

Encoder EM6422

Plus Edition

Pulse emitter for P.D. meters



The pulse emitter EM6422 is used to convert the rotary motion of a Positive Displacement Meter into electric pulses, to allow the meter to interface with electronic controllers (ISOIL VEGA T2, VEGA 3 and different brand ones).

The EM6422 Encoder – Plus Edition unique design offers some advanced features:

- Physical separation / isolation of the electronics from the liquid: no need of dynamic seal on the ISOIL meter which may drive to leaks due to wearing throughout the years;
- High resolution output (256 ppr) and low resolution output (50 ppr) to meet the requirements of low input frequency devices;
- Pulse and CAN bus output;
- CAN bus guarantees virtual immunity to external electromagnetic “noises”, enhances the security of the data transmission, and offers the device remote diagnostics;
- In conjunction with the ISOIL VEGA electronic counters, it provides an enhanced security by a pairing procedure between the transmitting and receiving devices (as per cybersecurity general criteria).



Operation

EM6422 is made of an aluminium casing divided into two compartments separated by an aluminium wall. In one of the two compartments a small shaft installed on a ball bearing is connected on one end to the output shaft of the P.D. meter and on the other end to a permanent magnet.

Inside the adjacent compartment, a sensor detects the rotation of the shaft and causes an electronic circuit to generate electric pulses. This eliminates the need for dynamic seals in the meter, which can sometimes cause leakage due to wear over time.

The housing is closed by a cover with O-ring and has a threaded female inlet for cable entrance by cable gland. The electric wiring is made through a removable and easily accessible terminal block.

EM6422 Versions

Pulse transmission

The shaft is coupled to the meter shaft. During rotor rotation, the EM6422 generates 50 or 256 pulses per revolution on channel A and channel B, phase-shifted by electric 90°.

A sophisticated electronic control system continuously monitors the proper operation of the electronic circuit.

In case of anomaly, the emitter sends a signal to the paired electronic counter, generating a pulse signal on a single channel, which the electronic counter interprets as a malfunction.

The connected electronic counter receives a number of pulses proportional to the volume delivered, thus allowing verification of:

- the correct transmission and operation by comparing the number of pulses on the two channels;
- the meter's direction of rotation through the sequence of the received pulses.

CAN bus transmission

Unlike pulse transmission, in CAN bus transmission the number of pulses generated (256 pulses/revolution) and the frequency data are transmitted to the electronic counter via a CAN bus connection, using an Isoil proprietary protocol.

The electronic circuit verifies the sequence of channels A, B and Index, as well as the correct alignment between the magnet and the sensor. Any malfunction can be immediately identified by reading the status through the CAN bus protocol.

The EM6422 CAN bus can be connected to the VEGA T2/VEGA 3 electronic counters.

To ensure more secure data communication, protocol encryption can be enabled (via a DIP switch) with the VEGA T2 and VEGA 3 electronic counters, in line with modern cybersecurity requirements. In this case, the encoder is connected with the electronic counter using a unique identifier, following the procedure described in the relevant user manual. To use this feature, it is necessary to verify that the VEGA T2 and VEGA 3 electronic counters are equipped with compatible software.

Models

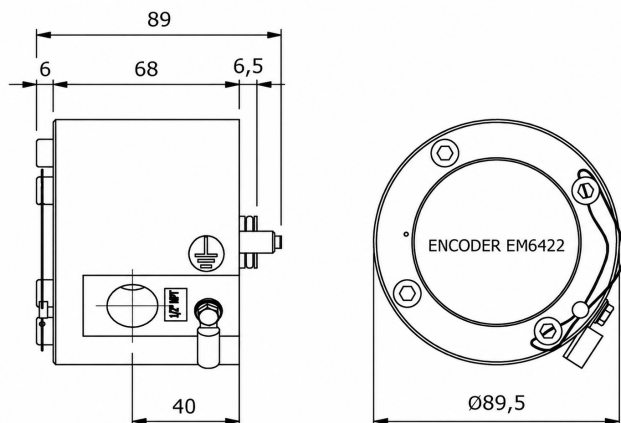
Model A is suitable for standard ISOIL P.D. meters, while Model B is used with ISOIL P.D. meters equipped with mechanical seal and o magnetic transmission.

For different brand meters, an adaptation kit is required between the meter and the transmitter.

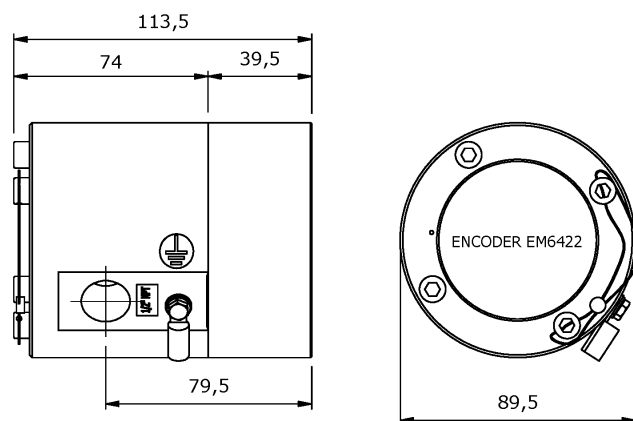
Dimensions

Dimension in mm

Model A



Model B



Pulses/liter

ISOIL P.D. METER	EM6422 - 256 PULSES/REVOLUTION	EM6422 - 50 PULSES/REVOLUTION
SBM 32	532,400	103,950
SBM 75	409,600	80,000
SBM 150	112,400	21,932
BM 200	112,400	10,156
BM 400	56,400	21,977
BM 600	37,600	10,988
S 9000 / S 9500	52,000	7,326
P 4000	52,000	10,156
LBM 1000	17,200	3,383
LBM 1100	17,200	3,383
LBM 3000	8,800	1,692

Technical data

ENVIRONMENTAL FEATURES

Working temperature:	- 40 ÷ +70°C
Humidity:	0÷100% condensing

CONSTRUCTION

Model:	A - for standard ISOIL P.D. meters B - for ISOIL P.D. meters with mechanical seal or magnetic transmission
Housing:	Anodized aluminium alloy
Shaft:	Stainless steel
Gaskets (seal):	FKM LT
Gaskets (cover):	NBR
Operating speed:	0 ÷ 1000 rpm.
Pulses:	50 o 256 pulses/revolution, bidirectional
Cable entrance:	½" NPT (1 entrance)

ELECTRICAL CHARACTERISTICS

Power supply:	5 ÷ 24 VDC
Consumption:	0,5 W
Electrical protection ATEX-IECx:	II 2 G Ex db IIB T6 Gb Tcable 80°C
Mechanical protection:	IP66

PULSES TRANSMISSION

Phase shift (A e B channel):	90° ± 5%
Duty cycle:	50/50 ± 5%
Pulses output:	open drain FET, pull-up resistore 4,7 KΩ set by dip-switch
Max output current:	50 mA for each channel

CAN bus TRANSMISSION

Serial communication:	CAN bus interface
	Speeds: 50/125 kHz by dip-switch selection
	Adresses: 21÷22 (Hex) by dip-switch selection

ORDER CODE

PULSES PER REVOLUTION	TRASMISSION TYPE	CABLE ENTRY	GASKETS TYPE
/	1 = PULSES	1 = ½"NPT(standard)	1 = FKM LT(standard)
2 = 256 pulses	2 = CAN bus	/	2 = NBR (on request)
3 = 50 (pulses only)			