

Installation and Operating Manual SWITCHBOARD INTEGRA 0340

INTEGRA 0340

Digital Metering
of Volts and Amps



1 Introduction

The Crompton Switchboard INTEGRA 0340 is a panel mounted self contained measuring display device. This system will measure and display up to 11 electrical parameters, integrating high accuracy measurement technology with the high visibility of 7 segment LED displays.

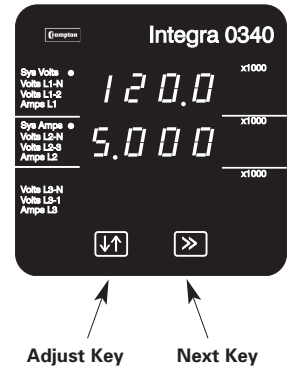
All voltage and current measurements are True RMS for accurate measurement of non sinusoidal waveforms.

Available in the following configurations:-

3 Phase 3 Wire Unbalanced

3 Phase 4 Wire Unbalanced

The INTEGRA 0340 front panel has two push buttons, referred to as "keys". The two keys allow the user to select the required display and to configure the INTEGRA 0340.



Measured Quantity	Units of measurement
System Voltage	Volts
System Current (Average)	Amps
Voltage L-N (4 wire only)	Volts
Voltage L-L (calculated in 4 wire)	Volts
Current in 3 Phases	Amps

Specification

Inputs

Three phase three wire

Voltage range ELV	100 - 120V L-L
Voltage range LOV	121 - 240V L-L
Voltage range MIV	241 - 480V L-L
Voltage range HIV	481 - 600V L-L

Three phase four wire

Voltage range ELV	100 - 120V L-L (57.7 - 70V L-N)
Voltage range LOV	121 - 240V L-L (70.1 - 139V L-N)
Voltage range MIV	241 - 480V L-L (140 - 277V L-N)
Voltage range HIV	481 - 600V L-L (277 - 346V L-N)

Voltage range is defined by factory build option.

Nominal input voltage (a.c. rms) 57.7 to 346V L-N

100 to 600V L-L

System PT/VT primary values 1 Volt to 400 kV

Max continuous input voltage 120% of nominal (up to 720 V max.)

Max short duration input voltage 2* nominal (1s application repeated 10 times at 10s intervals)

Nominal input voltage burden 0.2 VA approx. per phase

Nominal input current 1 or 5 A a.c. rms

System CT primary values Standard values up to 9999 Amps (5 A secondaries)
(1 A on application)

Max continuous input current 120% of nominal

Max short duration current input 20* nominal (1s application repeated 5 times at
5 min intervals)

Nominal input current burden 0.6VA approx. per phase

Auxiliary

Standard supply voltage 100 to 250V AC nominal $\pm 15\%$ (85V AC
absolute minimum to 287V AC absolute maximum) or
100V to 250V DC nominal +25%, -15% (85V DC absolute
minimum to 312V DC absolute maximum)

a.c. supply frequency range 45 to 66 Hz

a.c. supply burden 3W

Optional auxiliary d.c. supply 12 to 48V DC. nominal +25%, -15% (10.2V DC absolute
minimum to 60V DC absolute maximum)

d.c. supply burden 3W

Measuring Ranges

Values of measured quantities for which errors are defined.

Voltage	70 .. 120% of nominal
Current	5 .. 120% of nominal
Frequency	45 .. 66 Hz

Accuracy

Voltage	0.4% of reading $\pm 0.1\%$ of range
Current	0.4% of reading $\pm 0.1\%$ of range
Temperature coefficient	0.013%/°C typical
Response time to step input	1.5 seconds approx.

EMC Standards

EMC Immunity	EN61326 for Industrial Locations to performance criterion A
EMC Emissions	EN61326 to Class B - Domestic

Safety

IEC1010-1 (BSEN 61010-1)	Permanently connected use, Normal Condition Installation category III, pollution degree 2, Basic Insulation 720V RMS maximum. All terminals are for use only with equipment that has no live parts WHICH ARE ACCESSIBLE and the insulation for external circuits is to be suitable for SINGLE FAULT CONDITIONS.
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Insulation

