Tyco Electronics

## **Crompton Instruments Dintegra** 1260

# **Operation**, Set up and specification

Tyco Electronics UK Ltd., Freebournes Road Witham, Essex, CM8 3AH, UK Tel: +44 (0) 870 870 7500 Fax: +44 (0) 870 240 5287 E-Mail ectric

Important safety information is contained in this Installation guide and separate Set up and Operation Guide. Users must familiarise themselves with this information before attempting installation or other procedures.

#### 1 Features and Options

The multifunction Dintegra 1260 provides monitoring of threephase voltage, current, frequency, Watts, VAr, VA, energy kWh, power factor, min/max values and total harmonic distortion measurement of both current and voltage. Status of all parameters can be viewed though the screens on the 5-position, 3-digit LED display.

Register values are saved in non volatile memory and preserved values are maintained during loss of auxiliary power



Dintegra has 2 digital inputs. Digital inputs are used to monitor the status of electrical contacts via Modbus<sup>™</sup> (e.g. circuit breakers auxiliary contacts or similar). They can also be used to control which of the two energy registers internal to the Dintegra will accumulate kWh, according to the state of the inputs. Consequently the Dintegra can offer dual rate capability, if an external rate switching signal is available.

### 1.2 Energy Pulsed Outputs

Dintegra has 2 Pulsed Outputs: "Pul1" and "Pul2". The function and pulse rate of these outputs may be set at installation.

### 1.3 Min – Max and Demand Values

Maximum Demand (maximum integrated load over a user specified period) is available for A, W, VAr, VA, ΣW, ΣVA and ΣVAr. If a new value of demand calculated is greater than that stored, the new, higher value replaces the existing. Demand integration time may be set between 1 and 60 minutes.

Maximum and Minimum values are recorded for V L-N; V L-L; A; W: VAr: VA:  $\Sigma$ W.:  $\Sigma$ var and  $\Sigma$ VA. In each case, if the measured instantaneous value is less than previous recorded min value, then a new minimum value is stored. If the measured instantaneous value is more than previous recorded max value. then a new maximum value is recorded.

1.4 Monitoring THD Values

All voltage and current measurements are true RMS incorporating up to 19<sup>th</sup> of odd harmonics for accurate measurement of non

sinusoidal waveforms. Both voltage and current THD is monitored via the front display.

#### Calculation Methods for Active / Reactive Power 1.5 Values

Export (negative) energy displays are indicated when the left decimal point LED flashes within the  $\Sigma W$  display. There are two methods for calculating total active and total reactive powers:

1) Active / Reactive power can be calculated by summing import and export values and displaying as a single value. 2) Active / Reactive power can be calculated according to direction as import / export.

### 2 Display operation

When showing cumulative energy values (kWh, kVArh etc), the top left block of digits indicate the register being viewed. All 12 remaining digits of the display may be read as one 12 digit number, indicating the amount of energy since last reset.

When showing instantaneous parameters (V, A W etc), the top line shows per phase parameters, while bottom left shows W, VA or Hz and bottom right shows VAr or Power Factor (Coso).

### Display operation during set up mode is described in section 3. 2.1 Function Keys

Function keys have 3 modes of operation, depending whether the display is showing energy values, per phase values, or in setup mode. Move between Per Phase Mode and Energy Mode using the ( ) or ( ) buttons. Enter set up mode using (» "Set") button.

While displaying measured values

Key(s)	Per phase Mode	Energy Mode
( <b>↑</b> ) or	Select V <sub>LN</sub> , V <sub>LL</sub> , A, W,	Select kWh or kVArh or
(↓)	VAr, VA, PF or THD or	Per Phase Mode
	Energy Mode	
(») Set	Select min, max, demand and instant values, as available. Hold to enter set up mode.	No effect, unless held down, when it is used to enter set up mode
(«) Back	Select W, VA or Hz	No effect
() Esc	Select VAr or Cos <b></b>	No effect
	· · · · · · · · · · · · · · · · · · ·	

While in s	While in set up mode		
Key(s)	Action		
(↑) or (↓)	Increase or decrease digit value or view a multiple choice option		
(») Set	Allows entry to Set Up mode and selection of options and choices		
(«) Back	Return to previous screen		
() Esc	Used to exit Set Up mode and initiate Save routine		

#### 22 **Display Sequence**

↓	Switches to Energy Mode (see below)				
	V <sub>1 L-L</sub> Volts I <sub>1</sub> Current W <sub>1</sub> Watts var <sub>1</sub> Reactive Power PF <sub>1</sub> Power Factor	V <sub>2 L-L</sub> Volts I <sub>2</sub> Current W <sub>2</sub> Watts var <sub>2</sub> Reactive Power PF <sub>2</sub> Power Factor	V <sub>3-L-L</sub> Volts I <sub>3</sub> Current W <sub>3</sub> Watts var <sub>3</sub> Reactive Power PF <sub>3</sub> Power Factor	Or EVA System Total Apparent Power Or HZ Frequency As selected by((())	2.VAR System Total Reactive Power Or Cos φ As selected by () button
↑ & ↓	THD $V_{1 L-N}$ Volts THD $I_1$ Current	THD $V_{2 L-N}$ Volts THD $I_2$ Current	THD $V_{3 L-N}$ Volts THD $I_3$ Current	ΣW System Total	
Butto n	Top Left Line	Top Middle Line	Top Right Line	Bottom Left Line	Bottom Middle Line

↑ & ↓	KWh 1 1-1 Import 1-E Export Kvarh 1 1-L Inductive 1-C Capacitive KWh 2 1-1 Import 1-E Export Kvarh 2 1-L Inductive 1-C Capacitive Capacitive	MSB 000 000 000 000 MSB 000 000 000 000	000 000 000 000 000 000 000	000 000 000 000 000 000 000	LSB 00.0 00.0 00.0 00.0 00.0 00.0 00.0 00
T	Switches to	Per Phase	Mode (see fir	st part of tab	le)

#### Viewing Max/Min and Max Demand 2.3

The » button is used to select maximum, minimum or maximum demand (MD) displays. When max, min or MD values are displayed, the H, L or M annunciators respectively show the stored value.

Min and Max values are recorded for VLN, VLL, A, W, VAr, VA, ΣW, ΣVAr, ΣVA. Demand values are recorded for A, W, VAr, VA, ΣW, ΣVA, ΣVAr. H,L and M annunciators for any other parameters have no meaning.





Set up mode is entered by holding down the SET button for 3 seconds. Dintegra will automatically leave programming mode if no buttons are pressed for 20 seconds or by pressing the **ESC** key. Optionally, a set up password (PIN) can be set by the user to prevent unauthorised access to set up screens. If set, the correct password/PIN must be selected before access to set up mode is permitted.

After entering the set up mode, the set up initial screen is shown. Pressing SET a second time selects basic set up screens. Pressing the up or down arrows immediately after entry to set up mode selects advanced set up screens

> Basic set up 3.1

### One of three screens may be selected with the $\downarrow$ keys

CT ratio	ErR: Fo EEr:	
VT ratio	ErRIFO UER	
Reactive Energy calculation method	ErRifo i[RLi	

3.2 Advanced Set Up

One of six set up screens may be selected with  $\downarrow\uparrow$  keys:

Demand Integration Time	65:F1	
Pulsed Outputs	PULISE :	
Energy Register (counter) set up		
Reset stored values	-ES!EE :	
Communications Parameters	<u>rs-:485;</u>	
Set Up password		

While Tyco Electronics and its affiliates referenced herein have made every reasonable effort to ensure the accuracy of the information contained in this catalogue, Tyco Electronics does not make any representation or offer any guarantee that such information is accurate, correct, reliable or current. Tyco Electronics reserves the right to make any adjustments to the information at any time. Tyco Electronics expressly disclaims any implied warranties of merchantability or fitness for a particular purpose. Tyco Electronics' only obligations are those stated in Tyco Electronics' standard Terms and Conditions of Sale. Tyco Electronics will in no case be liable for any incidental, indirect or consequential damages arising from or in connection with, including, but not limited to, the sale, resale, use or misuse of its products. Users should rely on their own judgement to evaluate the suitability of a product for a certain purpose and test each product for its intended application. TE (logo) and Tyco Electronics are trademarks of the Tyco Electronics group of companies and its licensors. Crompton Instruments is a trademark of Crompton Parkinson and is used by Tyco Electronics under a licensor

#### Set Up Menu 3.3

The diagram below shows the menu structure to access all user settable parameters



#### 3.4 Number Entry

The same basic number entry procedure is used in most set up screens. When the selected parameter is shown e.g.:

## ErA: Fo EEr:

Press SET button. The first digit blinks. By using UP-DOWN buttons, select the value required for the first digit.

Press SET button. The second digit blinks. By using UP-DOWN buttons, select the value required for the second digit. Press SET button. The third digit blinks. By using UP-DOWN

button select the value required for the third digit

Press SET button. The last digit blinks. By using UP-DOWN buttons, select the value required for the last digit

Press SET button. The parameter name is displayed e.g.:

## ErR: Fo :[Er:

When required changes have been made, they must be saved before leaving set up mode in order to become active. To save. press the ESC button.

# ErA:Fo

is shown. Press the Esc button again. When "SAVE Set yES" is displayed, press SET to save the changes or ESC to abandon the changes.

If required, other values may be modified sequentially, for example by selecting the VT ratio next. Saving as above can be

> Version: Issue 7:Oct 2009 Reference : DIN-1260-INSTAL\_OP

executed when all changes have been made, and then all the revised values will be saved in one step

### 3.5 Multiple choice selection

Procedure is similar to that used for number entry, except that the  $\downarrow\uparrow$  arrow keys are used to step through the available options. The SET(>>) key selects the currently shown option. As above, the changes must be saved before leaving the set up mode if they are to become active.

### 3.6 Current Transformer Ratio

ErR: Fo EEr:

The current transformer ratio can be set between 1 and 2000. Enter the actual primary to secondary ratio. For example, if a current transformer

which has a ratio of 200/5A is connected set the current transformer ratio to 40 (40=200/5).

## Factory default for CT ratio is 1.

### 3.7 Voltage Transformer Ratio Setup

ErR: Fo: UEr: If the system does not include voltage transformers, as is the case with many low voltage installations, then enter a VT ratio of 1. The VT ratio may be set between 0.1 and 4000.0. For example if a voltage transformer which has a ratio of 33KV/100V is used between the system and Dintegra; Voltage transformer ratio is entered as 330. (330 = 33000/100)

Factory default for VT ratio is 1.0 (unity)

### 3.8 Reactive Energy Calculation Method

## ErR: Fo :CRL:

Different methods can be specified for reactive energy calculation in Dintegra. Factory default method 1 is recommended for most applications. If the Dintegra kVAr reading does not give good agreement with other instruments, then a different setting may be appropriate for special circumstances. Request technical support if kWh is accurate but kVAr is not.

