800 series

Torquemeters LIMITED

high performance test & measurement systems

Latest generation delivering low-noise digital processing. The 800 family of products offers a flexible display and data acquisition platform for all Torquetronic™ torque measurement systems.

Delivering state-of-the-art signal processing and measurement analysis, the 800 family is designed to be a flexible platform to meet your industry application needs.

The new processing front end, performing digital conversion and filtering of the input signals allows for significantly improved noise rejection and greater operational flexibility.

The new 800 employs a digitally controlled rejection rail to remove the DC offset, and samples the input signals at 4Msps each. Dynamically adjusted digital filters are then applied so that only the fundamental input signal is used in the phase difference determination.

810 Signal Processor

The 810 signal processor is the heart of the 800 family. It accurately measures and analyses the Torquetronic™ signals at a sample rate of 10kHz.

The 810 LCD displays Power, Speed, Torque and Temperature. The measurements are also available as four analog outputs or digitally via MODBUS protocol over Ethernet, RS485 or USB.

22 24 25 30 31 42
0V +V GNDTX- TX+ RX- RX+
SPEED TORQUE POWER TEMP
OPTION BOARD
24V
RS 485
ANALOG OUTPUTS
Torquetronic 800
0 r/min
0.00 Nm
0.00 kW
16/01/13 10:40
Torquemeters
SIGNAL INPUT
B- B+ A- A+
1 6
SHAFT TEMPERATURE
V+ S+ S- V-
7 11
DATA SET SELECT
12 16
O/P
A B 0V
17 19 20 21

816 Hazardous Area Field Mount Signal Processor

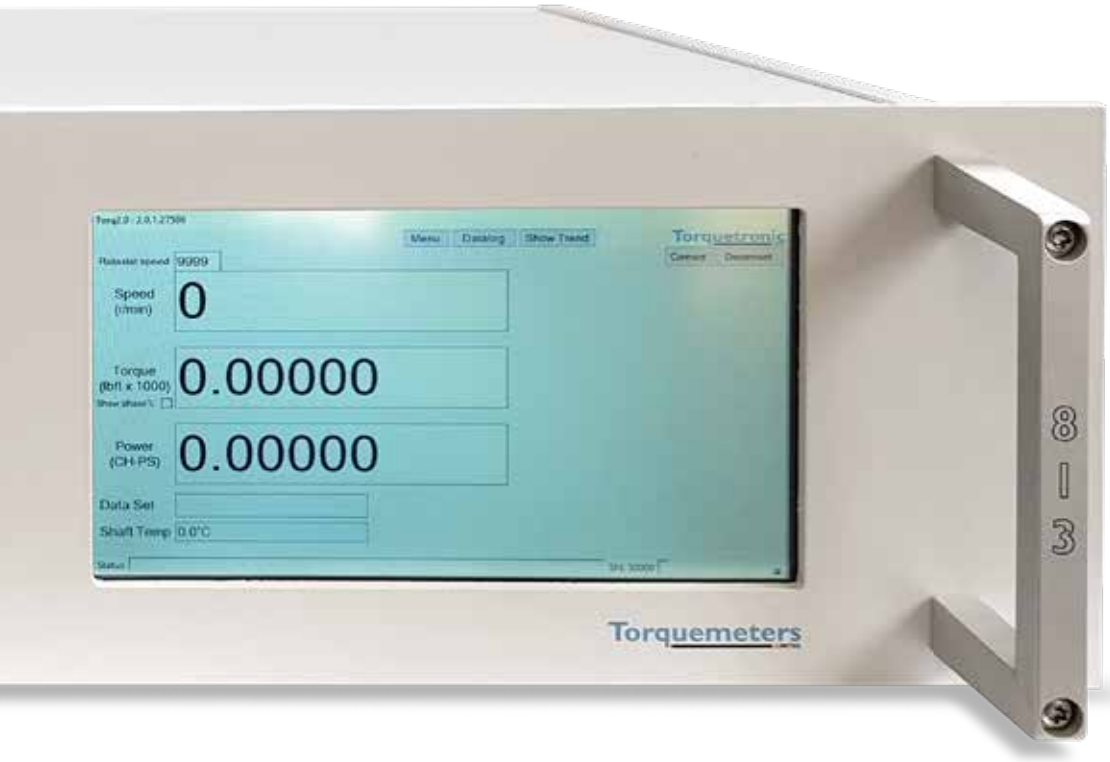
The 816 packages the 810 signal processor in an Exe industrial stainless steel enclosure. Certified for installation in Zone 2 or Div 2 environments, it includes zener barriers to provide intrinsically safe outputs for connection to the Torquetronic™ torquemeter.

