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Energy Division
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Installation and Operating Manual
Quadratic INTEGRA 520, 530, 540

Crompton INSTRUMENTS

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Quadratic INTEGRA
520, 530, 540
Three Phase Digital
Maximum Demand Indicator

Installation & Operating Instructions
Models 244-523, 244-524
244-533, 244-534, 244-543, 244-544

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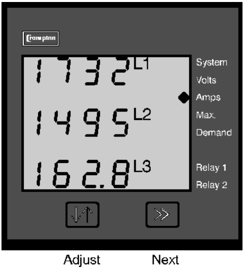
1. Introduction

The Crompton INTEGRA 520, 530 and 540 products are panel mounted 96 x 96mm DIN Digital Metering Systems, for the measurement and display of current, demand, maximum demand and voltage. The instrument integrates accurate measurement technology (all voltage and current measurements are average sensing RMS calibrated) with a clear, wide temperature range liquid crystal display.



INTEGRA 520, 530 and 540 are available in 3 Phase 3 Wire and 3 Phase 4 Wire versions.

The front panel has two push buttons through which the user may scroll through the available measurement readings, reset the demand readings and configure the product.

The available measurement parameters and how they are indicated on the display are as follows:-

Measured Quantity	Parameter Indication	Unit of measurement
Current in each of the 3 phases	L1,L2,L3 Amps	Amps
Current Demand in each of the 3 phases	L1,L2,L3 Amps Demand.	Amps demand
Maximum Current Demand in each of the 3 phases	L1,L2,L3 Amps Max Demand.	Amps demand
Voltage of each of the 3 phases relative to neutral*	L1,L2,L3 Volts	Volts
Line to Line Voltages	L12,L23,L31 Volts	Volts

* Four wire version only.

2. Maximum Demand Calculations

The maximum Amp demand of an installation is an important measurement as most electricity utilities base their charges on it. Many utilities use thermal maximum demand indicators (MDI) which average current requirements over a number of minutes such that short current surges do not give artificially high Amp demand readings.

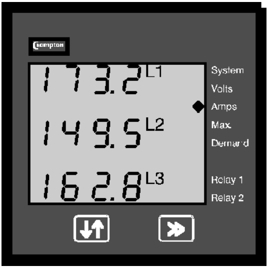
INTEGRA 520,530 and 540 use a sliding window algorithm to simulate the characteristics of a thermal MDI, with the demand reading being updated every 1/8th of a demand period.

The demand period is re-initialised at power up and when system settings (system Amps or demand integration time) are altered.

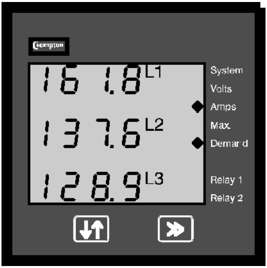
3. Measurement Reading Screens

In normal operation the user is presented with one of a number of measurement reading screens. These screens may be scrolled through one at a time by pressing the “>> Next” key.

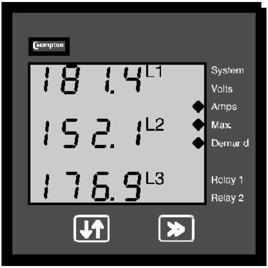
Screen 1 Amps per line



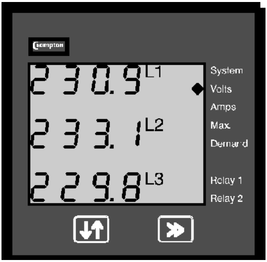
Screen 2 Amps Demand per line



Screen 3 Amps Maximum Dmd per line

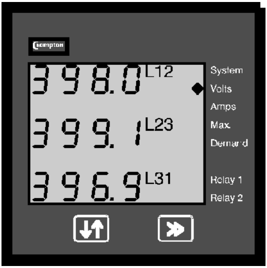


Screen 4 Phase Volts (4 wire)



Crompton INSTRUMENTS

Screen 5 Line to Line Volts



3.1 Trip Point Operation

Note: Only available on the Integra 530 and Integra 540 models. The Integra 530 has one relay, 'Relay 1' whilst the Integra 540 has two relays, 'Relay 1' and 'Relay 2'.