CAL	Method
0	Quadrature multiplication of V and I samples per
	phase, summing +(Inductive) and –(capacitive) to give
	a single net figure
1	Quadrature multiplication of V and I samples,
	summing +(Inductive) and –(capacitive) to give a total
	inductive and total capacitive figure
2	Summation of voltage and current harmonics allowing
	for phase angle of each harmonic summing
	+(Inductive) and –(capacitive) to give a single net
	figure.
3	Summation of voltage and current harmonics allowing
	for phase angle of each harmonic summing
	+(Inductive) and –(capacitive) to give a total inductive
	and total capacitive figure
4	Reactive power computed from active and apparent
	power, summing +(Inductive) and –(capacitive) to give
	a single net figure.
5	Reactive power computed from active and apparent
	power summing +(Inductive) and –(capacitive) to give
	a total inductive and total capacitive figure

#### 3.9 Demand Time Setup

The demand integration time can be 18 E E 1 set between 1 and 60 minutes using this screen. The factory default value is 15 minutes

> Reset of minimum, maximum and energy values: 3.10

-ES! EE

Stored values including max/min, energy counting registers and max demand can be

reset.

Choose the appropriate option required as described above in section 3.5 (Multiple choice selection). The abbreviation meanings are shown in the table below.

	5	8-1
Abbreviation	Reset Action	5-3
HL	Reset max/min values (High, Low)	
E-1	Reset Energy counter registers 1	
E-2	Reset Energy counter registers 2	
dE	Reset maximum demand	

PUL:5E As with numeric values, the input must be saved, or there will be no change to registers.

### 3.11 Pulse Menu (PULSE)

This option allows three parameters to be set: The pulse rate (for both outputs), source for pulse output 1 and source for pulse output 2, respectively "rAt", "o-1" and "o-2"

Pulse ratio (rAt) can be chosen from I pulse per 1, 10 or 100 Wh/VArh/VA; 1, 10 or 100 kWh/ kVArh/ KVA or 1 MWh/MVArh/ MVA. Factory Default is 1.

Output 1 source (o-1) and Output 2 (o-2) source can be chosen from :

Display	Source
ACt	Counter register set 1 Active power Export or Import
A-I	Counter register set 1 Active power Import only
A-E	Counter register set 1 Active power Export only
rEA	Counter register set 1 Reactive power Inductive or
	Capacitive
r-L	Counter register set 1 Reactive power Inductive only
r-C	Counter register set 1 Reactive power Capacitive only
5	

Defaults are: Output 1: A-I, Output 2: r-L

### Note that the outputs only pulse when Counter register set 1 is active. When Counter register set 1 is not active, the pulse relays will not operate.

3.12 Energy Counter Register (Eng Cnt) Menu

DIN-TEGRA has 2 energy register sets: Energy En9:[nt counter register set 1 (E1) and Energy counter register set 2 (E2). Select either E1 or E2 using the arrows, then press to enable selection of the option required. As default, both register sets are active.

"E-1" N	ias 4 options:	
On	E1 active always	
ı-1	Activate E1, active when digital input 1 is on (energised)	
ı-2	Activate E1, when digital input 2 is on (energised)	
E-2	E1 inactive when E2 is active.	
"E-2" a	"E-2" also has 4 options:	
On	E2 active always	
ı-1	Activate E2, active when digital input 1 is on (energised)	
ı-2	Activate E2, when digital input 2 is on (energised)	
E-1	E-2 inactive when E1 is active.	
IF E 1 i	If E 1 is set to "E 2" and E2 is set to "E 1" operavis cumulated to	

'E-2" and E2 is set to "E-1" energy is cumulated to both registers (as if both were set to "On".

> 3.13 User password Setup (PIN)

This set up screen allows the user to define and Pint activate the password. A four digit user password can be used for preventing device settings from being changed

due to unauthorised access.

There are 2 sub menus available to change the password (CHg), and to activate or deactivate it(ACt).

3.14 Changing the PIN

This is used to change the user PIN.

Before changing the Pin, the old Pin must be entered, to ensure the pin change is authorised. The Factory default value for user password is "1234", inactive. After entering the old pin, the new Pin may be entered.

### 3.15 Activating the PIN

Activation is a separate process from setting the PIN During activation, the PIN must be entered before the user is allowed to change the setting.

As before, the changes must be saved before leaving the set up mode if they are to become active.

3.16 Serial Communication (rS-485)



HL

98

Dintegra provides Modbus<sup>™</sup> RTU communication via an optically isolated RS485 port. All measured parameters can be read via the

Modbus<sup>™</sup> port.

Modbus<sup>™</sup> Parameter Settings 3.16.1

Parameters which may be set for the RS485 port are shown in the table below.

Abbreviation	Setting
Adr	Modbus <sup>™</sup> Address : Range 1-247
PAr	Parity: odd, Even or no(none)
BAU	Baud Rate: 2400,4800,9600,19200,38400
Factory default Communications settings are:	

Address (Adr): 1, Baud Rate (Bau): 9600, Parity (PAr): no

### Specification

#### 4.1 Inputs

Nominal voltage range:	10 to 300V L-N, 10 to 500V L-L
Max voltage burden:	< 0.5 VA per phase
Nominal current range:	0.05 - 5.5 A
Max current burden:	< 1 VA per phase
System CT primary	1 2000 (i.e. 10,000A max)
System VT ratios	0.1 4000, 400kV max

#### 4.2 Auxiliary

Auxiliary supply voltage	190 - 260V AC 50/60Hz
range	
Auxiliary supply burden	< 4VA
43 83	Measuring Ranges

Voltage:	10 -110% of nominal
Current:	10 -110% of nominal
Frequency:	45-65 Hz
Power factor:	functional 4 quadrant, 0-1 lag/lead
THD:	Up to 19th (odd harmonics only)
Energy:	11 digit resolution
Demand Time	1-60 min (programmable)

#### 4.4 Accuracy

Voltage	1 % of nominal upper ± 1 digit
Current	1 % of nominal upper ± 1 digit
Frequency	1 % of mid range ± 1 digit
Power factor	1% of Unity (0.01)
Active power (W)	1 % of nominal upper ± 1 digit
Reactive power (VAr)	2 % of nominal upper ± 1 digit
Apparent power (VA)	1 % of nominal upper ± 1 digit
Active energy (Wh)	1 % of nominal upper ± 1 digit
Reactive energy (VArh)	2 % of nominal upper ± 1 digit
Total Harmonic Distortion	2 %, up to 19th harmonic (odd only)

While Tyco Electronics and its affiliates referenced herein have made every reasonable effort to ensure the accuracy of the information contained in this catalogue, Tyco Electronics does not make any representation or offer any guarantee that such information is accurate, correct, reliable or current. Tycc Electronics reserves the right to make any adjustments to the information at any time. Tyco Electronics expressly disclaims any implied warranties of merchantability or fitness for a particular purpose. Tyco Electronics only obligations are those stated in Tyco Electronics stated in Tyco Electronics at any including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose. Tyco Electronics only obligations are those stated in Tyco Electronics at any including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose. Tyco Electronics will in no case be liable for any incidental, indirect or consequential damages arising from or in connection with, including, but not limited to, the sale, resale, use or misuse of its products. Users should rely on their own judgement to evaluate the suitability of a product for a certain purpose and test each product for its intended application. TE (logo) and Tyco Electronics are trademarks of the Tyco Electronics group of companies and its licensors. Crompton Instruments is a trademark of Crompton Parkinson and is used by Tyco Electronics under a licensor

#### 4.5 Outputs

RS485 communications:	Modbus <sup>™</sup> RTU					
Baud rates:	2400, 4800, 9600, 19200, 38400					
Pulsed outputs:	2 max					
Pulse duration:	80 msec					
Contact rating	50mA max at 30V DC max					
Contact form:	Opto Isolated, Open Collector (NPN					
Contact Ionn.	Transistor)					

4.6 Digital Inpu	uts
Input Pulse Width	50 milliseconds min
Operation Voltage	12-48V DC
4.7 Enclosure a	and Environmental
Enclosure style:	DIN 43880, 106mm rail length
Material:	UL94-V0 Flame retardant
Terminals:	Shrouded screw-clamp 0.05mm to 4mm wire
Dielectric voltage:	Withstand test 3.25kV rms 50Hz for 1 minute between all electrical circuits
Operating temperature:	-5 to +50°C
Storage temperature:	-20 to +70°C
Relative humidity:	95%
Weight	0.45 kg
Shock:	static shock: 30 Newton
	dynamic shock : 5 Joule
Vibration:	5-50Hz (10 min.)
IP protection:	IP40 Front Panel
Dimensions:	106mm wide x 90mm high x 58mm deep 4.17" wide x 3.54" high x 2.28" deep
Standards Compliance	IEC61010 Cat III, 300V IEC61326 Emissions and Immunity See Section 5.2

# Dintegra 1260

# Installation and Modbus<sup>™</sup> guide

Vitham, Essex, CM8 3AH, England Tel: +44 (0) 870 870 7500 Fax: +44 (0) 870 240 5287 E-Mail: Crompton.info@tycoelectronics.com

Important safety information is contained in this Installation guide and separate Set up and Operation Guide. Users must familiarise themselves with this information before attempting installation or other procedures.

### Warning

During normal operation, voltages hazardous to life may be present at some of the terminals of this unit.

Installation and servicing should be performed only by qualified, properly trained personnel abiding by local regulations. Ensure all supplies are de-energised before attempting connection or other procedures.

Terminals should not be user accessible after installation and external installation provisions must be sufficient to prevent hazards under fault conditions.

This unit is not intended to function as part of a system providing the sole means of fault protection - good engineering practice dictates that any critical function be protected by at least two independent and diverse means. Never open circuit the secondary winding of an energised current transformer.

Auxiliary circuit (communications, Pulsed Output and Digital Inputs) are separated from metering inputs and the 190-260V AC auxiliary circuit by at least basic insulation. Such auxiliary circuit terminals are only suitable for connection to equipment which has no user accessible live parts. The insulation for such auxiliary circuits must be rated for the highest voltage connected to the instrument and suitable for single fault condition. The connection at the remote end of such auxiliary circuits should not be accessible in normal use. Depending on application, equipment connected to auxiliary circuits may vary widely. The choice of connected equipment or combination of equipment should not diminish the level of user protection specified.

