenance of the TZN turbine flow meter, refer to the TZN User Manual.

Receiving & storage of TZN meters

Upon receipt of the TZN meter, check for any shipping damage. The meter must be carefully removed from the packing case and inspected for potential damage or missing parts (including documentation). Notify Faure Herman of any damage incurred.

Before installation, the unit should remain stored in original packing. Protect meter against physical damage or thermal extremes (maintain temperatures between -50 & +60°C or -58 & +140 °F).

Inspection before installation

Prior to installing the TZN, visually inspect the turbine meter; pay particular attention to the name plate. Check for serial number, process conditions, direction of flow, flange rating and general conditions.

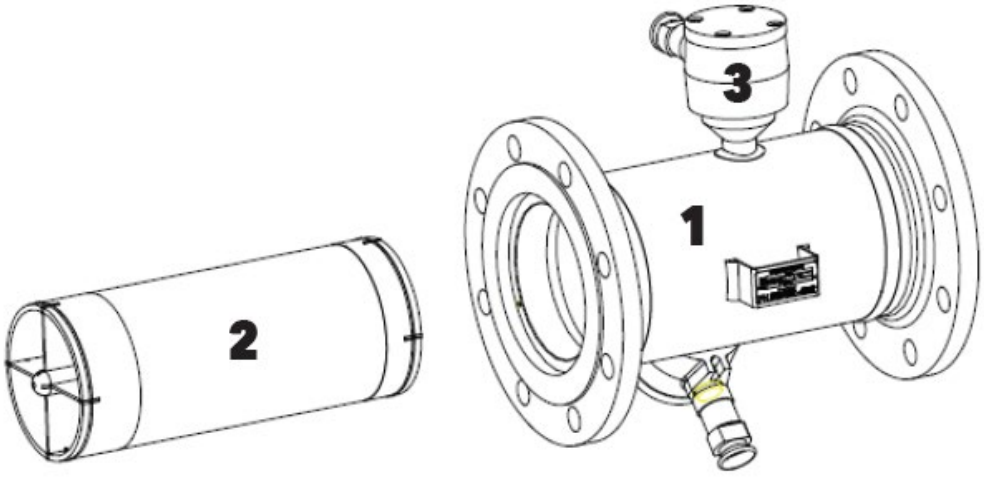
General introduction

TZN turbine meters are designed, manufactured and calibrated to accurately measure volume of liquids of low to high viscosity (from 0.3 up to more than 1000 cSt on large diameters).

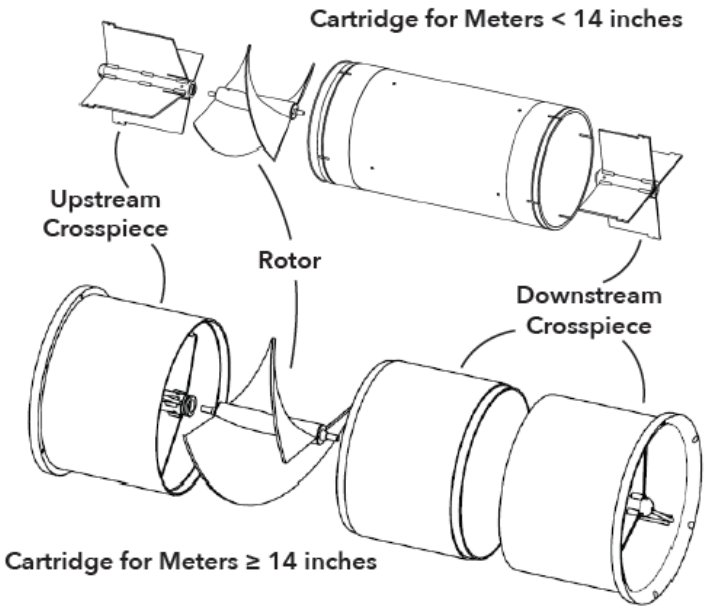
Body flanges are selected relative to application (size/rating).

Flange-to-flange length is standard per size (see data sheet).

The meter body (**1**) contains the cartridge (**2**) and the electronic detection system (**3**).



The cartridge (**2**) contains the helical rotor, the upstream and downstream crosspieces. These three parts are inserted into the cartridge sleeve, keeping the rotor in the center of the meter body.



Each electronic detection system (**3**) contains a pickup coil that generates pulses when the magnets inserted into rotor blades pass in front of it. These low voltage pulses are transformed into square waves through the preamplifier located in the housing.

The TZN must be carefully handled with lifting rings or with straps on both body sides. Do not use detection system housing for lifting.

Mechanical installation

Upstream and downstream piping must be properly aligned with meter body to avoid mechanically stressing the flanges.

Apply the recommended tightening torque according to pressure rating, gasket type and bolting material (refer to ASME PCC-1 Tables 1M or 1). For example, class 150, flat gasket, and noncoated bolts recommendations are seen in the table below.

DN	NPS	BOLT DEFINITION & TORQUE				
		QTY	M	N.m	NPS	ft-lb
50	2	4	16	160	5/8	120
80	3	4	16	160	5/8	120
100	4	8	16	160	5/8	120
150	6	8	20	350	3/4	210
200	8	8	20	350	3/4	210
250	10	12	24	550	7/8	350
300	12	12	24	550	7/8	350
350	14	12	27	800	1	500
400	16	16	27	800	1	500
450	18	16	30	1150	1 1/8	750
500	20	20	30	1150	1 1/8	750

Electrical installation

Make sure that power is turned OFF and locked out before performing any wiring or maintenance operation.

Hazardous area classification must be checked prior to connection (refer to ATEX or UL plate on housing).