813 19" Rack Mounted Signal Processor

The 813 signal processor and industrial PC are packaged in a 19" industry standard enclosure providing a direct replacement to the 613.

Torq2.0™ the 800 configuration and measurement analysis software, is accessible via 7" touch screen display and presents an intuitive HMI interface.

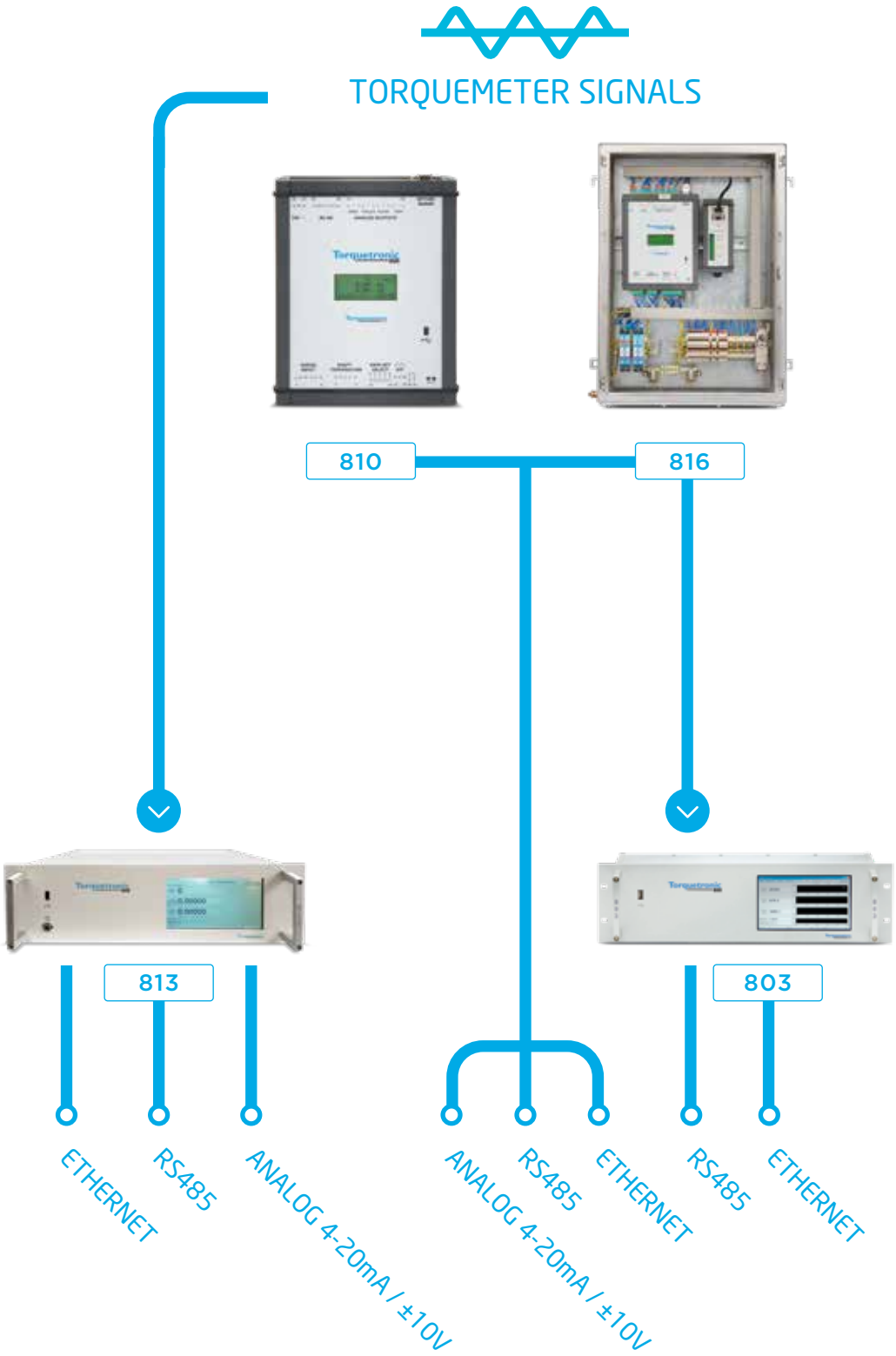
Torsional vibration analysis is provided by the Torq2.0™ software. FFT, Campbell, Waterfall Plot and Order Analysis are standard displays.