### 5 Installation and Maintenance

### 5.1 Location and mounting

Units should be installed in a dry position, where the ambient temperature is reasonably stable and will not be outside the range -5 to +50°C. Vibration should be kept to a minimum. Preferably, mount the Dintegra so that the display contrast is not reduced by direct sunlight or other high intensity lighting. The Dintegra may be mounted on a standard DIN Rail. The terminals of the product must be protected from liquids or other contamination.

These units are intended for indoor use only at an altitude of less than 2000m.

### 5.2 Electromagnetic Compatibility

This unit has been designed to provide protection against EM (electro-magnetic) interference in line with requirements of EU and other regulations. Precautions necessary to provide proper operation of this and adjacent equipment will be installation dependent and so the following can only be general guidance:-

- Avoid routing wiring to this unit alongside cables and products that are, or could be, a source of interference.
- The auxiliary supply to the unit should not be subject to excessive interference. In some cases, a supply line filter may be required.
- To protect the product against incorrect operation or permanent damage, surge transients must be controlled. It is good EMC practice to suppress differential surges to 2kV or less at the source. The unit has been designed to automatically recover from typical transients, however in extreme circumstances it may be necessary to temporarily disconnect the auxiliary supply for a period of greater than 10 seconds to restore correct operation.
- Screened communication and small signal leads are recommended and may be required. These and other connecting leads may require the fitting of RF suppression components, such as ferrite absorbers, line filters etc., if RF fields cause problems.
- It is good practice to install sensitive electronic instruments that are performing critical functions in EMC enclosures that protect against electrical interference causing a disturbance in function.
- Incident EM radiation may cause accuracy to deviate from the specified accuracy while the EM radiation is present.

### 6 Input wiring and fusing

Input connections are made to screw clamp terminals. Choice of cable should meet local regulations for the operating voltage and current. Terminals for both current and voltage inputs will accept one stranded 0.05 - 2.5mm<sup>2</sup> cable or one solid 0.05 - 4mm<sup>2</sup> in 5.3.2 it says 2.5 mm cable. This unit must be fitted with external fuses in voltage and auxiliary supply lines. Voltage input lines must be fused with a quick blow AC fuse 1A maximum. Auxiliary supply lines must be fused so fa type and with a breaking capacity appropriate to the supply and in accordance with local regulations.

Where fitted, CT secondary's must be grounded in accordance with local regulations. It is desirable to make provision for shorting links to be made across CTs. This permits easy replacement of a unit should this ever be necessary. A switch or circuit breaker allowing isolation of supplies to the unit must be provided.

Terminal screws should be tightened to 0.5Nm or 4.5 lbf-in only.

### 6.1 Wire type

Voltage and current measuring terminal blocks are suitable for use with copper wire only.

### 6.2 Wire size

Voltage and current measuring terminal blocks will accept one stranded  $0.05 - 2.5 \text{mm}^2$  or less cross sectional area cables [30 - 11 AWG]. Main terminal screws should be tightened to 0.5Nm or 4.5 lbf-in only.

6.3 Mounting position

Instruments are intended for Din rail mounting. Terminals must be enclosed within the panel. Ensure wiring to terminals complies with regulations in the installation location.

### 6. Auxiliary and Output Connections 6.4 6.1 Auxiliary Supply

The auxiliary supply is marked on the side label. The Dintegra should ideally be powered from a dedicated supply, but may be powered from the metered supply provided this remains within specified limits.

### 6.5 6.2 Output Connections

Output connections are made directly to a screw clamp style connector. Terminals will accept one stranded  $0.05 - 2.5 \text{mm}^2$  cable or one  $0.05 - 4 \text{mm}^2$  cable.

6.6 6.3 Modbus<sup>™</sup> RTU RS485

The recommended cable between the RS485 master is two core screened cable. Preferably select a cable specifically recommended for RS485 use (for example Belden 9860, 8761) although for shorter distances of a few metres most two core screened cables will usually be satisfactory. Connect units to the RS485 line as shown. Stubs or star connections may give rise to reflections and poor communication. Ensure the line is terminated at each end of the wire as shown.



### 6.7 6.4 Pulsed Output

Pulse outputs are internally connected to NPN transistors of electrical rating 5 to 24V DC, 50mA, maximum.

### 8. Dimensions

### All dimensions shown in mm



While Tyco Electronics and its affiliates referenced herein have made every reasonable effort to ensure the accuracy of the information contained in this catalogue, Tyco Electronics cannot assure that this information is error free. For this reason, Tyco Electronics does not make any representation or offer any guarantee that such information is accurate, correct, reliable or current. Tyco Electronics reserves the right to make any adjustments to the information at any time. Tyco Electronics expressly disclaims any implied warranty regarding the information contained herein, including, but not limited to, the implied warranty regarding the information so far any time. Tyco Electronics 'only obligations are those stated in Tyco Electronics' in consequential damages arising from or in connectionability or fitness for a particular purpose. Tyco Electronics will in no case be liable for any incidental, indirect or consequential damages arising from or in connection with, including, but not limited to, the sinplication. TE (logo) and Tyco Electronics are trademarks of the Tyco Electronics and its licensors. Crompton Instruments is a trademark of Crompton Parkinson and is used by Tyco Electronics under a licence

# 7. Metered Supply Connection Diagrams



3-PHASE 3 WIRE, 3 CT CONFIGURATION



3 Phase without neutral

### 3-PHASE 4 WIRE



TE logo and Tyco Electronics are trademarks. CROMPTON is a trademark of Crompton Parkinson Ltd. and is used by Tyco Electronics under license. Other trademarks are property of their respective owners.

#### Modbus<sup>™</sup> RTU Protocol 7

General information on the Modbus<sup>™</sup> protocol is shown in the Integra 1630 Communications Guide, available from the website www.crompton-instruments.com

Information specific to the Dintegra 1260 is shown in this document.

The Dintegra Address may be set in the range 1-247

Available Modbu	s <sup>™</sup> Functions
03H	Read Input Registers
06H	Write single register
10H	Write multiple registers

#### Number representation 7.1

All data from the Dintegra is returned as 16 bit Modbus<sup>™</sup> words, except energy registers which are returned as long integers.

(Caution - other models in the Integra range return values in IEEE floating point format held in 2 consecutive Modbus™ registers)

Values returned via the Modbus<sup>™</sup> are the actual values present at the Dintegra input, without regard for the VT and CT ratio that has been set. Scaling is as in the table below. Taking Amps for example, values returned will be in the range of 0 to 6 amps, with 1 binary digit representing 0.001A. If the CT ratio has been set to 20:5 and the metered I1 current is 50A, the Dintegra will return 2500 in register 6. To convert to physical current, divide by 1000 and multiply by the CT ratio in register 32770. Power values must be multiplied by VT and CT ratio (e.g. CT=20, VT=10, multiply power readings by 200 to get kW/kVAr/KVA. Power Factor ( $\cos \varphi$ ) and frequency reading do not need to be scaled.

### 7.2 Digital Inputs

Digital Inputs may be read in Modbus<sup>™</sup> word 82(52H).

4H 1																0
U	J	U	U	U	U	U	U	U	U	U	U	U	U	U	DIN2	DIN1
High Byte U: Undefined											Low	Ву	e	input	2 input	

If 12-48V DC is applied to IN1 (Input 1), the 15<sup>th</sup> bit reads 1. If the corresponding input is not energised, then this bit reads as zero. Similarly, if 12-48V DC is applied to IN2 (Input 2), the 14<sup>th</sup> bit of DIN (DIN2) register reads 1

### 7.3 Modbus<sup>™</sup> Holding Registers

ADDR.	ADDR	R/W	RANGE	1 bit	Type	Description
	(HEX)			=		-
32768	8000	R/W	4000.0	0.1	short int	Voltage Transformer Ratio
32769	8001	R/W	2000	1	short int	Current Transformer Ratio
32770	8002	R/W	0-1		short int	Calculation Method
32771	8003	R/W	1-60	1	short int	Demand Integration Time
				min.		
32772	8004	R/W	0-6		short int	Pulse Ratio
32773	8005	R/W	0-5		short int	Pulse Output 1 Parameter Setting
32774	8006	R/W	0-5		short int	Pulse Output 2 Parameter Setting
32775	8007	R/W	0-3		short int	Energy Counter 1 Selection
32776	8008	R/W	0-3		short int	Energy Counter 2 Selection
32777	8009	R/W	0 - 247		short int	Communication Address
32778	800A	R/W	1 - 5		short int	Baud Rate
32779	800B	R/W	0 - 2		short int	Parity
32780	800C	R/W	0-1		short int	Password Enable
32781	800D	R/W	0-9999		short int	Password

#### 7.4 Holding register coding system:

PULSE RELAYS

0	Counter register set 1 Active power Export or Import							
1	Counter register set 1 Active power Import only							
2	Counter register set 1 Active power Export only							
3	Counter register set 1 Reactive power Inductive or Capacitive							
4	Counter register set 1 Reactive power Inductive only							
5	Counter register set 1 Reactive power Capacitive only							
ENERG	COUNTER FUNCTION SELECTION							
0	Active always							
1	Activate E1, active when digital input 1 is on (energised)							
2	Activate E1, when digital input 2 is on (energised)							
3	Inactive when other resister set is active.							