Housing cover will be sealed by authorized personnel after signal transmission checking.

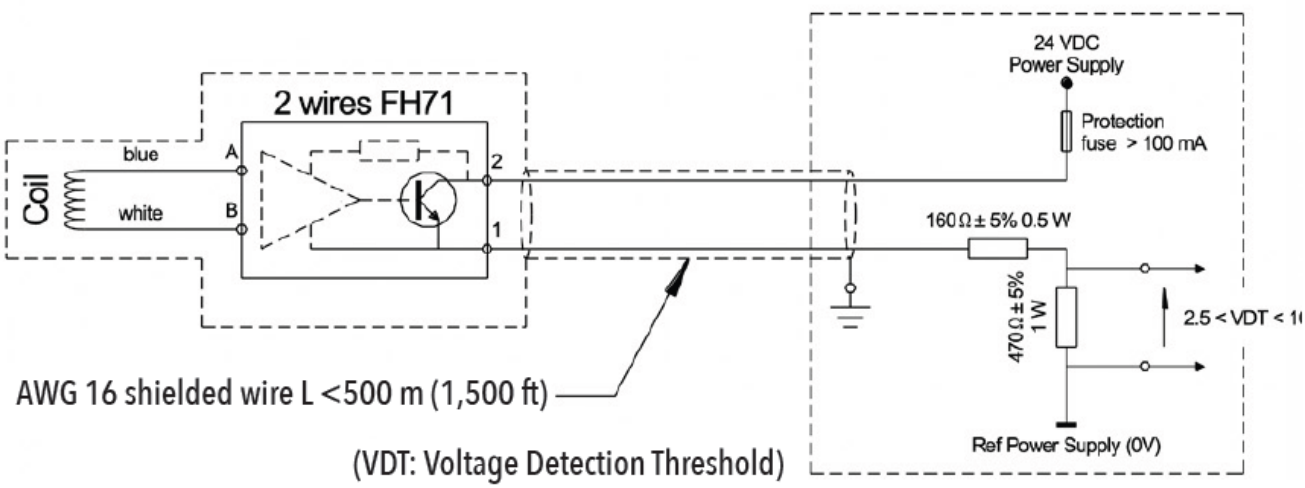
TZN turbine meters integrate two detection systems allowing generation of two out of phase pulse trains.

An integrated preamplifier FH71 receives low level signals from the pickup coil and converts these into positive square wave signals for long distance transmission.

Depending on preamplifier type (Standard/NAMUR or Open Collector), connect the field wires according to figures below.

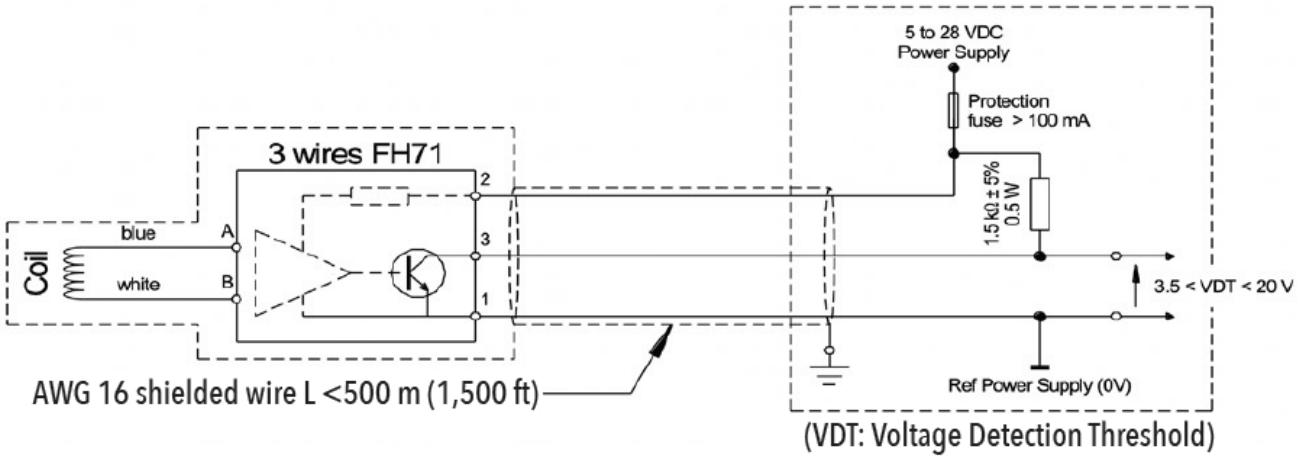
2 Wire Preamplifier
(Standard / Namur)

Typical wiring diagram for 2 wire FH71 with Input Impedance > 10kΩ.



3 Wire Preamplifier
(Open Collector)

Typical wiring diagram for 3 wire FH71



Flow computer configuration

Meter K-factor (which transforms pulses into volume) and eventually Meter Factors (enabling compensation for systematic errors after calibration) are available on calibration certificate and should be entered into flow computer.

Measurement line liquid filling

Initial startup of the turbine meter should be done at low flow rates, taking care to ensure complete filling of chamber with liquid. Phase modifications, such as entrained gas, going through the measurement chamber can cause damage to the bearing and/or rotor, gasket, and noncoated bolts.

Startup troubleshooting

No flow indication / no signal

- Check power supply and wiring connections
- Check for proper installation & size of resistor
- Specific flow computer configurations available on request
- Check pickup coil & preamplifier signal
- Check to make sure rotor is turning

Unstable flow indication

- Check for power supply and wiring connections
- Check for signal stability from preamplifier
- Check for upstream flow conditions/stability (pump, valve, strainer)
- Check to make sure rotor is turning

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