In operation an enunciator at the side of the “Relay 1” and “Relay 2” captions will illuminate whenever the appropriate relay is tripped. The enunciators are valid in all measurement reading screens.

The operation of the relays is identical in both the Integra 530 and Integra 540, whenever the displayed Amp demand value exceeds the associated trip point value the relay will energise. If the displayed Amp demand value falls below the associated trip point value the relay will de-energise.

On the Integra 540, it is possible to assign either relay to the higher trip point value i.e. the trip point for relay 1 may be above or below the value for relay 2.

3.2 Four Wire Line to Line Voltage Display

The values displayed on screen 5, Line to Line voltages on a four wire system, are not measured parameters but represent an approximation. The Line to Line voltages are calculated from the Line to Neutral voltages assuming a phase angle of 120 degrees between each of the three phases.

When there are large differences between the amplitudes of the phase voltages there will be significant errors in the displayed values of Line to Line voltage. In this situation the operator should rely on the measured values i.e. the phase voltages.

4. Programming

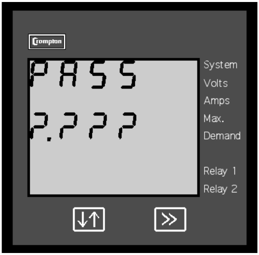
The following sections comprise step by step procedures for configuring the INTEGRA 520, 530 and 540 for individual user requirements.

To access the set-up screens press and hold the “ ↑↓ Adjust” and “>> Next” Key simultaneously for 5 seconds. This will take the User into the Password Protection Entry Stage (Section 4.1). To return to the measurement reading screens at anytime during these procedures, press the " ↑↓ Adjust" and >> Next Key simultaneously for 5 seconds.

4.1. Password Protection

Password protection can be enabled to prevent unauthorised access to set-up screens, by default password protection is not enabled.

Password protection is enabled by selecting a four-digit number other than 0000, setting a password of 0000 disables the password protection.



Enter Password. Prompt for first digit (signified by presence of decimal point to right of first digit).

Press the " ↑↓ Adjust" key to scroll the value of the first digit from 0 through to 9.
The value will change from 9 back to 0 if the " ↑↓ Adjust" is pressed when "9" is displayed.

Press the ">> Next" key to advance to the next digit.

In the special case where the Password is "0000" pressing the ">> Next" key when prompted for the first digit will advance to the "Password Confirmed" screen.

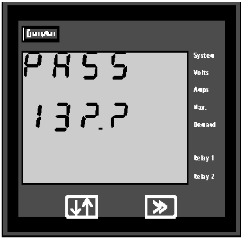
Note: If a password has not been set, pressing the >> Next key with 4 question marks displayed will allow the User to access the set-up screens.

Enter Password

First digit entered, prompt for second digit (signified by presence of decimal point to right of second digit).

Press the " ↑↓ Adjust" key to scroll the value of the second digit from 0 through to 9. The value will change from 9 back to 0 if the " ↑↓ Adjust" is pressed when "9" is displayed.

Press the ">> Next" key to advance to the next digit.



Enter Password

Second digit entered, prompt for third digit (signified by presence of decimal point to right of third digit).

Use the " ↑↓ Adjust" key to scroll the value of the third digit from 0 through to 9. The value will change from 9 back to 0 if the " ↑↓ Adjust" is pressed when "9" is displayed.

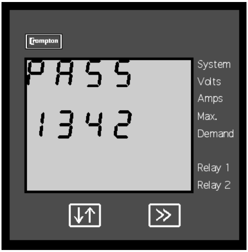
Press the ">> Next" key to advance to the next digit.

Enter Password

Third digit entered, prompt for fourth digit (signified by presence of decimal point to right of fourth digit).

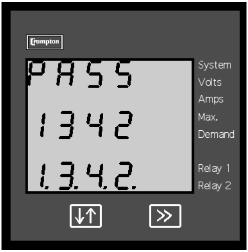
Use the " ↑↓ Adjust" key to scroll the value of the fourth digit from 0 through to 9. The value will change from 9 back to 0 if the " ↑↓ Adjust" is pressed when "9" is displayed.