BAUD R	ATE
1	38400 bps
2	19200 bps
3	9600 bps
4	4800 bps
5	2400 bps
PARITY	
0	No
1	Odd
2	Even
PASSW	ORD ENABLE
0	Disable
1	Enable
	7.5 Modbus <sup>™</sup> Register Map

R.     (IPSJ)     R     (IPSJ)     Image of the second secon	ADD	ADDR.	R/W	RANGE	1bit =	Ту-	Description	13	2 00	34	R/W	
0.0000     R     (0.3000)RUT     (1) Volts USI     L2-N Voltage       4     (0.0004)     R     (0.3000)RUT     (1) Volts USI     L2-N Voltage       6     0006     R     (0.5000)RCT     0.001     USI     L2-N Voltage       6     0006     R     (0.6000)RCT     0.001     USI     L2-Current       7     00000     R     (0.6000)RCT     0.001     USI     L3-L3 Voltage       14     00000     R     (0.5000)RUT     1.1 Volts     USI     L2-L3 Voltage       16     0010     R     (0.5000)RUT     1.1 Volts     USI     L2-L3 Voltage       140     0002     R     (0.5000)RUT     1.1 Volts     USI     L2-L3 Voltage       141     18000:18000)RCT     xUT     XUT     L1     Active Power     144     0090       22     0016     R     (-     0.1 Wat     SI     L1     Rective Power       140     0020     R     (1.6000)RCT     0.1 VAr     SI     L1     Rective Power <th><u>к</u>.</th> <th>(HEX)</th> <th></th> <th>(0.2000)</th> <th>0 4 1/2/42</th> <th>pe</th> <th colspan="2">L 1-N Voltage</th> <th>4 00</th> <th>36</th> <th>R/W</th> <th>t</th>	<u>к</u> .	(HEX)		(0.2000)	0 4 1/2/42	pe	L 1-N Voltage		4 00	36	R/W	t
2     0002     R     0:3000/DT     1.1 Volts USI     L2-HV Voltage       6     0006     R     (0:6000)RCT     0.001     USI     L1-AV Voltage       8     0008     R     (0:6000)RCT     0.001     USI     L1-Current       10     0000     R     (0:6000)RCT     0.001     USI     L2-Urrent       12     0000-R     (0:6000)RCT     0.001     USI     L1-L2 Voltage       14     0000-R     R     (0:5000)RUT     1.1 Volts     USI     L1-L2 Voltage       14     0000-R     R     (0:5000)RUT     1.1 Volts     USI     L2-L3 Voltage       14     0000-R     R     (-     0.1 Watt     SI     L1 Active Power       146     0090-RW     1460     0090-RW     152     0098-RW       152     0010-R     R     (-     0.1 Watt     SI     L1 Active Power       148     0004-R     R     (-     0.1 Watt     SI     L2 Active Power       120     0001-R     R <t< td=""><td>0</td><td>0000</td><td colspan="2">000 R (0:3000)xUT</td><td>0.1 Volts</td><td>051</td><td>L1-N Voltage</td><td></td><td></td><td></td><td></td><td></td></t<>	0	0000	000 R (0:3000)xUT		0.1 Volts	051	L1-N Voltage					
4     0004     R     0030000000000000000000000000000000000	2	0002	0002 R (0:3000)xUT			051	L2-N Voltage	130	6 00	88	R/W	T
b     0006     R     (0:8000)RC1     0.001     USI     L1	4	0004	ĸ	(0:3000)XUT	0.1 Volts	051	L3-N Voltage					
8     0008     R     (0:6000)xCT     0.001     USI     L2 Current     138     008A     R/W       10     0000A     R     (0:6000)xCT     0.001     USI     L3 Current     140     008C     R/W       12     000C     R     (0:5000)xUT     1 Volts     USI     L2.13 Voltage     140     008C     R/W       16     0010     R     (0:5000)xUT     1 Volts     USI     L2.13 Voltage     144     0090     R/W       20     0016     R     (-     0.1 Watt     SI     L2 Active Power     146     0092     R/W       122     0016     R     (-     0.1 Watt     SI     L3 Active Power     146     0092     R/W       123     0010     R     (-     0.1 Watt     SI     L2 Reactive Power     156     009C     R/W       130     0016     R     (-     0.1 VArt     SI     L3 Reactive Power     156     009C     R/W       140     0022     R	6	0006	к	(0:6000)XC1	0.001	USI	L1 Current					
o     0.003     R     (0.000/RC1     Angs     L2     Current       10     0000     R     (0.6600)xCT     0.001     USI     L3     Current       12     0000     R     (0.5600)xCT     0.1 Volts     USI     L1-L2     Voltage       14     0000     R     (0.5000)xUT     0.1 Volts     USI     L1-L2     Voltage       16     0010     R     (0.5000)xUT     1.Volts     USI     L2-L3     Voltage       20     0014     R     (-     0.1 Watt     SI     L1     Active Power     146     0092     RW       22     0016     R     (-     0.1 Watt     SI     L2     Active Power     146     0094     RW       24     0018     R     (-     0.1 Watt     SI     L1     Reactive Power     156     0098     RW       28     001C     R     (-     0.1 VAr     SI     L2     Reactive Power     156     0098     RW <t< td=""><td>0</td><td>0000</td><td>Б</td><td>(0.6000)vCT</td><td>Amps</td><td>1101</td><td>1.2 Current</td><td>138</td><td>B 008</td><td>3A</td><td>R/W</td><td></td></t<>	0	0000	Б	(0.6000)vCT	Amps	1101	1.2 Current	138	B 008	3A	R/W	
10     000A     R     (0:6000)xCT     0.001     USI     L3     Current       12     000C     R     (0:5000)xUT     0.1 Voits     USI     L1-L2     Voitage       14     000E     R     (0:5000)xUT     0.1 Voits     USI     L1-L2     Voitage       16     0012     R     (0:5000)xUT     0.1 Voits     USI     L2-L3     Voitage       20     0014     R     (-     0.1 Watt     SI     L2     Active Power       122     0016     R     (-     0.1 Watt     SI     L2     Active Power       144     0090     R     (-     0.1 Watt     SI     L1     Active Power       146     0092     R     (-     0.1 Watt     SI     L1     Reactive Power       152     0090     R     (-     0.1 VAr     SI     L3     Reactive Power       152     0020     R     (-     0.1 VAr     SI     L3     Reactive Power       152     0020	0	0008	ĸ	(0.0000)XC1	0.001 Amps	031	L2 Guileni					
10     0.000     R     (C.SUSS)(X)     2.001     C.SUSS     14.0     008C     RW       12     0000C     R     (C.SUSS)(X)     1.1 Volts     USI     L2.1.1 Voltage     14.1.2     0008C     RW       16     0010     R     (C.SUSS)(X)     1.1 Volts     USI     L2.1.1 Voltage     14.2     008C     RW       16     0010     R     (C.SUSS)(X)     1.1 Volts     USI     L2.1.1 Voltage     14.4     0090     RW       20     0016     R     (-     0.1 Watt     SI     L1 Active Power     14.4     0090     RW       22     0016     R     (-     0.1 Watt     SI     L3 Active Power     14.4     0094     RW       120     0010     R     (-     0.1 VAr     SI     L2 Reactive Power     156     0096     RW       130     001E     R     (0.1800)(XCT     XUT     I.1 VA     SI     L2 Reactive Power     158     0096     RW       32     00202	10	0004	P	(0.6000)xCT	0.001	1191	13 Current					Ļ
12     000C     Number     BLANK       14     000E     R     (0:5000)xUT     0.1 Volts     USI     L1-L2 Voltage       16     0010     R     (0:5000)xUT     0.1 Volts     USI     L2-L3 Voltage       20     0014     R     (:     0.1 Watt     SI     L1 Active Power       18000:18000)xCT     NUT     NUT     144     0090     RW       22     0016     R     (:     0.1 Watt     SI     L2 Active Power     146     0092     RW       24     0018     R     (:     0.1 Watt     SI     L3 Active Power     146     0092     RW       26     0014     R     (:     0.1 VAr     SI     L1 Reactive Power     158     0098     RW       30     001E     R     (:     0.1 VAr     SI     L3 Reactive Power     158     0098     RW       31     0022     R     (:18000)xCT WT     0.1 VAr     SI     L3 Apparent Power     158     0098     RW     <	10	0004		(0.0000)XC1	Amps	001	Lo Guilein	140	008	3C	R/W	I.
14     000E     R     (0:5000)xUT     0.1 Volts     USI     L1-2 Voltage       16     0010     R     (0:5000)xUT     0.1 Volts     USI     L2-1.3 Voltage       18     0012     R     (0:5000)xUT     0.1 Volts     USI     L2-1.3 Voltage     144     0090       20     0014     R     (0:5000)xUT     0.1 Volts     USI     L2-1.4 Voltage     144     0090     RW       22     0016     R     (-     0.1 Watt     SI     L1 Active Power     146     0092     RW       24     0018     R     (-     0.1 Watt     SI     L3 Active Power     146     0094     RW       150     0090,CT     xUT     NUT     1.1 VAr     SI     L2 Reactive Power     156     0096     RW       30     001E     R     (-     0.1 VAr     SI     L3 Reactive Power     158     0098     RW       32     0020     R     (0:18000)xCT xUT     0.1 VAr     SI     L3 Apparent Power     158	12	0000			7		BI ANK					
16     0010     R     (0:5000)kUT     0.1 Volts     USI     L2.1.3 Voltage       18     0012     R     (0:5000)kUT     0.1 Volts     USI     L2.1.3 Voltage       20     0014     R     (0:5000)kUT     0.1 Volts     USI     L3.1.1 Voltage       20     0016     R     (0:5000)kUT     0.1 Watt     SI     L2 Active Power       22     0016     R     (-     0.1 Watt     SI     L2 Active Power       146     0092     RW     -     0.1 Watt     SI     L1 Reactive Power       152     0096     RW     -     1.4600:18000)xCT     NUT       28     001C     R     (-     0.1 VAr     SI     L1 Reactive Power       30     001E     R     (-     0.1 VAr     SI     L3 Reactive Power       30     0020     R     (0:18000)xCTxUT     0.1 VA     SI     L3 Apparent Power       30     0021     R     -1000:1000     0.001     SI     L2 Cosp       44     002	14	000F	R	(0.2000)xUT	0 1 Volts	USI	I 1-I 2 Voltage	14	2 00			┢
18     0012     R     (0:5000)xUT     0.1 Watt     SI     L3-L1 Voltage       20     0014     R     (-0.1 Watt     SI     L1 Active Power     144     0090     R/W       22     0016     R     (-0.1 Watt     SI     L1 Active Power     144     0090     R/W       24     0018     R     (-0.1 Watt     SI     L2 Active Power     146     0.092     R/W       24     0018     R     (-     0.1 Watt     SI     L3 Active Power     148     0.094     R/W       26     0014     R     (-     0.1 VAr     SI     L1 Reactive Power     156     0.096     R/W       28     001C     R     (-     0.1 VAr     SI     L2 Reactive Power     156     0.09C     R/W       30     001E     R     (-     0.1 VAr     SI     L3 Reactive Power     158     0.09E     R/W       34     0022     R     (0:18000)xCTxUT     0.1 VAr     USI     L2 Aparent Power     166	16	0010	R	(0:5000)xUT	0 1 Volts	USI	1 2-1 3 Voltage	144	2 000		N/ V V	
D     DOI:10     R     COUNT (COUNCE)     Difference       20     0014     R     (COUNCE)     0.1 Watt     SI     L1 Active Power       22     0016     R     (COUNCE)     0.1 Watt     SI     L1 Active Power       22     0016     R     (COUNCE)     0.1 Watt     SI     L2 Active Power       24     0018     R     (COUNCE)     0.1 Watt     SI     L3 Active Power       26     001A     R     (COUNCE)     0.1 Watt     SI     L3 Active Power       28     001C     R     (COUNCE)     0.1 VAr     SI     L1 Reactive Power       30     001E     R     (COUNCE)     0.1 VAr     SI     L3 Reactive Power       32     0022     R     (0:18000)XCTxUT     0.1 VA     USI     L3 Apparent Power       34     0022     R     (0:16000)XCTxUT     0.1 VAr     USI     L3 Apparent Power       36     0024     R     (0:54000)XCTxUT     0.1 VAr     SI     Total Import Active Power       <	18	0012	R	(0:5000)xUT	0.1 Volts	USI	I 3-I 1 Voltage					
Los Ortic     N     18000:18000)xCT     N     N     N     N     N     N     N       22     0016     R     C     0.1 Watt     SI     L2 Active Power     146     0092     R/N       24     0016     R     C     0.1 Watt     SI     L3 Active Power     146     0094     R/N       26     001A     R     (-     0.1 VAr     SI     L1 Reactive Power     156     0096     R/N       28     001C     R     (-     0.1 VAr     SI     L2 Reactive Power     156     0092     R/N       30     001E     R     (-     0.1 VAr     SI     L3 Reactive Power     156     0092     R/N       32     0020     R     (0:18000)xCT UT     0.1 VA     USI     L1 Apparent Power     160     00AA     R/N       34     0022     R     -1000:1000     0.001     SI     L2     Cosp     162     00AA     R/N       44     0022     R     (	20	0012	R	(0.0000)/01	0.1 Watt	SI	L1 Active Power	144	4 00	90	R/W	t
