

COMANCHE®

REMOTE MONITORING AND CONTROL SYSTEM

The **Comanche® RMCS** automatically **monitors** and **controls** digital and analog functions and processes associated with the oil and gas industries, which include but are not limited to Cathodic protection systems.

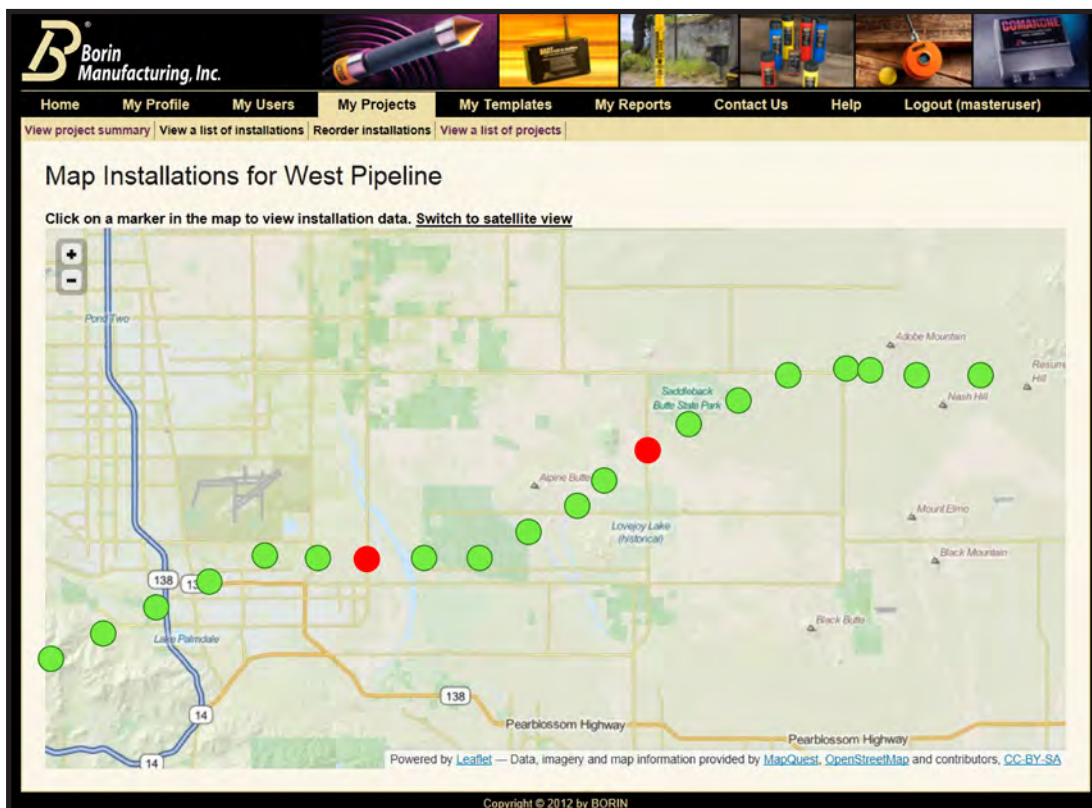
PROVEN EXPERIENCE

- The **Comanche®** Remote Monitoring and Control Systems have been in service for the Corrosion Industry since 1992. This translates into the **most far-reaching experience in the corrosion industry** than any other system on the market.
- The **Comanche® RMCS** has **proven its reliability** working for decades throughout five continents, withstanding extreme weather conditions from deserts in the Middle East to high humidity jungles in South America and extreme cold weather conditions in northern Europe.
- Any of the **Comanche®** Remote Monitoring Unit models can be accessed through the **Comanche® Data Center**.



USER INTERFACE

- The **Comanche® Data Canter** software interface allows you to manage your whole system **from one single screen**. Imagine a map of your facility or pipeline system in your computer screen; now you can retrieve the output of your rectifier by clicking on the location of your rectifier.
- The computer user interface is **intuitive and easy to navigate** at any user level.
- Your Cathodic Protection system can be accessed from **any authorized computer within the network**.