Press the ">> Next" key to advance to verification of the Password.



Enter Password

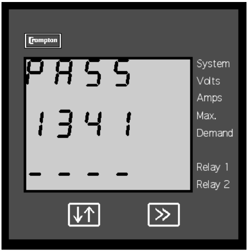
Four digits entered, awaiting confirmation of the Password.



Password Confirmed

Pressing " ↑↓ Adjust" key will advance to the New/Change Password entry stage.

Pressing the >> Next key will advance to the System Amps set up Screen (See Section 4.2.1.).

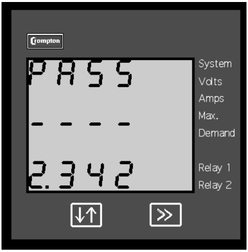


Password Incorrect

The unit has not accepted the Password entered.

Pressing the " ↑↓ Adjust" key will return to the Enter Password stage.

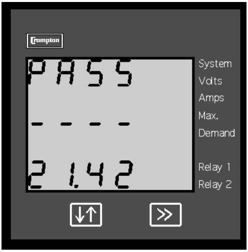
Pressing the >> Next key exits the set-up menus and returns operation to the measurement reading mode.



New/Change Password

Pressing the " ↑↓ Adjust" key will scroll the value of the first digit from 0 through to 9. The value will change from 9 back to 0 if the " ↑↓ Adjust" is pressed when 9 is displayed.

Pressing the >> Next key advances the operation to the next digit and sets the first digit, in this case to 2.

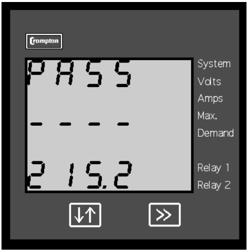


New/Change Password

First digit entered, prompt for second digit.

Pressing the " ↑↓ Adjust" key will scroll the value of the second digit from 0 through to 9. The value will change from 9 back to 0 if the " ↑↓ Adjust" is pressed when 9 is displayed.

Pressing the >> Next key advances the operation to the next digit and sets the second digit, in this case to 1.

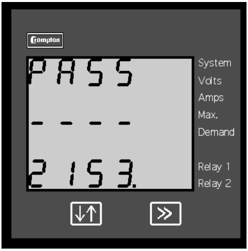


New/Change Password

Second digit entered, prompt for third digit.

Pressing the " ↑↓ Adjust" key will scroll the value of the third digit from 0 through to 9. The value will change from 9 back to 0 if the " ↑↓ Adjust" is pressed when "9" is displayed.

Pressing the ">> Next" key advances the operation to the next digit and sets the third digit, in this case to "5".

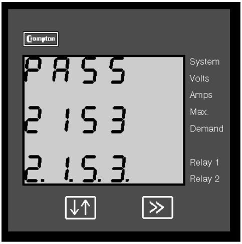


New/Change Password

Third digit entered, prompt for fourth digit.

Pressing the " ↑↓ Adjust" key will scroll the value of the fourth digit from 0 through to 9. The value will change from 9 back to 0 if the " ↑↓ Adjust" is pressed when "9" is displayed.

Pressing the ">> Next" key advances the operation to the New Password Confirmation stage and sets the fourth digit, in this case to "3"



New Password Confirmed

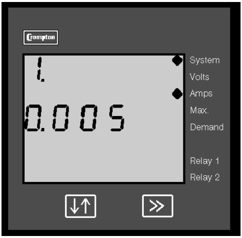
Pressing " ↑↓ Adjust" key will return to "Change Password".

Pressing the ">> Next" key will advance to the "System Amps" set up screen. (See Section 4.2.1)

4.2 Set Up Screens

4.2.1. System Amps

The user enters the system C.T.s primary value in Amps into this screen. The INTEGRA 520, 530 or 540 have a nominal current input of 1A or 5A as indicated on the product label, the C.T. primary value entered in this screen must be the current flowing in the primary of the C.T. to produce the 1A or 5A into the product.