22     0016     R     C     0.1 Watt     SI     L2 Active Power     146     0092     RW       24     0016     R     (-     0.1 Watt     SI     L2 Active Power     146     0092     RW       24     0016     R     (-     0.1 Watt     SI     L3 Active Power     146     0092     RW       26     001A     R     (-     0.1 VAr     SI     L1 Reactive Power     156     0098     RW       28     001C     R     (-     0.1 VAr     SI     L2 Reactive Power     156     0096     RW       30     001E     R     (-     0.1 VAr     SI     L3 Reactive Power     158     0092     RW       30     001E     R     (-16000)xCTxUT     0.1 VA     USI     L1 Apparent Power     158     0092     RW       34     0022     R     -1000:1000     0.001     SI     L2 Cosp     160     00A8     RW       36     0024     R     (0:54000)xCTxU	20	0011		18000.18000)xCT	o.i maa	0.						
22     0016     R     (- 18000:18000)xCT     0.1 Watt     SI     L2 Active Power     146     0092     RW       24     0018     R     (- 18000:18000)xCT     0.1 Watt     SI     L3 Active Power     146     0094     RW       26     001A     R     (- 18000:18000)xCT     0.1 VAr     SI     L1 Reactive Power     152     0098     RW       28     001C     R     (- 18000:18000)xCT     0.1 VAr     SI     L2 Reactive Power     156     009C     RW       30     001E     R     (- 18000:18000)xCTxUT     0.1 VAr     SI     L3 Reactive Power     156     009C     RW       34     0022     R     (0:18000)xCTxUT     0.1 VAr     USI     L1 Apparent Power     160     00A0     RW       34     0022     R     -1000:1000     0.001     SI     L2 Cosp     162     00A2     RW     168     00A6     RW       34     0022     R     -1000:1000     0.001     SI     L2 Cosp     162				xUT								
18000::18000)xCT     xUT     148     0094     RW       24     0018     R     (-     0.1 Watt     SI     L3 Active Power     148     0094     RW       26     001A     R     (-     0.1 VAr     SI     L1 Reactive Power     156     0098     RW       28     001C     R     (-     0.1 VAr     SI     L2 Reactive Power     156     0092     RW       30     001E     R     (-     0.1 VAr     SI     L3 Reactive Power     156     0092     RW       32     0020     R     (0:18000)xCT     SI     L3 Apparent Power     158     0092     RW       38     0026     R     -1000:1000     0.001     SI     L2 Cosp     160     00A8     RW       44     0022     R     (-1000:000     0.001     SI     L3 Cosp     160     00A8     RW       44     0022     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Apparent Power     170     00AA	22	0016	R	(-	0.1 Watt	SI	L2 Active Power	140	6 00	92	R/W	T
24     0018     R     (- 18000:18000)xCT     0.1 Watt     SI     L3 Active Power     148     0094     RW       26     001A     R     (- 18000:18000)xCT     0.1 VAr     SI     L1 Reactive Power     152     0096     RW       28     001C     R     (- 18000:18000)xCT     0.1 VAr     SI     L2 Reactive Power     156     0096     RW       30     001E     R     (- 18000)xCTxUT     0.1 VAr     SI     L3 Reactive Power     156     0092     RW       32     0020     R     (0:18000)xCTxUT     0.1 VAr     SI     L3 Reactive Power     156     009E     RW       34     0022     R     (0:18000)xCTxUT     0.1 VAr     SI     L3 Apparent Power     160     00Aa     RW       44     0022 R     R     1000:1000     0.001     SI     L1 Cosp     162     00A2     RW       44     0024 R     (0:54000)xCTxUT     0.1 VAr     SI     Total Inductive Reactive Power     176     00A6     RW				18000:18000)xCT								
24     0018     R     (-     0.1 Watt     SI     L3 Active Power     148     0094     R/W       26     001A     R     (-     0.1 VAr     SI     L1 Reactive Power     152     0098     R/W       28     001C     R     (-     0.1 VAr     SI     L1 Reactive Power     156     0096     R/W       30     001E     R     (-     0.1 VAr     SI     L2 Reactive Power     156     009C     R/W       30     001E     R     (-     0.1 VAr     SI     L3 Reactive Power     156     009C     R/W       32     0020     R     (0:18000)xCTxUT     0.1 VA     USI     L1 Apparent Power     166     00A4     R/W       34     0022     R     (10:00:1000     0.001     SI     L2 Cosg     166     00A4     R/W       44     0022     R     (10:00:000     1.01 VAr     SI     Total Capacitive Reactive Power     170     00AA     R/W       52     0034     <				xUT								
18000:18000)xCT     150     0096     R/W       26     001A     R     (*     0.1 VAr     SI     L1 Reactive Power     152     0098     R/W       28     001C     R     (*     0.1 VAr     SI     L1 Reactive Power     156     009C     R/W       30     001E     R     (*     0.1 VAr     SI     L2 Reactive Power     156     009C     R/W       30     001E     R     (*     0.1 VAr     SI     L3 Reactive Power     156     009C     R/W       32     0020     R     (0:18000)xCTxUT     0.1 VA     USI     L1 Apparent Power     158     009E     R/W       34     0022     R     (0:18000)xCTxUT     1.VA     USI     L3 Apparent Power     160     00A0     R/W       35     0024     R     -1000:1000     0.001     SI     L1 Cosp     162     00A2     R/W       44     0022     R     (5:54000)xCTxUT     0.1 VAr     SI     Total Inductive Reactive Power	24	0018	R	(-	0.1 Watt	SI	L3 Active Power	148	8 00	94	R/W	
xUT     xUT     152     0098     Rw       26     001A     R     (-     0.1 VAr     Si     L1 Reactive Power     154     009A     Rw       28     001C     R     (-     0.1 VAr     Si     L2 Reactive Power     156     009C     Rw       30     001E     R     (-     0.1 VAr     Si     L2 Reactive Power     156     009C     Rw       32     0020     R     (0.18000)xCT uT     0.1 VAr     Si     L3 Reactive Power     158     009E     Rw       34     0022     R     (0.18000)xCT uT     0.1 VA     USI     L1 Apparent Power     160     0A0     Rw       36     0026     R     -1000:1000     0.001     Si     L1 Cosp     162     00A2     Rw       40     0022     R     (0.54000)xCTxUT     0.1 Wat     Si     Total Import Active Power     164     0AA     Rw       46     0022     R     (0.54000)xCTxUT     0.1 WAT     Si     Total Export Activ				18000:18000)xCT				150	00 0	96	R/W	
26     001A     R     (-     0.1 VAr     SI     L1 Reactive Power     154     009A     RW       28     001C     R     (-     0.1 VAr     SI     L2 Reactive Power     156     0.09C     RW       30     001E     R     (-     0.1 VAr     SI     L2 Reactive Power     156     0.09C     RW       32     0022     R     (0:18000)xCTxUT     0.1 VA     USI     L1 Apparent Power     158     0.00A     RW       36     0022 R     R     (0:18000)xCTxUT     0.1 VA     USI     L2 Apparent Power     160     0.0A0     RW       40     0022 R     R     -1000:1000     0.001     SI     L1 Cosq     160     0.0A2     RW       44     0022 R     R     -1000:1000     0.001     SI     Total Import Active Power     170     0.0AA RW       45     0032 R     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Export Active Power     170     0.0AA RW       56     0033 R     <				xUT				15	2 00	98	R/W	Γ
Image: state in the image in the i	26	001A	R	(-	0.1 VAr	SI	L1 Reactive Power	154	4 009	9A	R/W	Г
xU1     xU1     xU1     xU1     xU1       28     001C     R     (-     0.1 VAr     Si     L2 Reactive Power     156     009C     R/W       30     001E     R     (-     0.1 VAr     Si     L3 Reactive Power     156     009C     R/W       30     001E     R     (-     0.1 VAr     Si     L3 Reactive Power     158     009E     R/W       32     0022     R     (0:18000)xCTxUT     0.1 VA     USI     L1 Apparent Power     160     00A0     R/W       36     0024     R     -1000:1000     0.001     Si     L2 Cosq     166     00A4 R/W       40     0028     R     -1000:1000     0.001     Si     L2 Cosq     166     00A4 R/W       44     002C     R     (0:54000)xCTxUT     0.1 VAr     Si     Total Apparent Power     172     00AA R/W       52     0034     R     (0:54000)xCTxUT     0.1 VAr     Si     Total Apparent Power     172     00AA R/W     <				18000:18000)xCT								ŀ
28     001C     R     (-     0.1 VAr     SI     L2 Reactive Power     156     0.90C     R/W       30     001E     R     (-     0.1 VAr     SI     L3 Reactive Power     156     0.90C     R/W       30     001E     R     (-     0.1 VAr     SI     L3 Reactive Power     158     0.02C     R/W       32     0022     R     (0:1800)xCTxUT     0.1 VA     USI     L1 Apparent Power     160     0.00A     R/W       34     0022     R     (0:1800)xCTxUT     0.1 VA     USI     L3 Apparent Power     162     0.00A     R/W       38     0026 R     -1000:1000     0.001     SI     L2 Cosp     162     0.00A     R/W       44     0022 R     (0:5400)xCTxUT     0.1 Wart SI     Total Import Active Power     172     0.00A R/W       50     0033 R     (0:5400)xCTxUT     0.1 Wart SI     Total Inport Active Power     174     0.00A R/W       52     0034 R     (0:000xCTxUT     0.1 Wart SI     Total Apparent Po			_	xUI								
Isoue::Boologic 1 xUT     XUT       30     001E     R     (- 18000:18000)xCT     0.1 VAr     SI     L3 Reactive Power       32     0020     R     (0:18000)xCTxUT     0.1 VAr     SI     L3 Reactive Power       34     0022     R     (0:18000)xCTxUT     0.1 VA     USI     L2 Apparent Power       36     0024     R     (0:18000)xCTxUT     0.1 VA     USI     L2 Apparent Power       38     0026     R     -1000:1000     0.001     SI     L2 Cosp       44     0022     R     (0:54000)xCTxUT     0.1 VA     USI     L2 Cosp       44     0022     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Apparent Power       48     0030     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Capacitive Power       50     0032     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Apparent Power       54     0036     R     -1000:1000     0.001     SI     AVERAGE INDUCTIVE Cosp       56     0038	28	001C	R	(-	0.1 VAr	SI	L2 Reactive Power	156	6 009	ЭС	R/W	
30     001E     R     (.)     0.1 VAr     SI     L3 Reactive Power     158     009E     R.W       32     0020     R     (0:18000)xCTxUT     0.1 VA     USI     L3 Apparent Power       36     0022     R     (0:18000)xCTxUT     0.1 VA     USI     L2 Apparent Power       36     0026     R     -1000:1000     0.001     SI     L1 Cosp       40     0022     R     (0:54000)xCTxUT     0.1 VA     USI     L3 Apparent Power       38     0026     R     -1000:1000     0.001     SI     L2 Cosp       42     0022     R     (0:54000)xCTxUT     0.1 Watt     SI     Total Import Active Power       44     0022     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Inductive Reactive Power       50     0032     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Inductive Reactive Power       52     0033     R     -1000:1000     0.001     SI     AVERAGE INDUCTIVE Cosp       56     0038				18000:18000)xCT								ľ
