IO MAX™: Wireless Valve Control & Complete Wellhead/Plunger Lift Solution

APPLICATION DRAWING

HIGHLIGHTS (IO MAX)

- Self-contained, multi-I/O solution (CID2)
- Monitor Casing, Tubing, and Surface pressure @ 5-second interval using 1-5 V pressure sensors (2 mA draw per sensor = 6 mA total with 1x spare AI remaining)
- Monitor plunger arrival sensor and keep count (Discrete Input: 2x available)
- Valve control (open/close) via valve solenoid using short (100 ms / 1 Amp) pulsed outputs (2x DO)
- With OleumTech® Solar option: 6.2-day autonomy w/o sunlight with valve control enabled, 100-day autonomy when DO option is disabled (no valve control) - see power supply option below

Modbus Master
EFM/Plunger Controller

Modbus (TCP/RTU)
LevelMaster ASCII
Ethernet/Serial

Wireless Gateway
DH1/DH2/DH3

1. IO MAX™ collects/sends wellhead data to Gateway.

2. Modbus Master (Plunger Controller/EFMRTU/PLC) collects wellhead data via Gateway and writes short (100 ms) pulsed output values to Gateway (Modbus Write) and the command is wirelessly relayed to IO MAX for valve control application.

3. IO MAX carries out the pulsed output to DO 1 to open valve or DO 2 to close valve.

IO MAX Transmitter
WT-0900-MX1 (900 MHz)
WT-2400-MX1 (2.4 GHz)
Requires 9-24 VDC Ext. Pwr. If Not Using SX1000-SP2

Power Supply Option
SX1000-SP2

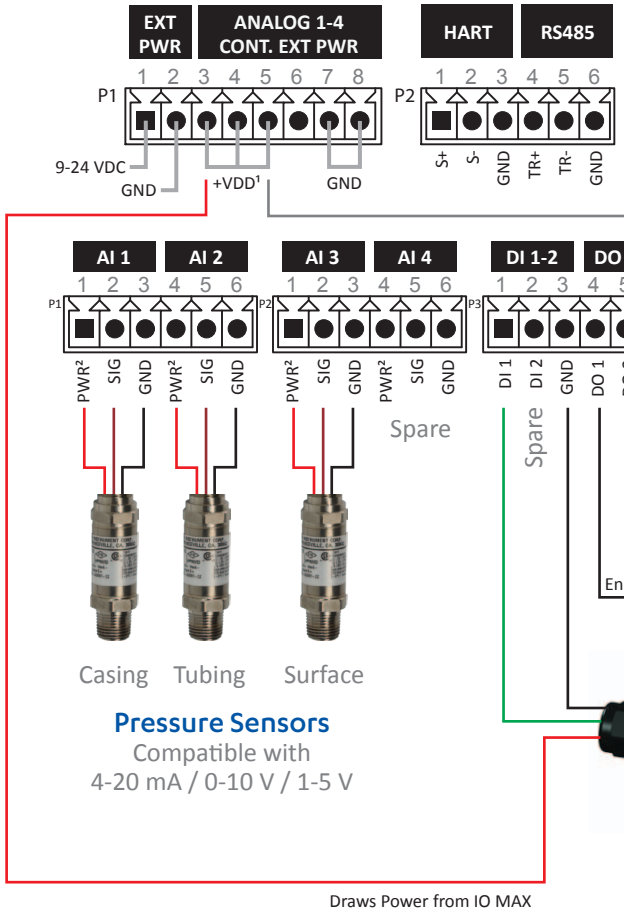
5 W 12 V Solar
Rechargeable System
12-21 VDC Output

Provides up to 6.2 days of autonomy without sunlight when enabling Discrete Output option with ~12 valve open/close cycles per day
10 mW Radio Pwr (receiving mode)

Provides up to 100 days of autonomy without sunlight when Discrete Option is not enabled
10 mW Radio Pwr (sleep mode)

Requires ~18 hours of sunlight to fully charge batteries (11 to 12.8 V)

IO MAX Wiring Diagram



Valve Solenoid
ASCO Red Hat 2
Magnetically Latching Solenoid
EFHV2836931

Pressure Sensors
Compatible with
4-20 mA / 0-10 V / 1-5 V

Plunger Arrival Sensor

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