System Amps Edit

Pressing the “>> Next” key accepts the present value and advances to the Demand Integration Time menu for an Integra 520 or to the Relay 1 Trip Point on the Integra 530 or Integra 540.

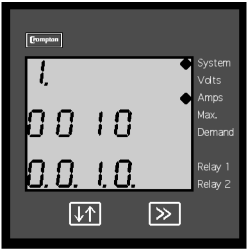
Pressing the " ↑↓ Adjust" key will enter the System Amps Edit mode. This will scroll the value of the most significant digit from 0 through to 8. The value will change from 8 back to 0 if the " ↑↓ Adjust" is pressed when 8 is displayed. (0 to 9 for lesser significant digits)

Pressing the >> Next key will advance to the next less significant digit (signified by the position of the decimal point).

When the least significant digit has been set, pressing the >> Next key will advance to the System Amps Confirmation stage.

Note: When the most significant digit is set to 8 the lesser significant digits are all forced to zero.

The minimum value allowed is 1, the value will be forced to 1 if the display contains zero when the >> Next key is pressed



System Amps Confirmed

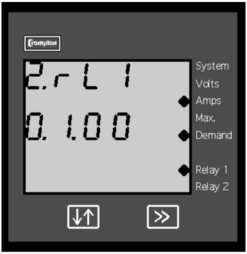
The System Amps value entered has been stored.

This screen will only appear following an edit of the System Amps.

If the scaling is not correct, pressing the " ↑↓ Adjust" key will return to the "System Amps Edit" stage with the most significant digit highlighted (associated decimal point flashing) and the bottom line of the display will be blanked.

Pressing the >> Next key advances to the Demand Integration Time menu on the Integra 520 or to the Relay 1 Trip Point menu on the Integra 530 and 540.

4.2.2. Relay 1 Trip Point



Note: This screen is only available on Integra 530 and Integra 540 models.

The user enters the Amp Demand level, in Amps, at which Relay 1 will operate.

Relay 1 Trip Point Edit

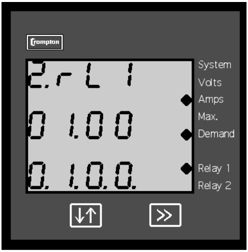
Pressing the >> Next key accepts the present value and, provided that the system amps has not been changed such that the trip point range (decimal point position) has changed, will advance to the Demand Integration Time menu if the unit is an Integra 530 or to the Relay 2 Trip Point menu if the unit is an Integra 540.

If the trip point range has changed the operation will enter the Relay 1 Trip Point

Edit mode.

Pressing the " ↑↓ Adjust" key will enter the Relay 1 Trip Point Edit mode. This will scroll the value of the most significant digit from 0 through to 9.

The value will change from 9 back to 0 if the " ↑↓ Adjust" is pressed when 9 is displayed.



Pressing the >> Next key will advance to the next less significant digit (signified by the position of the decimal point).

When the least significant digit has been set, pressing the >> Next key will advance to the Relay 1 Trip Point Confirmation stage.

Relay 1 Trip Point Confirmed

The Relay 1 Trip Point value entered has been stored.

This screen will only appear following an edit of the Relay 1 Trip Point.

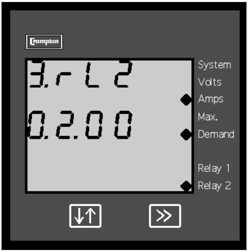
If the value is not correct, pressing the " ↑↓ Adjust" key will return to the Relay 1 Trip Point Edit stage with the most significant digit highlighted (associated decimal point flashing) and the bottom line of the display will be blanked.

Pressing the >> Next key advances to the Demand Integration Time menu if the unit is an Integra 530 or to the Relay 2 Trip Point if the unit is an Integra 540.

4.2.3 Relay 2 Trip Point

Note: This screen is only available on the Integra 540 model.

The user enters the Amp Demand level, in Amps, at which Relay 2 will operate.



Relay 2 Trip Point Edit

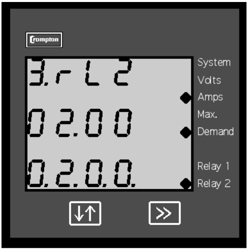
Pressing the >> Next key accepts the present value and, provided that the system amps has not been changed such that the trip point range (decimal point position) has changed, will advance to the Demand Integration Time menu.