30     001E     R     0.1 VAI     SI     L3 Reactive Power       32     0020     R     (0:18000)xCTxUT     0.1 VAI     SI     L1 Apparent Power       36     0022     R     (0:18000)xCTxUT     0.1 VA     USI     L1 Apparent Power       36     0022     R     (0:18000)xCTxUT     0.1 VA     USI     L2 Apparent Power       38     0026     R     -1000:1000     0.001     SI     L2 Cosp       44     0022     R     (0:54000)xCTxUT     0.1 Watt     SI     L3 Cosp       44     0022     R     (0:54000)xCTxUT     0.1 Watt     SI     Total Import Active Power       46     0022     R     (0:54000)xCTxUT     0.1 VA     SI     Total Apparent Power       52     0034     R     (0:54000)xCTxUT     0.1 VA     SI     Total Apparent Power       54     0036     R     -1000:1000     0.001     SI     AVERAGE INDUCTIVE Cosp       56     0038     R     -000:7000H     0.01 Hz     USI     L1 Voi	20	001	Б	XUI	0 1 1/4 -	01	1.2 Departive Devuer		_			Ļ
16000.1000/RCT     17000.1000/RCT       32     0020     R     (0:18000)xCTxUT     0.1 VA     USI     L1 Apparent Power       36     0024     R     (0:18000)xCTxUT     0.1 VA     USI     L2 Apparent Power       38     0026     R     -1000:1000     0.001     SI     L1 Cosp       40     0022     R     (0:18000)xCTxUT     0.1 VA     USI     L2 Cosp       42     0024     R     -1000:1000     0.001     SI     L3 Cosp       44     002C     R     (0:54000)xCTxUT     0.1 Watt     SI     Total Import Active Power       45     0032     R     (0:54000)xCTxUT     0.1 VA     SI     Total Apparent Power       52     0034     R     (0:54000)xCTxUT     0.1 VA     SI     Total Capacitive Reactive Power       54     0038     R     -1000:1000     0.001     SI     AVERAGE INDUCTIVE Cosp       56     0038     R     -1000:1000     0.001     SI     AVERAGE INDUCTIVE Cosp       56     0033	30	UUTE	ĸ	-) 19000-19000)vCT	0.1 VAI	51	L3 Reactive Power	158	B 009	9E	R/W	
32     0020     R     (0:18000)xCTxUT     0.1 VA     USI     L1 Apparent Power       36     0022     R     (0:18000)xCTxUT     0.1 VA     USI     L2 Apparent Power       36     0024     R     (0:18000)xCTxUT     0.1 VA     USI     L3 Apparent Power       38     0022     R     (0:18000)xCTxUT     0.1 VA     USI     L3 Apparent Power       38     0026     R     -1000:1000     0.001     SI     L1     Cosq       44     0022     R     (0:54000)xCTxUT     0.1 VA     USI     L2 Cosq     166     00A8     R/W       44     0022     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Inductive Reactive Power     170     00AA     R/W       50     0032     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Apparent Power     174     00AE     R/W       52     0034     R     (0:000)xCTxUT     0.1 VAr     SI     Total Apparent Power     176     00B0     R/W     176     00B0 R/W				vLIT								Ľ
0320     0320     R     (b: 18000)xCTxUT     0.1 VA     USI     L1 Apparent Power       36     0022     R     (0: 18000)xCTxUT     0.1 VA     USI     L2 Apparent Power       38     0026     R     -1000: 1000     0.001     SI     L1 Cosq       40     0028     R     -1000: 1000     0.001     SI     L2 Cosq       44     002C     R     (0:54000)xCTxUT     0.1 Watt     SI     Total Import Active Power       46     0022     R     (0:54000)xCTxUT     0.1 Watt     SI     Total Export Active Power       47     0032     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Apparent Power       50     0032     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Capacitive Reactive Power       52     0034     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Apparent Power       54     0036     R     -1000: 1000     0.001     SI     AVERAGE CAPACITIVE Cosp       56     0038     R     -1000: 1000	32	0020	R	(0.18000)xCTxUT	0 1 \/A	USI	1 1 Apparent Power	10	0 00	• •		ł
36     0022     R     (D:1800)xCTxUT     0.1 VA     USI     L2 Apparent Power       38     0026     R     -1000:1000     0.001     SI     L1 Cosp     184     00A2     RW       40     0028     R     -1000:1000     0.001     SI     L2 Cosp     184     00A2     RW       42     002A     R     -1000:1000     0.001     SI     L2 Cosp     186     00A4     RW       44     002C     R     (0:54000)xCTxUT     0.1 Watt     SI     Total Import Active Power     176     00AA     RW       46     0032     R     (0:54000)xCTxUT     0.1 VAr     SI     Total Apparent Power     176     00AA     RW       52     0034     R     (0:54000)xCTxUT     0.1 VA     SI     Total Apparent Power     176     00BC     RW       54     0036     R     -1000:1000     0.001     SI     AVERAGE INDUCTIVE Cosp     178     00B2     RW       62     0032     R     0:360 Deg.	34	0022	R	(0:18000)xCTxUT	0.1 V/A	1101	12 Apparent Power	100	5 00/	40	R/ VV	
100     162     0022     R     1000:100     0.001     Si     L1 Cosp     162     00A2     R/W       44     002C     R     0:54000)xCTxUT     0.1 Watt     Si     Total Import Active Power     170     00AA     R/W       46     0030     R     (0:54000)xCTxUT     0.1 VAr     Si     Total Capacitive Reactive Power     170     00AA     R/W       52     0034     R     (0:54000)xCTxUT     0.1 VAr     Si     Total Capacitive Reactive Power     174     00AC     R/W       54     0036     R     -1000:1000     0.001     Si     AVERAGE INDUCTIVE Cosp     178     0082     R/W     178 <td>36</td> <td>0022</td> <td>R</td> <td>(0:18000)xCTxUT</td> <td>0.1 V/A</td> <td></td> <td>L3 Apparent Power</td> <td></td> <td></td> <td></td> <td></td> <td></td>	36	0022	R	(0:18000)xCTxUT	0.1 V/A		L3 Apparent Power					
300     300     10000     1000     1000	38	0024	R	-1000.1000	0.001	SI		16	2 00	42	R/W	t
No.     No.     LL     Cosq     No.     No. <td>40</td> <td>0020</td> <td>R</td> <td>-1000:1000</td> <td>0.001</td> <td>SI</td> <td></td> <td>16</td> <td>1 00</td> <td>44</td> <td>R/W</td> <td>t</td>	40	0020	R	-1000:1000	0.001	SI		16	1 00	44	R/W	t
12     002C     R     0:500000000000000000000000000000000000	42	002A	R	-1000:1000	0.001	SI		16	6 00	46	R/W	t
H     002E     R     (0:54000)XCTxUT     0:1     Watt     SI     Total Export Active Power       46     0030     R     (0:54000)XCTxUT     0.1     Watt     SI     Total Export Active Power       50     0032     R     (0:54000)XCTxUT     0.1     VAr     SI     Total Capacitive Reactive Power       50     0032     R     (0:54000)XCTxUT     0.1     VA     VSI     Total Capacitive Reactive Power       52     0034     R     (0:54000)XCTxUT     0.1     VA     VSI     Total Capacitive Reactive Power       54     0036     R     -1000:1000     0.001     SI     AVERAGE INDUCTIVE Cosp       56     0033     R     4000:7000Hz     0.01 Hz     USI     L1     Voltage Angle       64     0040     R     0:360 Deg.     1 Deg.     USI     L3     Voltage Angle       64     0044     R     0:360 Deg.     1 Deg.     USI     L3     Voltage Thd       72     0046     R     0:360 Deg.     1 Deg. <t< td=""><td>44</td><td>0020</td><td>R</td><td>(0.54000)xCTxUT</td><td>0.001</td><td>SI</td><td>Total Import Active Power</td><td>16</td><td>B 00.</td><td>48</td><td>R/W</td><td>t</td></t<>	44	0020	R	(0.54000)xCTxUT	0.001	SI	Total Import Active Power	16	B 00.	48	R/W	t
10     10000     1000     1000	46	002E	R	(0:54000)xCTxUT	0.1 Watt	SI	Total Export Active Power	17		ΔA	R/W	t
10     1000000000000000000000000000000000000	48	0030	R	(0:54000)xCTxUT	$0.1 V/\Delta r$	SI	Total Inductive Reactive Power	17	2 00/	AC.	R/W	t
03     0334     R     0.54000/RCTxUT     0.1 </td <td>50</td> <td>0032</td> <td>R</td> <td>(0:54000)xCTxUT</td> <td>0.1 V/4r</td> <td>SI</td> <td>Total Capacitive Reactive Power</td> <td>174</td> <td>1 00/</td> <td></td> <td>R/W</td> <td>t</td>	50	0032	R	(0:54000)xCTxUT	0.1 V/4r	SI	Total Capacitive Reactive Power	174	1 00/		R/W	t
32   0034   R   (0.347) (0.347) (0.147)	52	0034	R	(0:54000)xCTxUT	0.1 V/A	1191	Total Apparent Power	170	3 00		R/W	t
178     0030     1     AVERAGE INDECOMPTOR COMPTOR COMPTTME COMPTOR COMPTTME COMPTOR COMPTTME COMPTOR COMPTOR COMPTTME COMPTT COMPTTME COMPTT COMPTTME COMPTT COMPTTME COMPTT COMPTTME COMPTT COMPTTME COMPTT COMPTTME COMPTTT COMPTTME COMPTTTE COMPTTME COMPTTME COMPTTME COMPTTME COMPTTT COMPTTME COMPTTT COMPTTME COMPTTT	54	0036	R	-1000:1000	0.1 VA	50			001	00	10.00	
35     0030     R     1000-1000     0.01 Hz     IX     Requency       58     003A     R     4000:7000Hz     0.01 Hz     USI     Frequency       60     003C     R     0:360 Deg.     1 Deg.     USI     L1 Voltage Angle       62     003E     R     0:360 Deg.     1 Deg.     USI     L2 Voltage Angle       64     0040     R     0:360 Deg.     1 Deg.     USI     L3 Voltage Angle       66     0042     R     0:360 Deg.     1 Deg.     USI     L1 Current Angle       70     0046     R     0:360 Deg.     1 Deg.     USI     L3 Current Angle       72     0048     R     0:999%     0.1 %     USI     L2 Voltage Thd       74     004A     R     0:999%     0.1 %     USI     L2 Current Angle       78     004E     R     0:999%     0.1 %     USI     L2 Voltage Thd       78     0052     R     0:999%     0.1 %     USI     L3 Current Thd       84 <td>56</td> <td>0038</td> <td>R</td> <td>-1000:1000</td> <td>0.001</td> <td>51</td> <td></td> <td>178</td> <td>3 00</td> <td>32</td> <td>R/W</td> <td>t</td>	56	0038	R	-1000:1000	0.001	51		178	3 00	32	R/W	t
30     0003 R     R     0003 (00012 - 00012 - 00012 - 00012 - 00012 - 0000012 - 0000012 - 000012 - 0000012 - 000012 - 000012 - 000012 - 000	58	0030	R	4000:7000Hz	0.001 0.01 Hz		Frequency			_		
100     10000 Deg.     1 Deg.     10010 Deg.	60	0030	R	0:360 Deg	1 Deg		I 1 Voltage Angle	180	00 0	34	R/W	T
002     0032     R     0.000 Deg.     1 Deg.     USI     L3 Voltage Angle       64     0040     R     0:360 Deg.     1 Deg.     USI     L3 Voltage Angle       66     0042     R     0:360 Deg.     1 Deg.     USI     L1 Current Angle       68     0044     R     0:360 Deg.     1 Deg.     USI     L2 Current Angle       70     0046     R     0:360 Deg.     1 Deg.     USI     L3 Current Angle       72     0048     R     0:999%     0.1 %     USI     L3 Voltage Thd       74     004A     R     0:999%     0.1 %     USI     L3 Voltage Thd       78     004E     R     0:999%     0.1 %     USI     L2 Current Thd       80     0050     R     0:999%     0.1 %     USI     L3 Current Thd       84     0054     R     -     Digital Input Status     190     00BE     R/W       90     005A     R/W     0:4x10e9 Wh     1 Wh     LGI     Inductive Reactive Energy:Reg 1	62	0000	P	0:360 Deg.	1 Deg.	1101	1.2 Voltage Angle					
64     0.400 Deg.     1 Deg.     0.51     L3 Voltage Angle       66     0042     R     0.360 Deg.     1 Deg.     USI     L1 Current Angle       68     0044     R     0.360 Deg.     1 Deg.     USI     L2 Current Angle       70     0046     R     0.360 Deg.     1 Deg.     USI     L3 Current Angle       72     0048     R     0.999%     0.1 %     USI     L3 Voltage Thd       74     004A     R     0.999%     0.1 %     USI     L2 Voltage Thd       74     004A     R     0.999%     0.1 %     USI     L3 Voltage Thd       76     004C     R     0.999%     0.1 %     USI     L1 Current Thd       80     0050     R     0.999%     0.1 %     USI     L3 Current Thd       84     0054     R     -     -     Digital Input Status       86     0056     R/W     0:4x10e9 Wh     1 Wh     LGI     Inductive Reactive Energy:Reg 1       94     0054     R/W	64	0030	P	0.360 Deg.	1 Deg.	1101	L3 Voltage Angle	18	2 00	36	R/W	Γ
