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## *REAM.PUMP*

### Real Time Electronic Acquisition & Monitoring & Human Machine Interface for Pumping

MEDCO's REAM HMI system is a user-friendly data acquisition system that reads data from electronic sensors and displays the data on a TFT touch screen, which acts as both an input and an output device. The system records the data on solid state SD memory card as well as USB and allows remote monitoring of the data.

Available in several designs to suit individual needs ranging from portable Flight Case, Stainless Steel Enclosure to an optional Ex Certified system.

The system is made of two main parts, REAM is a microprocessor based data acquisition board, which collects data from electronic sensors, digitise the readings, and supply the appropriate power to the sensors. The HMI communicates with the REAM board to retrieve, display, and store the data.

REAM has analogue, counters (frequency), and quadrature channels. The analogue channels accept signals from sensors with 0-5 vdc, 0-10 vdc, or 4-20 mA output. The frequency channels accept pulse signals produced by proximity switches, magnetic pickups, or quadrature signals. The quadrature signals are up/down counter, used for such measurements as a depth.

In addition to the REAM board, the HMI can communicate with many other devices such NuFlo MC-III Flow Analyser, and control devices such as Medco's Emergency Warning & Stop Module (EWSM).

The outputs are available on Web pages, they can be viewed remotely on a Local Area Network (LAN) or even a Wide Area Network (WAN), provided that proper Internet connections are available. There are many other features in the HMI and these can be tailored to client's request.

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**Portable Configuration (FLIGHT CASE II)**



**Specifications**

Power requirement: 10-36 vdc, max. of 36 Watts. Supplied with AC/DC converter 95 to 260 VAC.  
 Operating temperature: -20 to 60 deg C.  
Channels  
 Available Parameters: Circulation Pressure, Wellhead Pressure, Fluid/ N<sub>2</sub> Rate, Fluid/ N<sub>2</sub> Total.  
 Additional Parameters: Casing Pressure, Fluid Density, Temperature.  
 Analogue In channels: Standard 4 (16bit) 4-20 mA/0-10v.  
 Frequency In channels: Standard 3.  
 Analogue Output: Optional. Analogue inputs can be duplicated via loop splitters.  
 Digital Output: Optional. Binary (on/off) relay.  
 HMI: 7" colour touch screen Human Machine Interface.  
*(also available in Larger 9" and 10" HMI)*  
 Dimensions: 330x290x120mm  
 Weight: 4.9 Kgs

**Fixed Configuration (Stainless Steel enclosure)**



*(Examples Only. Layout and channels may be customised to customer requirements)*

**Specifications**

Power requirement: 10-36 vdc, max. of 36 Watts. Supplied with AC/DC converter 95 to 260 VAC.  
 Operating temperature: -20 to 60 deg C.  
Channels  
 Available Parameters: Circulation Pressure, Wellhead Pressure, Fluid/ N<sub>2</sub> Rate, Fluid/ N<sub>2</sub> Total.  
 Additional Parameters: Casing Pressure, Fluid Density, Temperature.  
 Analogue In channels: Standard 4 (16bit) 4-20 mA/0-10v. *Expandable to any multiples of 4.*  
 Frequency In channels: Standard 3. *Expandable to any multiples of 3.*  
 Analogue Output: Optional. Analogue inputs can be duplicated via loop splitters.  
 Digital Output: Optional. Binary (on/off) relay.  
 HMI: Recommended 7" colour touch screen Human Machine Interface *(also available in 9", 10", 12", 15 in separate enclosure)*  
 Dimensions: 300mm (H) x 200mm (W) x 150mm (D) 1.2mm gauge brushed 316 stainless steel 2mm zintec mounting plate

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### **OPTIONAL Ex Certified**

#### **Specifications**

Power requirement:	12 vdc, max. of 20 Watts.
Operating temperature:	-10 to 55°C (except the HMI).
Ex Certification:	II 3 G Ex nA d e ia IIB T4 Gc Ta -10°C to +55°C
Certificate number:	ITS14ATEX48051X
<u>Channels</u>	
Available Parameters:	Depth, Tubing Speed, Weight, Circulation Pressure, Wellhead Pressure, Casing Pressure, Flow Rate, N <sub>2</sub> Rate, Fluid Total, N <sub>2</sub> Total.
Analogue In channels:	Standard 4 (16bit) 4-20 mA/0-10v.
Frequency In channels:	Standard 3.
Analogue Output:	Optional. Analogue inputs can be duplicated via loop splitters.
Digital Output:	Optional. Binary (on/off) relay.
HMI	Recommended 7" colour touch screen Human Machine Interface. Temperature rating 0 to 50 deg C ( <i>also available in 9", 10", 12", 15" and in separate enclosure</i> )
Dimensions	450mm (H) x 300mm (W) x 250mm (D) 1.2mm gauge brushed 316 stainless steel 2mm zintec mounting plate
Weight - Enclosure	18 Kgs



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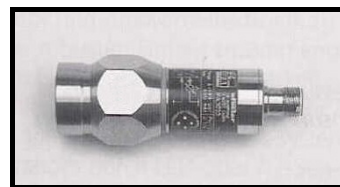


## Sensors

### Pressure sensors

#### Option 1:

Operating voltage	16 – 32 vdc
Output	0 – 10 vdc or 4 – 20 mA
Pressure range	0 – 100 bar (0 to 1450 psi) 0 – 250 bar (0 to 3625 psi) 0 – 400 bar (0 to 5800 psi)
Electrical connection	M12 connector
Process connection	G ¼"



#### Option 2:

Operating voltage	10 – 28 vdc
Output	1 – 5 vdc or 4 – 20 mA
Pressure range	0 and up to 10,000 psi
Electrical connection	DIN plug 43650A
Process connection	¼" NPT female



Other options available

#### Option 3:

Operating voltage	9 – 28 vdc
Output	4 – 20 mA
Pressure range	0 and up to 20,000 psi
Electrical connection	Standard electrical termination MS series compatible, 4 pin
Process connection	Male hammer union 2" #1502



#### Option 4:

Operating voltage	9 – 30 vdc
Output	0 – 5 vdc or 4 – 20 mA
Pressure range	0 and up to 20,000 psi
Electrical connection	Mates with Bendix P/N PT06E-10-6S or equivalent
Process connection	Male hammer union 2" #1502



### Proximity Switch

Operating voltage	10 – 58 vdc
Sensing range	8 mm
Electrical connection	M12 connector
Body	Cylindrical M18



### Magnetic Pickup

Operating voltage	4 – 30 vdc
Body	Cylindrical M15