If the trip point range has changed the operation will enter the "Relay 2 Trip Point Edit" mode.

Pressing the "↑↓ Adjust" key will enter the "Relay 2 Trip Point Edit" mode. This will scroll the value of the most significant digit from 0 through to 9 is displayed.

Pressing the ">> Next" key will advance to the next less significant digit (signified by the position of the decimal point).

When the least significant digit has been set, pressing the >> Next key will advance to the Relay 2 Trip Point Confirmation stage.



Relay 2 Trip Point Confirmed

The Relay 2 Trip Point value entered has been stored.

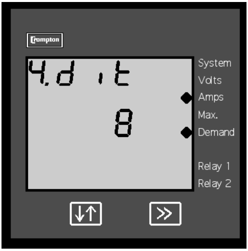
This screen will only appear following an edit of the Relay 2 Trip Point.

If the value is not correct, pressing the " ↑↓ Adjust" key will return to the Relay 2 Trip Point Edit stage with the most significant digit highlighted (associated decimal point flashing) and the bottom line of the display will be blanked.

Pressing the >> Next key advances to the Demand Integration Time.

4.2.4 Demand Integration Time

This screen is used to set the demand period required. The value displayed is the demand integration time in minutes.



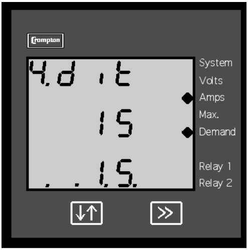
Demand Integration Time Edit

Pressing the >> Next key accepts the present value and advances to the Maximum Demand Reset Enable menu.

Pressing the " ↑↓ Adjust" key will enter the Demand Integration Time Edit mode and scroll the value through the values 8, 15, 30 and 60 and back to 8.

Pressing the >> Next key advances to the Demand Integration Time Confirmation menu.

As the unit advances to the next screen the unit demands are reset.



Demand Integration Time Confirmation

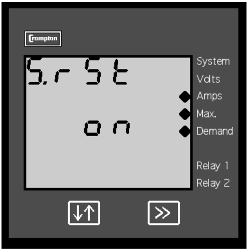
This screen will only appear following an edit of the Demand Integration Time.

If the time shown is not correct, pressing the " ↑↓ Adjust" key will return to the Demand Integration Time Edit stage (blanking the bottom line of the display).

Pressing the >> Next key advances to the Maximum Demand Reset Enable menu.

4.2.5. Maximum Demand Reset Enable

This screen allows the user to determine whether or not the ability to reset maximum demand figures will be available from the product front panel without entering the (password protected) set up screens.

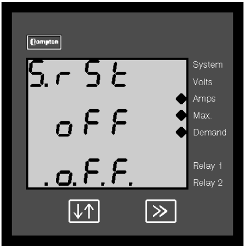


Maximum Demand Reset Enable Edit

Pressing the >> Next key accepts the present setting and advances to the Maximum Demand reset menu. (See Section 4.2.6.)

Pressing the " ↑↓ Adjust" key will enter the Maximum Demand Reset Enable Edit mode and toggle the setting between the reset enable on and reset enable off states.

Pressing the >> Next key advances to the Maximum Demand Reset Enable Confirmation menu.



Maximum Demand Reset Enable Confirmation

This screen will only appear following an edit of the Maximum Demand Reset Enable

If the Maximum Demand Reset Enable state shown is not correct, pressing the " ↑↓ Adjust"" key will return to the "Maximum Demand Reset Enable Edit" stage (blanking the bottom line of the display).

Pressing the ">> Next" key accepts the displayed condition and advances to the Maximum Demand reset menu.

4.2.6 Maximum Demand Reset

Pressing the >> Next key returns the product to the measurement reading screens without resetting the maximum demand readings.

Pressing the " ↑↓ Adjust" key will enter the Maximum Demand Reset Edit mode and toggle the setting between the yes and no states.

Pressing the >> Next key when in the “yes” state results in the maximum demand readings being reset and returns the user to the measurement reading screens.

