Data Acquisition & Communication Module
with 4 digital and 4 analog (isolated) inputs, data logging and modbus communication

Advantages
- Entirely autonomous monitoring and datalogging solution independent from local infrastructure suitable for off-grid or hard to reach locations using GSM/GPRS communications and solar panel, battery or AC/DC power options.
- Easy and time saving configuration through local USB 2.0 by bright and clear terminal interface (no code input!) or remotely through smart reversed communication, even when the M844 has a public, dynamic IP address.
- Flexible freedom in data communication by TCP, FTP and/or e-mail.
- Universal and versatile applicable for different kind of sensors and instruments through 4 analog, 3 digital status-/pulse inputs, 1 coil input and onboard Modbus and SDI-12 communication protocol.
- Data logging by 2GB micro-SD card, for over 10 million data entries with date and time stamp.
- Reduce maintenance costs and service time as even the optional internal battery will last for 3 - 8 years.
- Better cause-effect retrieval with increased log interval and alarming when setpoint is triggered.
- Resistant to harsh environments not a DIN-rail mounted module but an “all-on-board“ module in a GRP field mount enclosure IP67 / NEMA4X.

Features
- The M844 is in full compliance with the web-based ProcessMonitor server or ProcessView stand-alone software package for visualization, data history, trend graphics and/or extensive alarming.
- 110 - 230V AC mains and reverse polarity protected 8 - 30V DC power supply, battery or solar powered.
- Stabilized 24V DC sensor excitation for mains powered versions.
- Energy management sensor onboard, accurately calculates the remaining battery lifetime.
- Integrated Quad-band GPRS antenna; no “eye-catchers” to prevent vandalism or abuse.
- Wide operating temperature range -30°C to +75°C.
- Flexible mounting possibilities (wall/panel/pipe).

Applications
- Specially designed for industrial applications using (field) devices and instrumentation to measure level, flow, weight/mass, pressure, temperature, dissolved oxygen, pH, conductivity, vibration, energy/fuel consumption etc.
- Extremely suitable for replenishment purposes or logistic and Supply Chain (SCM) optimization for raw bulk materials including: Remote Silo/Tank Monitoring, Remote Inventory Management, Customer and Vendor Managed Inventory (VMI).
General information
Introduction
M844 is an ultra-low power “all-in-one” Data Acquisition & Communication Module including datalogging, designed for a wide-range industrial applications. The M844 can be fully configured according to your process requirements. Sensors and two-wire instruments can be powered by the M844, so no additional signal converters / amplifiers, encapsulating cabinet or other electrical installation material necessary.

Signal inputs
The unit has 4 digital and 4 analog 4 - 20mA inputs. With the mains powered version, the analog inputs are galvanically isolated to eliminate the risk of interference with your existing cabling and systems. The digital inputs contain 3 status / counter / pulse inputs and 1 coil input for e.g. a flowmeter. The sensor inputs can be easily expanded with approx. 10 Modbus slaves through a RS485 communication port or the SDI-12 protocol. One RS232 is also available.

Data outputs
The generated data by the M844 is send through TCP, FTP and/or email. Total control can be gained through the fully integrated ProcessMonitor web-portal or the ProcessView stand-alone software package. Alerts and alarms are send by SMS with adjustable increased logging frequency. Internal diagnostics may send alarm messages including battery capacity, temperature and GSM signal strength.

Configuration
Setup can be done through the local USB 2.0 port via a clear terminal menu (no code input!).

When using the ProcessMonitor web-portal or the ProcessView stand-alone software package remote configuration is possible by smart reversed communication, even with a public, dynamic IP address from a telecom provider.

Configuration includes communication settings, event report by exception (alarms), datalogging interval, TAG no, specific sensor information, including scaling, units etc.

All settings are stored in non-volatile memory and will not be lost in the event of power failure.

Power requirements
Three power requirements are available to power the M844. The M844 can be supplied by a long-life (3 - 8 years) lithium battery. A solar powered version is available with a 3 x AA NiMH back-up battery pack. The energy management sensor tracks the real remaining battery life for both versions. Finally a 110 - 230V AC and 8 - 30V DC power supply is available with a 24V DC sensor supply.

Data logging
Data logging by standard 2GB micro-SD card, for over 10 million data entries with date and time stamp. Log frequency is max. 4Hz. The log file is readable on every ordinary PC.