803 Remote 19" Panel Display

The 803 provides the operator a control room mounted display via the 7'' touch screen. Operating Torq2.0™ it communicates remotely with the field mounted 810 / 816 signal processor over Ethernet or RS485.

The 803 for remote connection via Ethernet or RS485 to 810 or 816 signal processors.



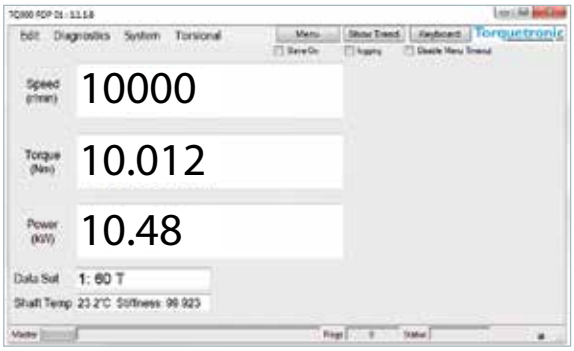
CUSTOMER

CONTROL / ACQUISITION INTERFACE

Torq2.0™
Configuration and measurement analysis software.

Torq2.0™ is the powerful software platform for the Torquetronic™ 800 series. It operates on the 803, 813 or any Windows™ PC.

Torq2.0™ delivers intuitive configuration screens for the 810 signal processor together with impressive measurement analysis tools for Power, Speed, Torque, and Temperature. Torq2.0™ also has an integrated torsional vibration analysis tools: FFT, Campbell Diagrams and Modal Plots.



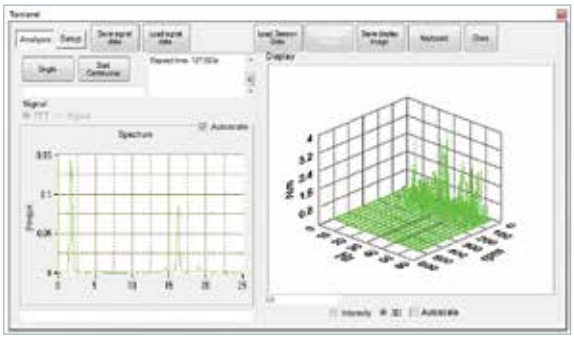
Torq2.0™ enables efficient and simple configuration of the Torquetronic™ system including:

- Calibration data
- Analog outputs
- Communication parameters
- Alarms and trips
- Trends
- Peaks, e.g. torque and speed
- Diagnostic information
- Field calibration

Torq2.0™ Torsional Analysis

The high measurement resolution of the Torquetronic™ system means it automatically captures torsional vibration present in the driveline. Torq2.0™ processes the data, sampled at up to 10KHz, and provides detailed analysis.

Torq2.0™ performs a Fast Fourier Transform (FFT), and displays torsional frequencies against amplitude. Analysis can be displayed in a Campbell Diagram / colour map of torsional frequencies or Modal Plot orders against machine speed.



Software drivers (including DLL and sockets) containing the Modbus library are available to allow direct interrogation of the 800 signal processor. Torq2.0™ can also be run as a slave to provide measurement data to further devices.

OPTION MODULES

THE SIGNAL PROCESSORS 810, 816 AND 813 HAVE AN EXPANSION SLOT TO ENABLE CONNECTION OF OPTION MODULES.

These option modules are all din rail mounted and provide additional system functionality.

820 Trips Module Machine Protection

Four Volt free contacts (N.C.) configured for: Speed and Torque Alarm and Trip. Torq2.0™ allows easy configuration to specify levels and Latching condition. Typical response time < 3ms.