5. User Maximum Demand Reset Screen

If front panel reset of maximum demands has been enabled through the set-up screens, the Maximum Demand reset screen may be accessed while the product is in the measurement reading screens mode by pressing and holding down the " ↑↓ Adjust" Key for 3 seconds.

Pressing the >> Next key returns the product to the measurement reading screens without resetting the maximum demand readings.

Pressing the " ↑↓ Adjust" key will enter the Maximum Demand Reset Edit mode and toggle the setting between the yes and no states.

Pressing the >> Next key when in the yes state results in the maximum demand figures being reset and returns the user to the measurement reading screens

6. Installation

The INTEGRA 520, 530 and 540 family may be mounted in a panel of any thickness up to a maximum of 5 mm. Mounting is by two corner clamps and thumb screws. Consideration should be given to the space required behind the instrument to allow for bends in the connection cables.

As the enclosure conforms to IP54 it is protected from water spray from all directions, additional protection to the panel may be obtained by the use of an optional panel gasket. The terminals at the rear of the product should be protected from liquids.

The INTEGRA 520, 530 and 540 family should be mounted in a reasonably stable ambient temperature and where the operating temperature is within the range -10 to +70 degrees celcius. Vibration should be kept to a minimum.

Caution

1. In the interest of safety and functionality this product must be installed by a qualified engineer.
2. Voltages dangerous to human life are present at some of the terminal connections of this unit. Ensure that all supplies are de-energised before attempting any connection or disconnection.
3. These products do not have internal fuses therefore external fuses must be used to ensure safety under fault conditions.

6.1 EMC Installation Requirements

This product has been designed to meet the certification of the EU directives when installed to a good code of practice for EMC in industrial environments, e.g.

1. Screened output and low signal input leads or have provision for fitting RF suppression components, such as ferrite absorbers, line filters etc., in the event that RF fields cause problems.

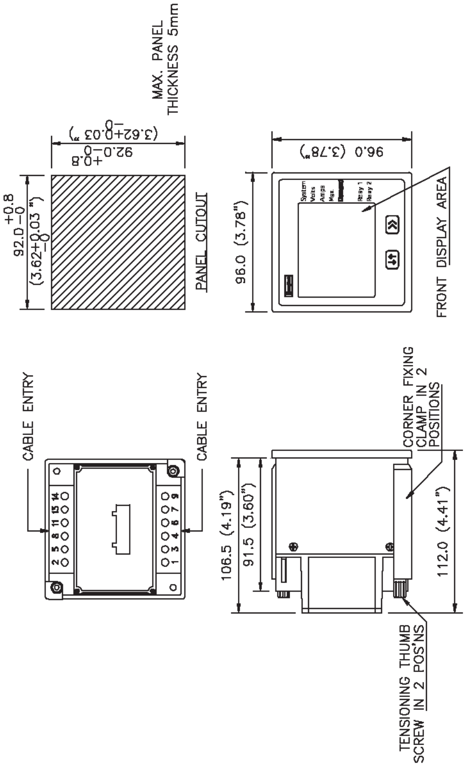
N.B. It is good practice to install sensitive electronic instruments that are performing critical functions, in EMC enclosures that protect against electrical interference which could cause a disturbance in function.

2. Avoid routing leads alongside cables and products that are, or could be, a source of interference.

3. To protect the product against permanent damage, surge transients must be limited to 2kV pk. It is good EMC practice to suppress differential surges to 2kV at the source. The unit has been designed to automatically recover in the event of a high level of transients. In extreme circumstances it may be necessary to temporarily disconnect the auxiliary supply for a period of greater than 5 seconds to restore correct operation.

4. ESD precautions must be taken at all times when handling this product.

6.2 Case Dimension and Panel Cut Out



Wiring

Input connections are made directly to shrouded screw clamp terminal.

Numbering is clearly marked in the plastic moulding. Choice of cable should meet local regulations. Terminals for both current and voltage inputs will accept up to 3mm^2 x 2 diameter cables.

