Energy Division

Crompton Instruments Tegra 710 and 810

Digital Metering System

Tyco Electronics

Our commitment. Your advantage.

Tegra 710 and 810 Digital Metering System

The Tegra 710 and 810 multi-function digital metering systems display and communicate major electrical parameters. To suit user requirements the range includes single-phase, three-phase three-wire and three-phase four-wire capabilities under low voltage with unbalanced loads.

Features

- LCD, backlight control
- Fully programmable VT and CT ratios
- Current demand per phase
- Resetable active energy meter
- Resetable reactive energy meter
- Programmable relay outputs
- Modbus RTU

Benefits

- Compact design
- True rms measurement
- Menu-driven interface
- Import, export monitoring

Measured Parameters

- System volts
- System current
- System active power
- System apparent power
- System reactive power
- Phase – neutral voltages (VL-N)
- Phase – phase voltages (VL-L)
- Phase – phase current
- Frequency (of voltage V1)
- Active power per phase
- Apparent power per phase
- Reactive power per phase
- Power factor (PF)
- Total active energy Wh
- Total reactive energy VArh
- Phase angle
- Mean and peak values
- Time and date
- Hours run

Operation

The digital meters are available in 4 module DIN-rail or DIN 72 panel mounted enclosure and display up to 57 electrical parameters including the true rms values, selectable CT and VT ratios and monitor current, voltage, power factor, phase angle, active/reactive energy, and frequency values. The simple menu-driven interface offers three reading modes (phase parameters, system parameters and maximum parameter values).

Programmable Display

The interface programme buttons enable simple programming of CT and VT ratios settings, configuration of selected communication options and adjustment of operating parameters.

System Input

Designed for all low and medium voltage switchgear and distribution systems, the Tegra 710 and 810 DMS offer programmable VT and CT ratio capability and direct connection up to 500V ac with 5A CT inputs.

System Output

The standard version of Tegra 710 and Tegra 810 offers two independently programmable relay outputs (2A, 250V) that can be configured to produce either a pulsed output or can be individually programmed to be associated to the measured parameters. (Operating value, latching, alarm mode, relay operating mode, set-point value, differential value, relay activation delay).

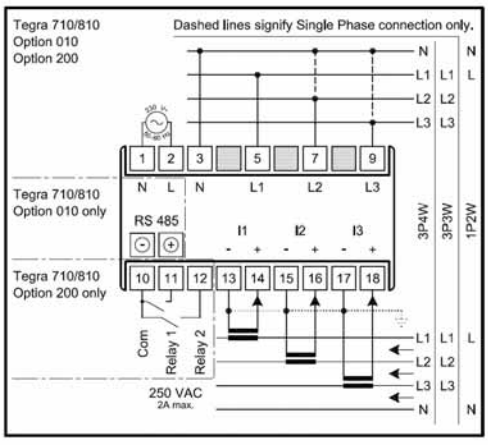
Digital Communications

Tegra 710 and Tegra 810 DMS offer optional RS485 communication port for direct connection to SCADA systems using the Modbus RTU protocol. Remote monitoring enables user to record system parameters in real time, using high resolution numbers.

Product Codes

Description	Cat. no.
DIN-rail, 4-module LCD display 50-500V L-L, 0.25-6A ac, Aux. 230V ac, 2 relay O/P	TEGRA-710-200
DIN-rail 4-module LCD Display 50-500V L-L, 0.25-6A ac, Aux. 230V ac, RS-485 Modbus O/P	TEGRA-710-010
72mm Panel Mounted LCD Display 50-500V L-L, 0.25-6A ac, Aux. 230V ac, 2 Relay O/P	TEGRA-810-200
72mm Panel Mounted LCD Display 50-500V L-L, 0.25-6A ac, Aux. 230V ac, RS-485 Modbus O/P	TEGRA-810-010

Connections



Technical Specification

Inputs

Nominal rated input voltage	50 – 500V ac L-L (30-300V L-N) 50/60Hz
Nominal input voltage burden	< 2 VA
Nominal rated input current	0.25 – 6A ac rms
Nominal input current burden	< 2 VA
System CT primary values	1-9999 A (secondary 5 A)
System VT primary values	1-9999 V (secondary 230 V)

Auxiliary

Standard supply voltage	195.5V – 253V ac 50/60Hz
Supply burden	<4 VA

Measuring ranges

Values of measured quantities for which accuracy is defined.