821 Rotastat Control Module

Enables accurate measurement of torque at zero speed for ET torquemeters fitted with a Rotastat. Typical applications "breakaway" and "stall" torque.

ET Torquemeter can be fitted with speed sensor option.

822 Bearing Temperature Module

Four Channel RTD PT100 temperature sensor module used to integrate measurement of ET Torquemeters bearing temperatures. Displayed on Torq2.0™ screen and available for data logging over digital communication.

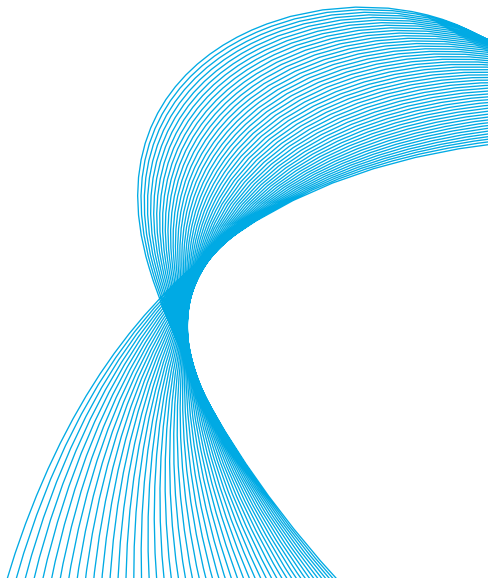
823 Dual Input Module

This option allows the user to connect two ET Torquemeters to a single processor. Please note only one Torquemeter can be operated at a time.

824 Shaft Thermocouple

The 800 series automatically compensates the torque signal for changes in shaft stiffness duty temperature variation. This module is only required only if the ET torquemeter is fitted with a "K" type thermocouple.

The option modules are all DIN rail mounted and can be retrofitted.

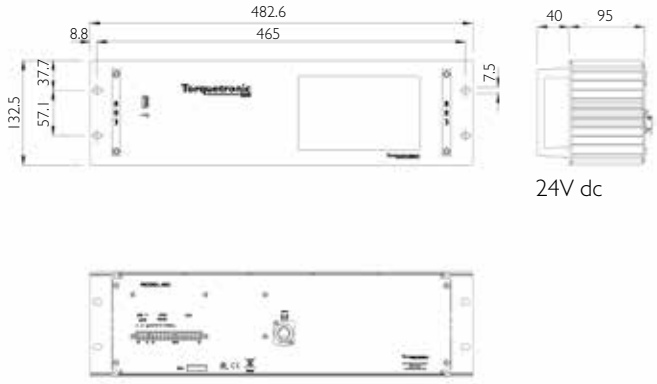


Torquemeters
SENSOR +
SENSOR -
SENSOR S
MOTOR +
MOTOR -
DC IN +V
DC IN 0V
621 ROTASTAT
CONTROL

	810	816	813	803
Power Supply	24V dc, 15W		24V dc, 30W	24V dc, 20W
Display	Integral 4 line LCD display for diagnostic purposes Power, Speed, Torque, Shaft Temperature		7" TFT with touch screen Windows™ embedded operating system	
Inputs	Torquetronic™ transducer input, shaft temperature RTD, Data Select			
Resolution	0.001% phase. 1 rpm speed. 10kHz sample rate		0.001% phase. 1 rpm speed. 10kHz sample rate	
Outputs	Power, Speed, Torque, Shaft Temperature 4 x Analog Outputs, adjustable time constant from 0.1ms to 1s Scalable 16 bit Outputs Voltage: -10v to +10v DC Current: 4-20mA Configurable in Torq2.0 software System Fault – Volt Free Contact			
Communications	MODBUS protocol. Ethernet 10Mbps, RS485. USB Interface		MODBUS protocol. Ethernet 10Mbps, RS485. USB Interface	
	Torq2.0™ Downloadable		Torq2.0™ Installed	
Certification	CE, FM EMC: EN61326-1, FCC.	CE, FM, EAC EMC: EN61326-1, FCC. II 3G Ex ec [ia Ga] IIC T4 Gc	CE, FM EMC: EN61326-1, FCC.	CE, FM EMC: EN61326-1, FCC.
Environmental	Operating temperature -20 to +60°C	Operating temperature -20 to +55°C	Operating temperature 0 to +55°C	
	Storage: -30 to +70°C Humidity 95% non condensing.		Storage: -20 to +55°C Humidity 95% non condensing.	