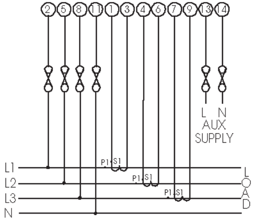
Fusing

It is recommended that all voltage lines are fitted with 1 amp sand filled fuses.

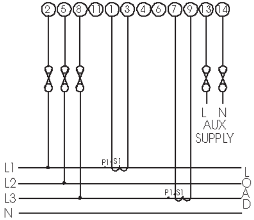
Earth/Ground Connections

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

3-PHASE 4-WIRE UNBALANCED LOAD
DIGITAL METERING SYSTEM

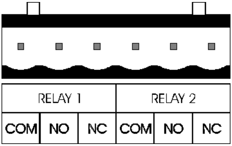


3-PHASE 3-WIRE UNBALANCED LOAD
DIGITAL METERING SYSTEM



6.3 Connection Diagrams

Auxiliary supply connections (terminals 13 and 14) are not necessary for products supplied as self powered.



Relay Connections

As viewed from rear of product.
The INTEGRA 530 has RELAY1 only.
The INTEGRA 540 has RELAY1 and RELAY2 fitted.

7. Specification

System

3 Phase 3 Wire	244-523 (requires 2 system CTs)
3 Phase 4 Wire	244-524 (requires 3 system CTs)
3 Phase 3 Wire	244-533 (requires 2 system CTs)
3 Phase 4 Wire	244-534 (requires 3 system CTs)
3 Phase 3 Wire	244-543 (requires 2 system CTs)
3 Phase 4 Wire	244-544 (requires 3 system CTs)

Inputs

Nominal input voltage	100 to 120V L-L (a.c. rms) 190 to 240V L-L 380 to 480V L-L
Max continuous input voltage	120% of nominal (up to 600V max.)
Max short duration input voltage	2 x nominal (1s application repeated 10 times at 10s intervals)
Nominal input voltage burden	0.2VA approx. per line 3VA Line 2-3 on self-powered 3 wire 520 3VA Line 3 to Neutral self-powered 4 wire 520 6VA Line 2-3 on self-powered 3 wire 530 and 540 6VA Line 3 to Neutral self powered 4 wire 530 and 540
Nominal input current	1 or 5A a.c. rms

Max continuous input current	120% of nominal
Nominal input current burden	0.6VA approx. per phase
Max short duration current input	20 x nominal (1s application repeated 5 times at 5 min. intervals)
	10 x nominal (3s application repeated 5 times at 5 min. intervals)
	5 x nominal (5s application repeated 5 times at 5 min. intervals)
System CT primary values	Values within the range 1A to 8000A inclusive (1 or 5 Amp secondaries)

Trip Point Settings (530 and 540 Products Only)

Setting Range	0 to 99.99 A (CT Primary 1 to 80 A)
	0 to 999.9 A (CT primary 81 to 800 A)
	0 to 9999 A (CT primary 801 to 8000 A)
Setting Resolution	0.01 A (CT Primary 1 to 80 A)
	0.1 A (CT Primary 81 to 800 A)
	1 A (CT Primary 801 to 8000 A)
Hysteresis	None
Response Time	As display update

Relay Outputs (530 and 540 Products Only)

Configuration	Single pole changeover
Rated Current	8A

Rated Voltage	250 V a.c.
Max breaking Voltage	440 V a.c.
Rated breaking capacity	2000 VA
Contact life (8A, 28 V d.c. 70 deg C)	>30000 operations

Auxiliary (where fitted)

Standard nominal a.c. supply voltages	100 to 120V 190 to 240V 380 to 480V
a.c. supply voltage tolerance	-10% of lower nominal voltage to +20% of upper nominal voltage
a.c. supply frequency range	45 to 66 Hz
a.c. supply burden Auxiliary	3VA (244-523 and 244-524)
(where fitted)	6VA (244-533, 244-534, 244-543 and 244-544)

Measuring (Reference) Ranges

Values of measured quantities for which headline accuracy figures apply

Current	2.5 .. 120% of nominal
Current Demand	2.5 .. 120% of nominal
Voltage (Self Powered Product)	75 to 125%, of:
	115V (100 to 120V product)
	230V (190 to 240V product)
	460V (380 to 480V product)
Voltage (Auxiliary Powered Product)	2.5 .. 120% of nominal
Line to Line Voltage (4 wire)	0 to 10% difference in phase voltage

Accuracy

Voltage	1.5% of nominal
Current	1.5% of nominal
Current Demand	3% of nominal
Temperature coefficient	0.013%/°C typical
Circuitry Response time to step input	<10 seconds

Error change due to variation of an influence quantity in the manner described in section 6 of IEC688:1992	2x Class Index.