Dielectric voltage withstand test	3.25kV RMS 50Hz for 1 minute between all electrical circuits
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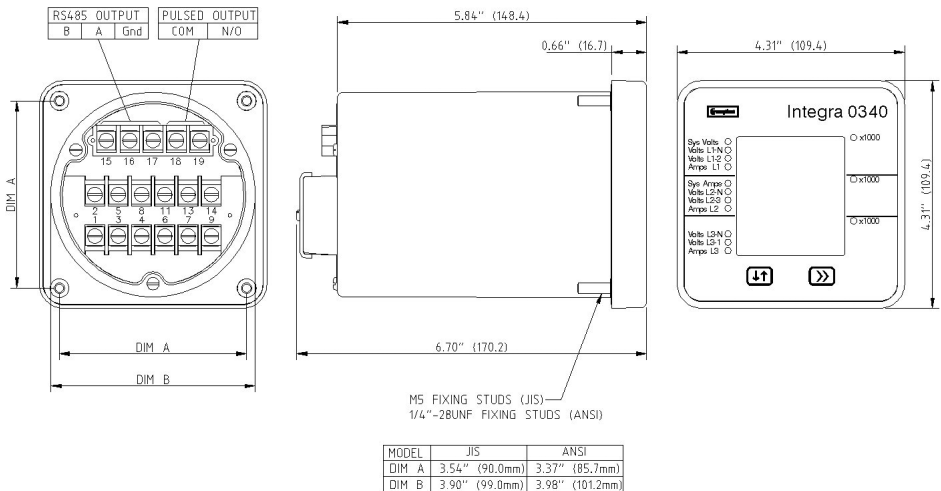
Environmental

Operating temperature	-20 to +70°C
Storage temperature	-20 to +80°C
Relative humidity	0 .. 95% non condensing
Shock	30g in 3 planes
Vibration	10-150 Hz, 1g/0.15mm amplitude
Enclosure integrity	(front face only) IP54

Enclosure

Style	ANSI C39.1
Material	Polycarbonate front and base, steel case
Terminals	6-32 UNC slotted barrier type

5.3 Case Dimension and Panel Cut-Out



Wiring

Input connections are made to screw clamp terminals. Choice of cable should meet local regulations.

Terminals for both current and voltage inputs will accept up to 3mm² x 2 diameter cables or ring lugs suitable for 6-32 screws. Terminal screws should be tightened to 1.35Nm or 1.0 ft/lbf only. Terminal covers are held in place by miniature self tapping screws into plastic. These screws should be tightened by hand only, sufficiently to secure the terminal cover and prevent it vibrating.

- The current inputs of these products are designed for connection into systems via current transformers only.

Additional considerations for three wire systems

If this product is used in a system with an a.c. auxiliary where the frequency of the auxiliary may be different to the frequency of the signals being measured it will be necessary to connect the neutral terminal (terminal number 11) either to the system neutral connection or to an earth (ground) connection in order to achieve the published specifications.

The neutral terminal (terminal number 11) is indirectly connected to the voltage input terminals (terminals 2, 5 and 8). When connected to a three wire system the neutral terminal will adopt a potential somewhere between the remaining lines.

- If external wiring is connected to the neutral terminal it must be connected to either the neutral line or earth (ground) to avoid the possibility of electric shock from the neutral terminal.

Auxiliary Supply

INTEGRA 0340 should ideally be powered from a dedicated supply, however it may be powered from the signal source, providing the source remains within tolerance for the auxiliary supply.

Fusing

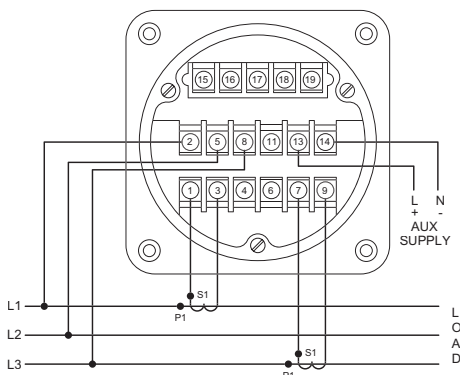
This unit must be fitted with external fuses in voltage and auxiliary supply lines. Voltage input lines must be fused with a quick blow fuse 1A maximum. Auxiliary supply lines must be fused with a slow blow fuse rated 1A maximum. Choose fuses of a type and with a breaking capacity appropriate to the supply and in accordance with local regulations.

Earth/Ground Connections

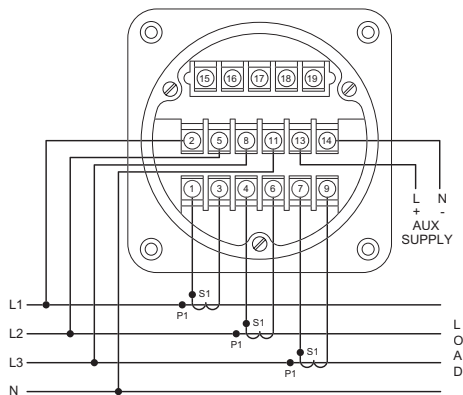
For safety reasons, CT secondary connections should be grounded in accordance with local regulations.

Connection Diagrams

3-PHASE 3-WIRE UNBALANCED LOAD



3-PHASE 4-WIRE UNBALANCED LOAD



Voltage lines and auxiliary supplied must be fused - see above.