

Encoder EM 6422

*Pulse emitter for
positive displacement meters*

ISOIL 
I M P I A N T I

GENERAL

Pulse emitter “**Encoder EM6422**”, developed by ISOIL IMPIANTI, converts the rotary motion of a Positive Displacement Flowmeter into electric pulses. It allows the meter to interface with an electronic control device (electronic register, flow computer).

The emitter can be factory installed directly on to the front cover of any new Isoil flowmeter. By the use of suitable flanges it can be retrofitted onto any existing ISOIL meter, in place of the mechanical register or other pulse emitter. Installation on most other manufacturer’s meter is possible as well by means of special adaptors.

Unlike most similar devices, which use optical sensors, the EM6422 utilizes a state-of-the-art method, that detects the rotary motion of the meter’s shaft through a thin separating wall

As a magnetic coupling is formed this eliminates the need for the dynamic seal of a packing gland which can cause leaking due to wear.

The electronic circuit is placed in a sealed housing completely insulated from the process fluid in the meter. The housing is closed by a cover with o-ring seal and there is a threaded female inlet for cable glands or conduit entrance.

Wiring is into a removable terminal block mounted on the circuit board which is easily accessible once the cover has been removed.

The encoder is secured to the flowmeter by screws on the inside wall of the housing; they are therefore inaccessible unless the sealable screws of the cover are removed.



PRINCIPLE OF OPERATION

The Encoder is comprised of two main components: the cylindrical housing and the transmission shaft. The shaft is supported by a ball bearing mounted on the housing, one end is joined to the meter’s main shaft and at the other end is a special permanent magnet.

During each meter rotation 64 pulses are generated on two A and B channels, having 90 degrees of phase shift.

The meter’s electronic controller receives a number of pulses proportional to the delivered volume. The integrity of the electronic circuit and wiring is checked by comparing the count on both channels and the flow direction is detected by the pulse sequence.

The coupling between the magnet and the sensor is continuously monitored by the electronic circuit. Any malfunction will result in a pulse transmission on a single channel only and the fault may be checked by the associated controller.

TECHNICAL CHARACTERISTICS

Housing material	Anodised aluminium alloy
Shaft material	Stainless steel (AISI 304)
Operating speed (input revolution)	0÷2000 rpm
Encoder fixing	By four screws M8x55
Cover closing	By four screws M6x10
Cable/conduit inlet (standard)	1x1/2" UNI6125 (ISO 7/1)
Gaskets	O-Ring (Buna-N or Teflon)
Dimensions (mm)	h= 68 Ø=90
Weight	900gr
Mechanical protection	IP66
Ex environment protection	II 2 GD-EEx d IIB T6 85°C II 2 GD-EEx d IIB T5 100°C
Approval	INERIS 06 ATEX 0032
Operating temperature	-40÷75°C
Humidity	0÷100% non-condensing
Supply voltage(VDD)	5÷30VDC
Current supply	40 mA max
Phase shift (A and B channel)	90°±10%
Pulse resolution (A and B channel)	64 pulses/revolution (see Note)
Duty cycle	50/50 ±5%
Pulses output	Open drain FET with external (default) or internal (option) pull-up 4,7 Kohm resistor.
Current sinking (A and B channel)	50mA max per channel
Pulse frequency	2KHz max
Operating	Bidirectional
Terminal block	Pull-out, 5 positions for wires 15AWG (1,5 mm ²) max.
Recommended cable	5 wires, ÷24÷15AWG(0,32÷1,5 mm ²), shielded

Note: the actual resolution changes from meter to meter . See table below for the main ISOIL/OIL METER models.

Model	Pulses/litre (Pulses/Gallon)	Model	Pulses/litre (Pulses/Gallon)	Model	Pulses/litre (Pulses/Gallon)
SBM 32	133,1(503,5)	BM 200	28,1(106,3)	LBM 1000	4,3(16,3)
SBM 75	102,4(387,4)	BM 400	14,1(53,3)	LBM 3000	2,2(8,32)
SBM 150	28,1(106,3)	BM 600	9,4(35,6)		
S 9000	13,0(49,2)	P 4000	13,0(49,2)		