Reference conditions of influence quantities

Values that quantities affecting measurement errors to a minor degree have to be for the headline accuracy for measured quantities to apply.

Ambient temperature	23°C
Input frequency	45 to 66 Hz
Input waveform	Sinusoidal (distortion factor 0.005)
Auxiliary supply voltage	75 to 125%, of:
(where fitted)	115V (100 to 120V product)
	230V (190 to 240V product)
	460V (380 to 480V product)
Auxiliary supply frequency	45 to 66 Hz
Auxiliary supply distortion factor	0.05
Magnetic field of external origin	Terrestrial flux

Nominal range of use of influence quantities for measurands

Values of quantities affecting measurement errors to a minor degree for which the magnitude of the measurement error is defined in this specification.

Input Frequency	45 to 66 Hz
Temperature	-10 .. +70°C
Input waveform distortion	1% 3rd Harmonic distortion
Auxiliary supply voltage	75 to 125%, of: 115V (100 to 120V product) 230V (190 to 240V product) 460V (380 to 480V product)
Auxiliary supply frequency	45 to 66 Hz)
Magnetic field of external origin	400 A/m

Functional ranges of measurands, and of influence quantities for measurands

Values of measured quantities, components of measured quantities, and quantities which affect measurement errors to a minor degree, for which the product gives meaningful readings.

Voltage	0 .. 120% of nominal
Current	0 .. 120% of nominal
Frequency	45 .. 66 Hz
Temperature	-10 .. +70°C

Display

Screen Characters	4 digits 10.5mm high plus figures and enunciators
Update (Amps and Volts)	7.5 seconds approx.
Update (Amp demand and Max Amp demand)	1/8th of demand period

Controls

User Interface	Two buttons

Standards

Terms, Definitions and Test Methods	IEC688:1992 (BSEN 60688)
EMC Emissions	BSEN 50081-1 (1994) Emissions (Class B equipment)
EMC Immunity	BSEN 50082-2 (1995) Industrial Immunity (Enclosure 10V/m, Conducted 3V/m, ESD 8kV, High frequency disturbance 2kV)
Safety	Designed to meet UL3111-1
	IEC1010-1 (BSEN 61010-1)
	Installation (Overvoltage) Insulation category III, pollution degree 2, Basic Insulation, Max. working voltage to ground 850Vpk.

EU Directives

Low Voltage Directive	73/23/EEC amended by 93/68/EEC
EMC Directive	89/336/EEC amended by 93/68/EEC

Isolation

Dielectric voltage withstand test between circuits and accessible surfaces	For Line Voltage 300 to 600V RMS 3.25kV RMS 50Hz for 1 minute
	For Line Voltage 150 to 300V RMS, 2.2kV RMS 50Hz for 1 minute
Max. working voltage between circuits	600V RMS
AC power surge voltage	IEC 61000-4-5, 1.2/50 microseconds 4kV
High Frequency Disturbance Test	IEC61000-4-4 2kV peak on all measuring inputs.

Environmental

Operating temperature	-10 .. +70°C
Storage temperature	-20 .. +80°C
Relative humidity	0 .. 95% non condensing
Warm up time	1 minute
Shock	30g in 3 planes
Vibration	10 .. 55 Hz, 0.15mm amplitude
Enclosure code (front)	IP54 (standard) - IP65 (optional)

Approvals

Consult Factory

Quality System

ISO 9001
AQAP 41

Enclosure

Style	96mm x 96mm DIN
Material	UL94V-0/V-2
Terminals	M3.5 captive screw clamp
Length	104mm std. case
Weight	0.7 kg

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