00     0042     I     0.000 Deg.     1 Deg.     001     L1 current Angle       70     0046     R     0.360 Deg.     1 Deg.     USI     L2 Current Angle       72     0048     R     0.999%     0.1%     USI     L3 Current Angle       74     004A     R     0.999%     0.1%     USI     L1 Voltage Thd       74     004A     R     0.999%     0.1%     USI     L2 Voltage Thd       76     004C     R     0.999%     0.1%     USI     L3 Voltage Thd       78     004E     R     0.999%     0.1%     USI     L1 Current Thd       80     0050     R     0.999%     0.1%     USI     L3 Current Thd       82     0052     R     0.999%     0.1%     USI     L3 Current Thd       84     0054     R     -     -     Digital Input Status     190       90     0055     R/W     0:4x10e9 Wh     1 Wh     LGI     Inductive Reactive Energy:Reg1     192	66	0042	P	0:360 Deg.	1 Deg.	1101	L1 Current Angle					Ŀ
100     0044     R     0.000 Beg.     1 Deg.     0051     L2 Current Angle       70     0046     R     0.360 Deg.     1 Deg.     USI     L3 Current Angle       72     0048     R     0.999%     0.1%     USI     L1 Voltage Thd       74     004A     R     0.999%     0.1%     USI     L2 Voltage Thd       76     004C     R     0.999%     0.1%     USI     L3 Voltage Thd       78     004E     R     0.999%     0.1%     USI     L3 Voltage Thd       80     0050     R     0.999%     0.1%     USI     L3 Current Thd       82     0052     R     0.999%     0.1%     USI     L3 Current Thd       84     0054     R     -     -     Digital Input Status       86     0056     R/W     0:4x10e9 Wh     1 Wh     LGI     Inductive Energy:Reg1       92     005C     1     Varh LGI     Inductive Reactive Energy:Reg1       94     0054     R/W     0:4x10e	68	0042	R	0:360 Deg.	1 Deg.	1191	1.2 Current Angle					
10     0.046     R     0.909%     0.1 %     USI     L1     Voltage Thd       72     0048     R     0.999%     0.1 %     USI     L1     Voltage Thd       74     004A     R     0.999%     0.1 %     USI     L2     Voltage Thd       76     004C     R     0.999%     0.1 %     USI     L2     Voltage Thd       78     004E     R     0.999%     0.1 %     USI     L3     Voltage Thd       78     004E     R     0.999%     0.1 %     USI     L2     Current Thd       80     0050     R     0.999%     0.1 %     USI     L3     Current Thd       82     0052     R     0.999%     0.1 %     USI     L3     Current Thd       84     0054     R     -     -     Digital Input Status     190     00BE     R/W       90     005A     R/W     0:4x10e9 Wh     1 Wh     LGI     Inductive Reactive Energy:Reg1     192     00C0	70	0044		0:360 Deg.	1 Deg.	1101	L2 Current Angle	184	4 00	38	R/W	
72   0048   R   0.999%   0.1 %   USI   L1 Voltage Thd     74   004A   R   0.999%   0.1 %   USI   L2 Voltage Thd     76   004C   R   0.999%   0.1 %   USI   L3 Voltage Thd     78   004E   R   0.999%   0.1 %   USI   L3 Voltage Thd     78   004E   R   0.999%   0.1 %   USI   L1 Current Thd     80   0050   R   0.999%   0.1 %   USI   L2 Current Thd     82   0052   R   0.999%   0.1 %   USI   L3 Current Thd     84   0054   R   -   -   Digital Input Status     86   0056   R/W   0:4x10e9 Wh   1 Wh   LGI   Export Active Energy:Reg1     92   005C   9   0:4x10e9 M   1 VArh   LGI   Inductive Reactive Energy:Reg1     94   0052   R/W   0:4x10e9h   1 VArh   LGI   Capacitive Reactive Energy:Reg 1     196   0060   1   VArh   LGI   Capacitive Reactive Energy:Reg 1 <t< td=""><td>70</td><td>0040</td><td></td><td>0.300 Deg.</td><td>0 1 %</td><td>1191</td><td></td><td></td><td></td><td></td><td></td><td>L</td></t<>	70	0040		0.300 Deg.	0 1 %	1191						L
76   004A   R   0.999%   0.1 %   USI   L2 Voltage Thd   186   00BA   R/W     76   004C   R   0.999%   0.1 %   USI   L3 Voltage Thd   186   00BA   R/W     78   004E   R   0.999%   0.1 %   USI   L1 Current Thd   188   00BA   R/W     80   0050   R   0.999%   0.1 %   USI   L2 Current Thd   188   00BC   R/W     82   0052   R   0.999%   0.1 %   USI   L3 Current Thd   188   00BE   R/W     84   0054   R   -   -   Digital Input Status   190   00BE   R/W     90   005A   R/W   0:4x10e9 Wh   1 Wh   LGI   Import Active Energy:Reg1   192   00CC   R/W     94   005E   R/W   0:4x10e9h   1 VArh   LGI   Capacitive Reactive Energy:Reg 1   194   00C2   R/W     98   0062   R/W   0:4x10e9h   1 VArh   LGI   Capacitive Reactive Energy:Reg 1   196   00C4	74	0040		0.999%	0.1 %	1101						Ļ
76     004C     R     0.999%     0.1%     USI     L3 voltage find       78     004E     R     0:999%     0.1%     USI     L1 Current Thd       80     0050     R     0:999%     0.1%     USI     L1 Current Thd       82     0052     R     0:999%     0.1%     USI     L3 Current Thd       84     0054     R     -     -     Digital Input Status     190     00BE     R/W       86     0056     R/W     0:4x10x10e9 Wh     1 Wh     LGI     Import Active Energy:Reg 1     190     00BE     R/W       90     005A     R/W     0:4x10e9 Wh     1 Wh     LGI     Inductive Reactive Energy:Reg 1     192     00C0     R/W       94     005E     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1     194     00C2     R/W       98     0062     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1     196     00C4     R/W       100     <	74	004A		0.999%	0.1 %	031		180	5 001	ЗA	R/W	
78     0.042     R     0.999%     0.1 %     0SI     L1 current find       80     0050     R     0:999%     0.1 %     USI     L2 Current find       82     0052     R     0:999%     0.1 %     USI     L3 Current find       84     0054     R     -     -     Digital Input Status       86     0056     R/W     0:4x10x10e9 Wh     1 Wh     LGI     Import Active Energy:Reg 1       90     005A     R/W     0:4x10e9 Wh     1 Wh     LGI     Export Active Energy:Reg 1       92     005C     1     VArh     LGI     Inductive Reactive Energy:Reg 1       94     005E     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1       96     0060     -     -     -     -     -       98     0062     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1       196     0064     -     -     -     -     -       100     0064	70	0040		0.999%	0.1 %	031						
80     0050     R     0:999%     0.1%     0SI     L2 current find       82     0052     R     0:999%     0.1%     0SI     L2 current find       84     0054     R     -     -     Digital Input Status       86     0056     R/W     0:4x10x10e9 Wh     1 Wh     LGI     Import Active Energy:Reg 1       90     005A     R/W     0:4x10e9 Wh     1 Wh     LGI     Export Active Energy:Reg 1       92     005C     0060     1 Wh     LGI     Inductive Reactive Energy:Reg 1       94     005E     R/W     0:4x10e9h     1 VArh     LGI     Inductive Reactive Energy:Reg 1       96     0060     1     VArh     LGI     Capacitive Reactive Energy:Reg 1       98     0062     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1       196     0064     0064     0064     1     0064     198     00026	/0	004E	R	0.999%	0.1%	031		10	0.00	20		┢
82     0052     R     0:999%     0.1%     USI     L3 current ind       84     0054     R     -     -     Digital Input Status       86     0056     R/W     0:4x10x10e9 Wh     1 Wh     LGI     Import Active Energy:Reg 1       90     005A     R/W     0:4x10e9 Wh     1 Wh     LGI     Export Active Energy:Reg 1       92     005C     -     -     -     Inductive Reactive Energy:Reg 1       94     005E     R/W     0:4x10e9 h     1 VArh     LGI     Inductive Reactive Energy:Reg 1       96     0060     -     -     -     -     -       98     0062     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1       196     0064     -     -     -     -     -       100     0064     -     -     -     -     194     0022     R/W	80	0050	ĸ	0:999%	0.1 %	USI	L2 Current Ind	180	5 001	30	R/VV	I.
04     0034     K     -     -     Digital input Status       86     0056     R/W     0:4x10x10e9 Wh     1 Wh     LGI     Import Active Energy:Reg 1     190     00BE     R/W       90     005A     R/W     0:4x10e9 Wh     1 Wh     LGI     Export Active Energy:Reg 1     190     00BE     R/W       92     005C     94     005E     R/W     0:4x10e9 h     1 VArh     LGI     Inductive Reactive Energy:Reg 1     192     00C0     R/W       94     005E     R/W     0:4x10e9 h     1 VArh     LGI     Inductive Reactive Energy:Reg 1     194     00C2     R/W       98     0062     R/W     0:4x10e9 h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1     194     00C2     R/W       100     0064     0:4x10e9 h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1     196     00C4     R/W	82	0052	ĸ	0:999%	0.1 %	USI	L3 Current Ind					L
80     0050     R/W     0:4x10x10e9 v/n     1 v/n     LGI     Import Active Energy:Reg 1     130     005L     N/W       90     005A     R/W     0:4x10e9 Wh     1 Wh     LGI     Export Active Energy:Reg 1     192     005C     192     005C     192     005C     192     0000     192     0000     192     0000     194     100     104x10e9h     1 VArh     LGI     Inductive Reactive Energy:Reg 1     192     00C0     R/W       96     0060     0:4x10e9h     1 VArh     LGI     Inductive Reactive Energy:Reg 1     194     00C2     R/W       98     0062     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1     194     00C2     R/W       100     0064     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1     198     00C6     R/W	84	0054	R	0.4.40.40.014"	-	-	Digital Input Status	10/	001	RF	R/M	t
88     0058	86	0056	R/W	u:4x10x10e9 Wh	1 Wh	LGI	Import Active Energy:Reg 1	190			1.7.44	Ŀ
90     005A     R/W     0:4x10e9 Wh     1 Wh     LGI     Export Active Energy:Reg1     192     00C0     R/W       94     005E     R/W     0:4x10e9h     1 VArh     LGI     Inductive Reactive Energy:Reg1     192     00C0     R/W       96     0060     0:4x10e9h     1 VArh     LGI     Inductive Reactive Energy:Reg1     194     00C2     R/W       98     0062     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg1     194     00C2     R/W       100     0064     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg1     196     00C4     R/W       198     00C6     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg1     198     00C6     R/W	88	0058										l
92     005C     0     005E     R/W     0:4x10e9h     1 VArh     LGI     Inductive Reactive Energy:Reg 1     194     00C2     R/W       96     0060     0:4x10e9h     1 VArh     LGI     Inductive Reactive Energy:Reg 1     194     00C2     R/W       98     0062     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1     194     00C2     R/W       100     0064     0064     0064     0064     198     00C6     R/W	90	005A	R/W	0:4x10e9 Wh	1 Wh	LGI	Export Active Energy:Reg1	19	2 000	20	R/W	t
94     005E     R/W     0:4x10e9h     1 VArh     LGI     Inductive Reactive Energy:Reg 1     194     00C2     R/W       96     0060     0:4x10e9h     1 VArh     LGI     Inductive Reactive Energy:Reg 1     194     00C2     R/W       98     0062     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1     196     00C4     R/W       100     0064     0064     0064     0064     198     00C6     R/W	92	005C										ŀ
96     0060     194     0022     R/W       98     0062     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1     194     00C2     R/W       100     0064     0064     0064     198     00C6     R/W	94	005E	R/W	0:4x10e9h	1 VArh	LGI	Inductive Reactive Energy:Reg 1		1			I
98     0062     R/W     0:4x10e9h     1 VArh     LGI     Capacitive Reactive Energy:Reg 1     196     00C4     R/W       100     0064     1<	96	0060						194	4 000	C2	R/W	ſ
100 0064 198 00C6 R/W	98	0062	R/W	0:4x10e9h	1 VArh	LGI	Capacitive Reactive Energy:Reg 1	19	6 000	C4	R/W	ſ
	100	0064						198	8 000	26	R/W	ſ