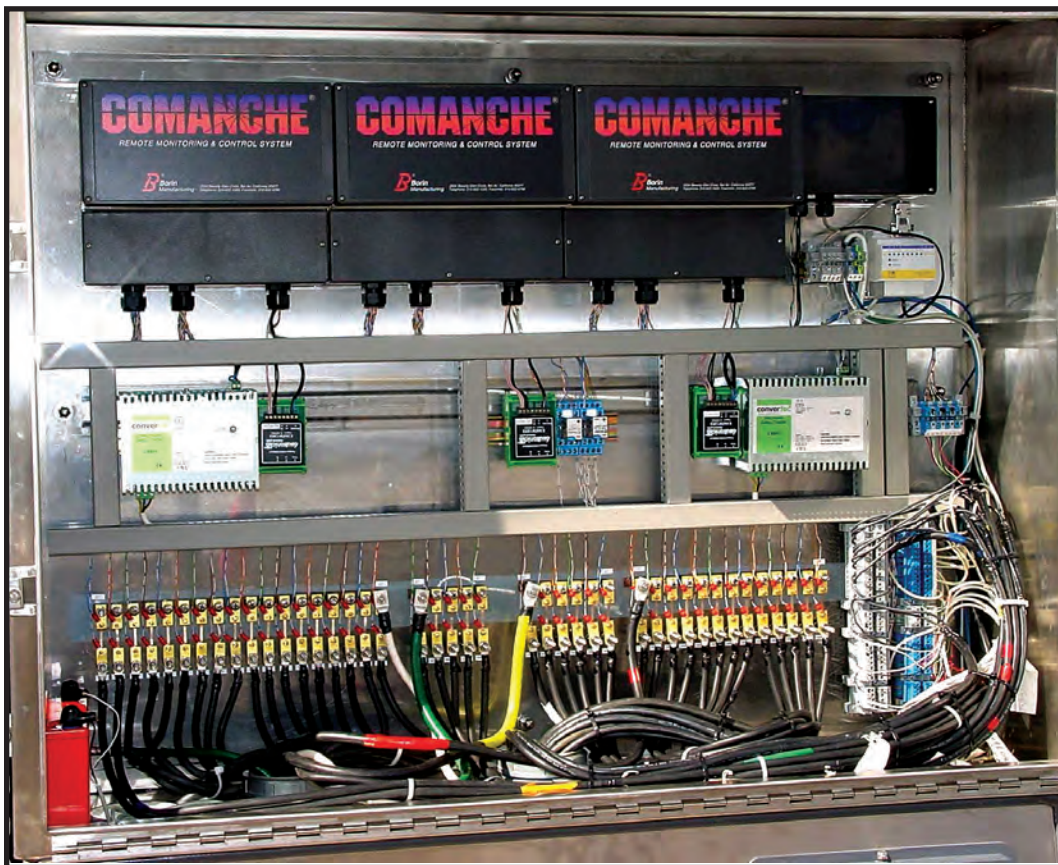


APPLICATIONS

- Cathodic protection rectifiers
- Reference electrodes
- IR Free reference electrodes
- Anode beds
- Resistance bonding points
- Monitor casing to carrier shorts
- Instant Off potential readings
- Alarm systems
- A Synchronized interruption of rectifiers
- Tide levels
- Tank levels
- Pressure (i.e. well heads)
- Temperature
- Flow rates
- Petroleum viscosity
- Lighting systems
- Security systems (warnings and alarms)
- Valves (ON, OFF or any position in between)

EXPANSION CAPACITY

- The system is expandable to monitor and control from a simple 2 channel test station to **thousands of channels**, working in harmony seamlessly using a single communication port.
- **Unlimited** Capacity Data-logger.
- Any of the **Comanche®** Remote Monitoring Unit models can be accessed though the **Comanche® Data Center**.
- The **Comanche®** units installed 20 years ago can always be **upgraded** to our **latest technology**.

