



## Engineering Specification - DELTA Pressure Management Controller

### 1. APPLICATIONS

- 1.1 Full modulation pressure reducing with the DELTA internal solenoids and a BIAS chamber
  - 1.1.1 Up to 16 flow rate or time windows
  - 1.1.2 Calendar to allow holidays/special events for non-standard calibration
- 1.2 2 pressure regimes by switching between “Low” to “High” set points according to flow rate or time windows

### 2. TECHNICAL SPECS

- 2.1 Robust industrial enclosure:
  - 2.1.1 IP 68 – fully submerged
  - 2.1.2 UV & dust protection
- 2.2 2 clog free high-speed internal solenoids for BIAS chamber operation
- 2.3 Latch override for fully open the valve during insufficient pressure supply or open the main PRV when the by-pass flow is too high
- 2.4 2 internal pressure sensors – accuracy +/-0.1%
- 2.5 2 external analog 4-20mA (passive) inputs (pressure, flow, level)
- 2.6 3 digital inputs (flow, level float switch, positioning)
- 2.7 5 years internal Lithium battery for Stand-Alone operation, or external power supply
- 2.8 Allow replacement of the battery pack when needed
- 2.9 8Mb internal data logger – more than 100K records
- 2.10 Quick push-fit water tight connectors
- 2.11 In-field programming via laptop using BLE or USB cable
- 2.12 CE approval

### 3. FEATURES

- 3.1 Fail safe: valve is "Normally Low" in event of mechanical failure
- 3.2 Manual override for open and close the valve
- 3.3 For optimal operation allow to set:
  - 3.3.1 Fast & slow regulation intervals
  - 3.3.2 Dead-band from set-point (flow & pressure)
- 3.4 Sensors calibration for all physical units (Metric or US)
- 3.5 Advanced graphs for viewing multiply values & axis + automatic scaling + physical units selection
- 3.6 Logging of average, minimum & maximum pressure + flow values
- 3.7 CSV or PDF reports per specific dates + accumulation values

### 4. TRESHOLDS & ALERTS

- 4.1 Via: E-mail and/or WhatsApp and/or SMS
- 4.2 Alerts & notifications per personal preference and level of alarm
- 4.3 Levels of alarm:
  - 4.3.1 Critical alarm (critical high/low pressure or flow)
  - 4.3.2 Warning alarm (high/low pressure or flow)
  - 4.3.3 General alarms:
    - i. Battery status
    - ii. The setpoint cannot be reached after the max correction time



# BERMAD

## Water Control Solutions

- iii. Low system pressure, P1 is lower than P2 set-point
  - iv. The latch solenoid cannot open the valve
  - v. The latch solenoid cannot close the valve
5. COMMUNICATION
- 5.1 Built in 4G Modem with 2G fallback
    - 5.1.1 Global Data sim card for worldwide plug-and-play internet connectivity
    - 5.1.2 Supports NB-IoT, CAT-M & GPRS communication protocols
  - 5.2 BLE (Bluetooth) communication for local connection to laptop & phone app
6. CLOUD BASED SOLUTION - HMI
- 6.1 Powerful cyber-protected server for collecting data
  - 6.2 Intuitive and user-friendly platform
  - 6.3 Fully remote monitoring and control of the system settings
  - 6.4 3 authorization levels for view & change settings: Administrator/Expert, Operator, Viewer Only
  - 6.5 FOTA – update Firmware Over The Air