Enclosure
The M844 is supplied in a rugged field mount enclosure, classified as IP67/NEMA 4X. Operational temperature is -30°C to +75°C (-22°F to +167°F).

Options
The following options are available for the M844: external antenna, GPS module, mounting plates for wall- and pipe mounting applications. The M844 blind cover can be exchanged by additional displays / monitors from the Fluidwell F-Series.

Overview application M844
### Technical specification

#### Power requirements

<table>
<thead>
<tr>
<th>Power supply</th>
<th>Type PB</th>
<th>Long-life 3.6V Lithium battery with smart energy management sensor which tracks the real remaining battery lifetime.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumption</strong></td>
<td>&lt; 50 mA @ 3.6V in sleep mode. 100mA @ 3.6V average per log interval of &lt; 1 s. 250mA @ 3.6V average during data transfer max 60 s.</td>
<td></td>
</tr>
<tr>
<td><strong>Lifetime</strong></td>
<td>3 - 8 years, depending on update rate.</td>
<td></td>
</tr>
<tr>
<td>Type PM</td>
<td>110 - 230V AC (50 / 60Hz) and reverse polarity protected 8 - 30V DC.</td>
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<tr>
<td><strong>Excitation</strong></td>
<td>With stabilized 24V DC supply to power the sensors.</td>
<td></td>
</tr>
<tr>
<td><strong>Consumption</strong></td>
<td>Approximately 14 Watt max.</td>
<td></td>
</tr>
<tr>
<td>Type PS</td>
<td>Solar powered and 3xAA NiMH rechargeable batteries</td>
<td></td>
</tr>
<tr>
<td><strong>Consumption</strong></td>
<td>&lt; 50 mA @ 3.6V in sleep mode. 100mA @ 3.6V average per log interval of &lt; 1 s. 250mA @ 3.6V average during data transfer max 60 s.</td>
<td></td>
</tr>
</tbody>
</table>

#### Sensor excitation

<table>
<thead>
<tr>
<th>Sensor excitation</th>
<th>Sensor supply</th>
<th>Stabilized 250mA @ 24V DC only with type PM.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power switch</td>
<td>Suitable for low power applications: 100mA @ 12V DC available with power supply type PB and PS.</td>
<td></td>
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</tbody>
</table>

#### Casing

#### General

| Enclosure | GRP (Glassfibre Reinforced Polyamide) enclosure. UV stabilized and flame retardant material. |
| Sealing   | EPDM. |
| Classification | IP67 / NEMA 4X. |
| **Dimensions** | 130 x 120 x 75mm (5.12” x 4.72” x 2.95”) - W x H x D. |
| **Weight** | approximately 420 gr. |
| **Cable entry** | No holes. |

#### Terminal connections

| Type | Removable plug-in terminal strip. Wire max. 1.5mm² and 2.5mm². |

#### Operating temperature

| Operational | -30°C to +75°C (-22°F to +167°F). |

#### Dimensions

**GRP enclosure**

![Dimensions of the GRP enclosure](image)
### Ordering information

**Standard configuration:** **M844-HD-NI-PM-ACF00.**

#### Ordering information: M844

**-HD**
- GRP field / wall mount enclosures - IP67 / NEMA4X
- HD No cable entry holes.

**-N**
- Antenna
  - NI Internal antenna.
  - NE External antenna.

**-P**
- Power requirements
  - PB BatteryPowered.
  - PM 115 - 230V AC, 8 - 30V DC + 24V DC sensor supply.
  - PS Solar powered.

**-ACF**
- Mounting accessories
  - ACF02 Stainless steel wall mountig kit (incl. screws and plugs).
  - ACF05 Stainless steel pipe mountig kit (worm gear clamps NOT included).
  - ACF06 Two stainless steel worm gear clamps D = 44 - 56mm (1.73” - 2.20”).
  - ACF07 Two stainless steel worm gear clamps D = 58 - 75mm (2.29” - 2.95”).
  - ACF08 Two stainless steel worm gear clamps D = 77 - 95mm (3.04” - 3.74”).
  - ACF09 Two stainless steel worm gear clamps D = 106 - 138mm (4.18” - 5.43”).
  - ACF00 No mounting accessories.

The bold marked text contains the standard configuration.