Voltage	30 – 550V (minimum voltage 10V)
Current	0.25 – 6A (minimum current 20 mA)
Frequency	47 – 63Hz
Power factor	0.2 IND – 0.2 CAP
Power	100 MW per phase
Energy	100 MWh

Accuracy

Voltage	0.5 % ± 1 digit
Current	0.5 % ± 1 digit
Frequency	± 0.1Hz
Power factor	± 3 digit
Active power (W)	1% ± 1 digit
Reactive power (var)	1 % ± 1 digit
Apparent power (VA)	1 % ± 1 digit
Active energy (Wh)	Class 2
Reactive energy (varh)	Class 3
Ambient temperature	20°C
Input frequency	50/60Hz
Input waveform	Sinusoidal
Auxiliary supply voltage	230V
Auxiliary supply frequency	50/60Hz
Magnetic field of external origin	Terrestrial flux.

Standards

EMC Emissions	EN 61000-6-3
EMC Immunity	EN 61000-6-2
Safety	EN 61010-1

Insulation

CT primary to voltage circuits	Principal (EN61010-1)
Relay “contact” to voltage circuits	Reinforced (EN 61010-1)
RS485 to voltage circuits	Reinforced (EN 61010-1)
Analogue to voltage circuits	N/A
Auxiliary supply to voltage circuits	Principal (EN 61010-1)

Environmental

Operating temperature	0 to +50°C *
Storage temperature	-20 to +60°C *
Relative humidity	10 - 90 % non condensing
Warm up time	1 minute
Shock	0.5 J

* Maximum operating and storage temperatures are in the context of typical daily and seasonal variation. This product is not designed for permanent operation or long term storage at maximum specified temperatures.

Enclosure

Sealing	IP 40 (54 front side installed)
Mounting	DIN-rail 4 modules, panel mounting version 72mm DIN-rail mounting, plastic moulded case. ABS + polycarbonate alloy UL94-V0
Weight	0.25 kg DIN-rail and panel mounting (Overall)

Serial Communications Option

Baud rate	Max 9600 bps (programmable)
Parity	None, Odd or Even
Protocol	Modbus RTU (RS485)

Active Energy or Reactive Energy Pulsed Output Option

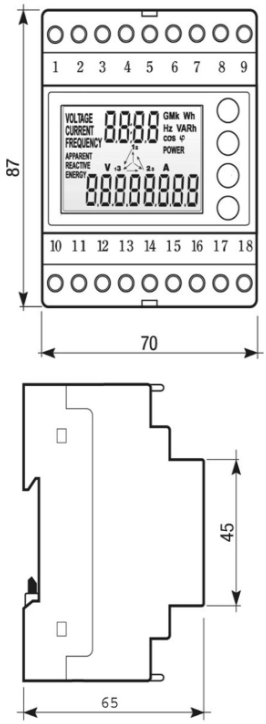
Default pulse rate	1 pulse each "20 x primary CT" Wh or varh for VT primary till 230 V 1 pulse each "40 x primary CT" Wh or varh for VT primary from 230 V to 580 V
Pulsed Output	Relay (Free contact)
Pulsed Duration	100 ms
Pulsed Rating	

Reference conditions of influence quantities

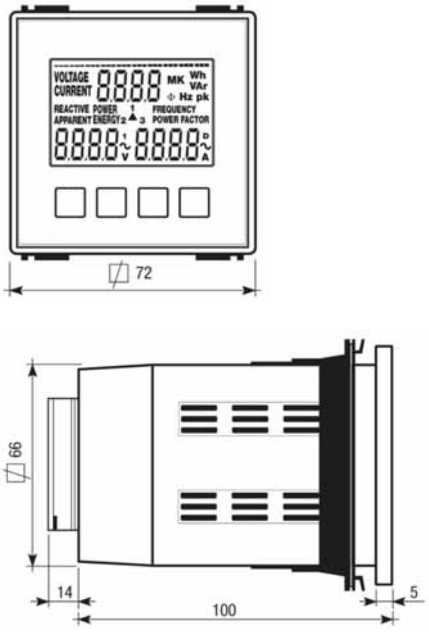
Influence quantities are variables which affect measurement errors to a minor degree. Accuracy is verified under nominal value (within specified tolerance) of these conditions.

Dimensions

Tegra 710



Tegra 810



Energy Division

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Energy Division – economical solutions for the electrical power industry: cable accessories, connectors & fittings, electrical equipment, instruments, lighting controls, insulators & insulation enhancement and surge arresters.

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