www.rmftek.com

PWATCH-2

2nd Generation Remote Data Logger for CP Systems

KEY FEATURES

- **DC/AC voltage and current density measurements**
- **Off and native potential measurements**
- **DC/AC voltage measurements for a 2nd pipe**
- **User-configurable logging intervals**
- **High logging capacity**
- **High input impedance**
- **Over voltage protection**
- **Autonomous battery operation**
- **Typical 4 years battery life with 15 secs logging interval**
- **4G GPRS interface with automatic 3G and 2G fallback**
- **Up to 4 concurrent TCP connections via the GPRS interface**
- **Remote monitoring, configuration, and diagnostics**
- **Remote firmware update**
- **Alarm and event logging**
- **Alarm reporting via SMS and GPRS.**
- **Modbus RTU/TCP support with configurable addressing**
- **Bluetooth for local communications**
- **RTC with synchronization and daylight saving support**
- **Maintenance free, durable design**
- **IP66 rugged, corrosion-free housing**
- **Screw terminals for easy field wiring**
- **Slim design. Easily fits into CP test posts**
- **Easy to use engineering software (PC/IOS/Android)**
- **Complete web solution**

PWATCH-2™ is a high performance, self contained, durable, data acquisition and logging device specially designed for remote monitoring of cathodic protection systems of distribution and transmission utilities .

PWATCH-2, with its diverse measurement, data logging, alarm generation, and remote monitoring properties, helps prevent costly pipeline problems from occurring and provides a complete solution for utilities to achieve reliable and efficient pipeline monitoring.

Flexible Data Acquisition and Logging

PWATCH-2 incorporates total eight channels each of which may be sampled at user-configured intervals and logged. Each channel incorporates separate alarm limits and alarm counts filter.

Alarms, events, and configuration changes are also recorded in separate logs, and may be monitored locally or remotely.

Any alarm may be configured to trigger a wakeup event for immediate reporting of alarm to the operations center via 4G/3G/2G networks and informing designated recipients in the form of SMS messages.

Standalone Operation at Remote Locations

PWATCH-2 is designed to operate as a maintenance-free, standalone unit at remote locations where access is limited or not possible during specific times of year.

Autonomous, battery powered design provides prolonged operation without a service need at remote locations, saves costly external power supplies or solar power systems. Durable, industrial design, and wide operating temperature range ensures uninterrupted information flow from severe remote locations, may be especially important during winters.

Wide Range and Accurate Measurements

PWATCH-2 performs high accuracy and wide range DC/AC voltage and current measurements.

True RMS AC measurement yields accurate results even when high crest factor signals are present.

PWATCH-2 with its integral solid state relay, offers wear-out-free operation. Its fast switching guarantees precise timing for most accurate Eoff and native potential measurements.

Extensive Remote Communication Features

PWATCH-2 offers diverse communication features for an Internet based remote access via 4G/3G/2G networks. All configuration, reporting, monitoring and diagnostics facilities are available remotely to form a modern, supervisory monitoring system that greatly eliminates number of visits to field stations.

PWATCH-2 supports multiple, concurrent, inbound and outbound TCP connections to allow multiple masters access the same remote device simultaneously and to support company's dedicated web based solution.

Autonomous battery operation with full communication features eliminates the need for external power systems when mains power is unavailable at remote sites.

PWATCH-2 performs periodic reporting at scheduled times of day, exchange data with remote center(s) and execute scheduled tasks. Alarms can also trigger instant reporting sessions.

PWATCH-2 incorporates a low energy Bluetooth interface to allow contactless local access using PCs, Android or IOS smart phones.

PWATCH-2

2nd Generation Remote Data Logger for CP Systems

BASIC SPECIFICATIONS

GENERAL

Battery	3.6V, min. Typical 4 years battery life with 15 secs logging interval.
Battery diagnostics	Battery voltage, remaining battery, battery low alarm
Operating temperature range	-30˚C...+70˚C
Relative humidity	95% non-condensing
Dimensions	65H x 180W x 45D mm
Weight	0.8 kg
Housing	IP66 ABS
RTC	Real-Time-Clock. Automatic synchronization. Automatic daylight saving time change

CERTIFICATES AND APPROVALS

CE	IEC 61000-4-2 (ESD), IEC 61000-4-3 (EM), IEC 61000-4-4 (EFT), IEC 61000-4-5 (surge), IEC 61000-4-6 (conducted), IEC 61000-6-4 (emission)

COMMUNICATIONS

GPRS	4G (automatic 3G/2G fall back). SMS is supported. TCP/IP client and server. Total 4 concurrent TCP connections (2 inbound/2 outbound)
Antenna	2.4 dBi internal antenna standard. 5 dBi external antenna optional.
SIM card holder	Internal micro SIM
Bluetooth™	Compliant to the Bluetooth 5.2 (2Mbps) standard.
Protocols	Auto detect Native, Modbus RTU/TCP Slave

INPUTS

Impedance	≥ 10 MΩ
Over voltage protection	± 60V AC/DC
Voltage range	± 20V AC/DC
Current range	± 0.2A AC/DC
Current density range	0-400A/m² (coupon area 5-25 cm²)
AC/DC measurement time	< 50 ms
Coupon switching	Solid state relay

SAMPLING AND LOGGING

On potential (Eon) scan interval	Off, 5-3600 seconds
Current density (Idens) scan interval	Off, 5-3600 seconds
Off potential (Eoff) scan interval	Off, 1-720 hours
Native potential (Enat) scan interval	Off, 1-720 hours
Eoff pre-delay	2-10 msec
Eoff sampling duration	Single sample or average of 1-20 msec
Enat pre-delay	500-2000 msec
Enat sampling duration	Single sample or average of 1-20 msec
Sampling interval	65 µs @ 60 Hz, 78 µs @ 50Hz

STORAGE CAPACITY

On measurements	30 days at 15 seconds logging interval (Pipe1 AC/DC, Pipe2 AC/DC, current density AC/DC)
Eoff measurement	365 days at 1 day logging interval
Enat measurement	365 days at 1 day logging interval
Alarm and event logs	Event log (last 250 events), communications log (last 250 events), alarm log (last 1000 alarms)
Configuration change log	Last 450 parameter changes
Battery consumption history	10 years (monthly values)

MEASUREMENTS & CONNECTIONS

Measurements	On potential (AC/DC) Pipe-2 on potential (AC/DC) (with respect to Pipe-1 reference electrode) Current density (AC/DC) Off potential (DC) Native potential (instant value, current/previous hour/day/month average/min/max values)
Connections	Via screw terminals, 0.14-1.5mm2 solid, 0.14-1mm² stranded, 10A/160V 1:COUPON | 2:REF ELECTRODE | 3:PIPE-2 | 4:PIPE-1