803 Remote Panel Display

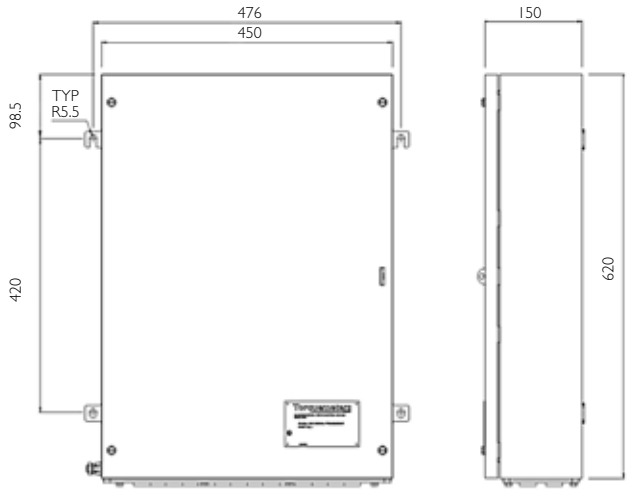
19" 3U high



Phoenix Combicon Plug Connectors,
Screw Terminals

Weight: 2.4kg

816 Field Mount Processor

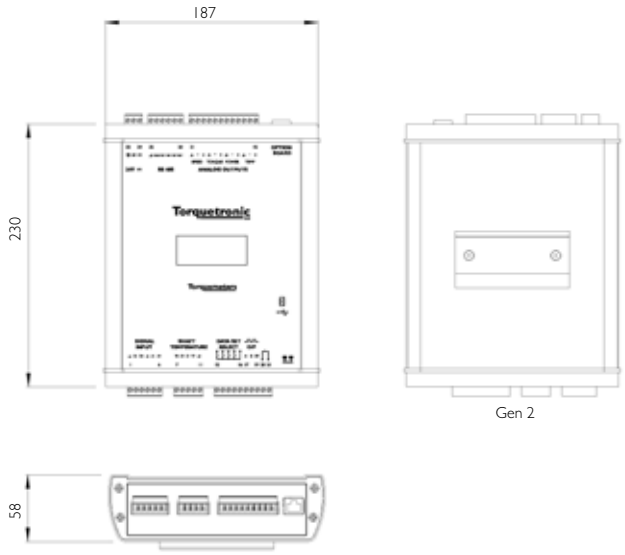


Industrial Stainless steel Exe enclosure.
Suitable for Zone 2/Div 2 hazardous area

Includes zener barriers for Exia transducer
connection. 24V dc 15W

Weight 23kg

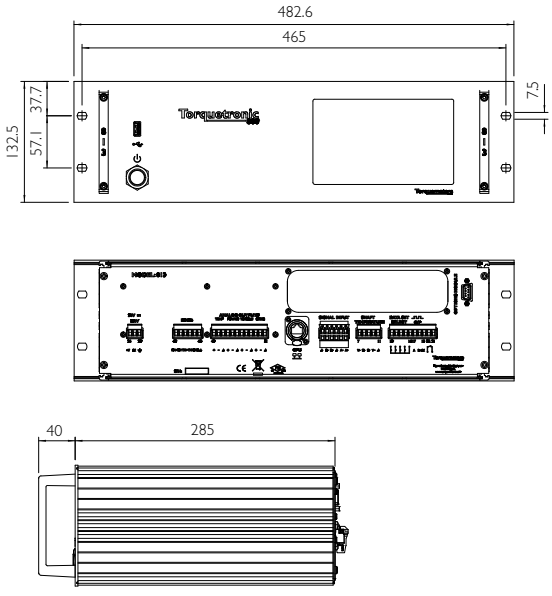
810 Signal Processor



Weight: 1.8kg

813 Rack Mount Processor

19" 3U high



Phoenix Combicon Plug Connectors,
Screw Terminals

Weight: 4.7kg

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