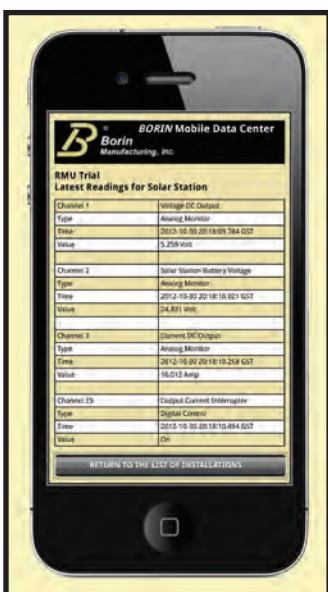
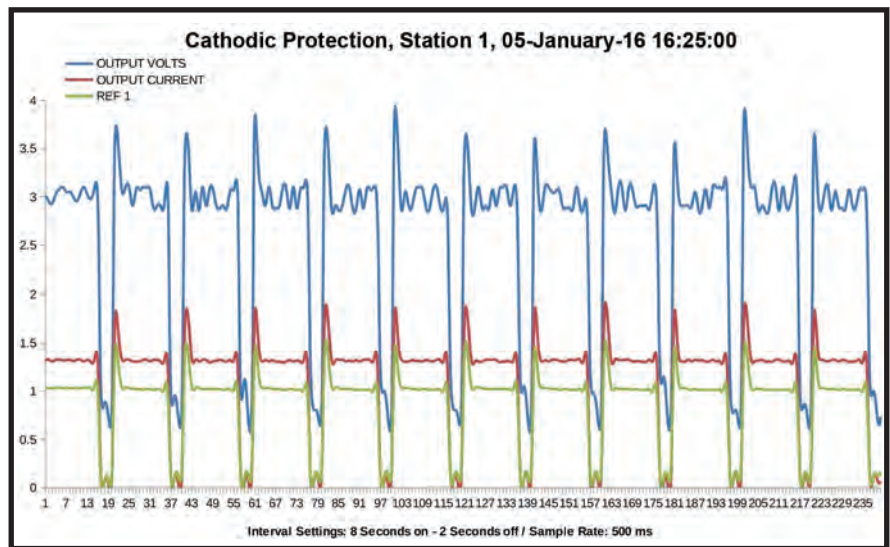


DATA INTEGRITY

- Data transmission is protected by a **sophisticated encryption system** that ensures that the information will be safe and exactly the same at the transmitter and at the receiver.
- All the information is downloaded and stored in a data center and **cannot be altered**.
- You can always access historical data for **diagnosis** and **analysis**.
- Four password protected **user levels**.

DATA ANALYSIS

- **Synchronized interruption** of rectifiers by internal clock or GPS receiver.
- Multiple variables can be **graphed simultaneously** for analysis.
- You can **export reports and graphics** into virtually any format or software like Excel, PDF, JPEG, et cetera.
- **Instant off potential** readings presented in graphics for easy analysis.



COMMUNICATION FORMATS

- Information is transmitted from the field to a data center and vice versa through **ANY communication system** available: GSM cellular network, radio, satellite, fiber optic, microwave, SCADA, MODBUS, et cetera.
- **Smart phone** optimized web access to get your readings while in the field.
- Complete alarm system with **text message and e-mail** capabilities.

HARDWARE SPECIFICATION

COMANCHE® Module

- System can go from 2 channels to thousands (**unlimited**) number of channels.
- Modules are built with **Plug and Play** electronic cards **configurable** to customer's need.
- Internal **HIGH CAPACITY** data-logger stores unlimited readings.
- High-speed **TCP/IP network-bridge** interfaces with any communication system.
- **GPS Synchronized** interruption or synchronization by internal clock.
- Selection of 110 VAC, 235 VAC or 12-24 VDC power supply. Battery back-up available.
- Interfaces with **AZTEC BOX®**, **INCA BOX®** and **TOMAHAWK®** Rectifier controller.
- Operating temperature: -40°Celsius to +85°Celsius (-40°Fahrenheit to +185°Fahrenheit).
- Humidity: 0 to 95%.
- The primary enclosure shall be water, moisture and dust proof to an IP65 rating (Nema 4x).
- 8 Channel Module Dimensions: 5" x 8¾" x 3¼".
- 4-32 Channel Module Dimensions: 8¾" x 11" x 3¼".
- Each card can be **pre-configured** in any combination of the following options:



Analog Monitoring Card	4 channels	0-100 mV	for rectifier output amperage
		0-4 V	for pipe to soil potential (10 or 20 MOhms internal Impedance)
		0-30 V	for rectifier output voltage
		0-100 V	for rectifier output voltage
		0-20 mA	for sensors like flow meters, pressure sensors, etc.
Analog Control Card	2 channels	0-5 V	Controller with TTL inputs
		0-10 V	Rectifier controller cards
		0-20 mA	Older control circuits
		4-20 mA	Modern control equipment
Digital Monitoring Card	4 channels	Potential free input for relays or switches	
		Active input	
		Passive input	
Digital Control Card	4 channels	250 VAC / 2	Amp maximum relay for interruption

HARDWARE SPECIFICATION

COMANCHE® Steletto Module

- System can be expanded to thousands (**unlimited**) number of channels.
- Internal **HIGH CAPACITY** data-logger stores unlimited readings.
- High-speed **TCP/IP network-bridge** interfaces with GSM/Satellite or any other communication system.
- **GPS Synchronized** interruption or synchronization by internal clock.
- Historical data **Zoom-in feature** for remote troubleshooting is a powerful analysis tool.
- Wide range selection of AC and DC power supplies. Battery back-up available.
- Operating temperature: -40° Celsius to +85° Celsius (-40° Fahrenheit to +185° Fahrenheit).
- Humidity: 0 to 95%
- The primary enclosure shall be water, moisture and dust proof to an IP65 rating (Nema 4x).
- 7-8 Channel Module Dimensions: 5" x 8¾" x 3¼".
- Each module can be pre-configured in any combination of the following options:



Analog Monitoring	3-4 channels	+100 mV +4 V +30 V +100 V	for rectifier output amperage for pipe to soil potential (10 or 20 MOhms internal Impedance) for rectifier output voltage for rectifier output voltage
Analog Control	1 channel	0-10 V	Rectifier controller cards
Digital Monitoring	2 channels	Potential free input	for relays or switches
Digital Control	1 channel	Relay	for interruption or switches

DART® GSM or Satellite Modules

- Multipurpose remote monitoring unit capable of functioning as a stand alone data logger for a CP test station **for “on” and “off” pipe to soil potential** readings.
- Other uses include: monitoring critical bonds, depolarization plot, check for dynamic **stray currents** and AC current density analysis.
- Powered by replaceable **long life battery** for 10 year life under normal operating conditions.
- **Cellular GSM** or **Satellite** Communication.
- Operating temperature: -40° Celsius to +85° Celsius (-40° Fahrenheit to +185° Fahrenheit).
- Humidity: 0 to 95%
- Dimensions: Fits inside top hat style **Bullet Box®** test station.
- Each standard 3 channel module can be **pre-configured** with the following channels:

Analog Monitoring	3 channels	-10 to +10 VDC	for pipe to soil potential for reference cell and structure 1
	Configurable	-10 to +10 VDC	IR Free coupon potential or for reference cell and structure 2
		0-20 VAC	for induced current
Digital Control	1 channel	Relay for On-Off potential	

FACILITIES AND TECHNICAL SUPPORT

- Manufacturing, Inventory, Spare Parts, Field Engineers and Technical support are now also available from our **new Middle East facility in Abu Dhabi.**
- Technical support is available **24/7 365 days** a year.
- Software has more than **60 man-years of software development time** and is always being expanded to stay at the cutting-edge of the state of the art in features and processing efficiency.