	102 104	0066 0068	R/W	0:4x10e9 Wh	1 Wh	LGI	Import Active Energy:Reg 2	200	00C8	R/W	(- 18000:18000)xCT	0.1 Watt	SI	Total Max. Import Active Power
	106 108	006A 006C	R/W	0:4x10e9 Wh	1 Wh	LGI	Export Active Energy:Reg 2	202	00CA	R/W	xUT (-	0.1 Watt	SI	Total Max. Export Active Power
	110 112	006E 0070	R/W	0:4x10e9h	1 VArh	LGI	Inductive Reactive Energy:Reg 2	204	0000	P/M	18000:18000)xCT xUT	0 1 V/Ar	51	Total Max Import Reactive Power
	114 116	0072 0074	R/W	0:4x10e9h	1 VArh	LGI	Capacitive Reactive Energy:Reg 2	204	0000	10.00	18000:18000)xCT xUT	0.1 VA	01	Total Max. Import reactive Fower
	118 120	0076	R/W R/W	(0:3000)xUT (0:3000)xUT	0.1 Volt 0.1 Volt	USI USI	L1 Min. Voltage	206	00CE	R/W	(- 18000:18000)xCT	0.1 VAr	SI	Total Max. Export Reactive Power
	122	007A	R/W	(0:3000)XUT	0.1 Volt	USI	L3 Min. Voltage			<b>D</b> 444	XUI	0 4 1 4 4		
	124	0070	R/W	(0:3000)XUT	0.1 Volt	USI	L12 Min. Voltage	208	00D0	R/W	(0:18000)XCTXUT	0.1 VA	USI	Total Max. Apparent Power
	126	007E	R/W	(0:3000)xUT	0.1 Volt	USI	L23 Min. Voltage	210	00D2	R/W	(0:6000)xC1	0.001	USI	L1 Max. Dem. Current
	128	0080	R/W R/W	(0:3000)xUT (0:6000)xCT	0.1 Volt 0.001	USI	L31 Min. Voltage L1 Min. Current	212	00D4	R/W	(0:6000)xCT	0.001 Amps	USI	L2 Max. Dem. Current
tion	132	0084	R/W	(0:6000)xCT	0.001 Amps	USI	L2 Min. Current	214	00D6	R/W	(0:6000)xCT	0.001 Amps	USI	L3 Max. Dem. Current
Itage	134	0086	R/W	(0:6000)xCT	0.001 Amps	USI	L3 Min. Current	216	00D8	R/W	(- 18000:18000)xCT	0.1 Watt	SI	L1 Import Max. Dem. Active Power
Itago	136	0088	R/W	(-	0.1 Watt	SI	L1 Min. Active Power				xUT			
rent				18000:18000)xCT xUT				218	00DA	R/W	(- 18000:18000)xCT	0.1 Watt	SI	L1 Export Max. Dem. Active Power
rent	138	008A	R/W	- 18000:18000)xCT xUT	0.1 Watt	SI	L2 Min. Active Power	220	00DC	R/W	(- 18000:18000)xCT	0.1 Watt	SI	L2 Import Max. Dem. Active Power
K	140	008C	R/W	-) 18000:18000)xCT	0.1 Watt	SI	L3 Min. Active Power	222	00DE	R/W	XUT (- 18000:18000)xCT	0.1 Watt	SI	L2 Export Max. Dem. Active Power
Itage	142	008E	R/W	(- 18000:18000)vCT	0.1 VAr	SI	L1 Min. Reactive Power	224	00F0	R/W	xUT	0.1 Watt	SI	1.3 Import Max Dem Active Power
ltage Power	144	0090	R/W	xUT (-	0 1 VAr	SI	1.2 Min Reactive Power		0020		18000:18000)xCT xUT	o. i vian	01	
				18000:18000)xCT xUT	0.1 774	0.		226	00E2	R/W	(- 18000:18000)xCT	0.1 Watt	SI	L3 Export Max. Dem. Active Power
Power	146	0092	R/W	 18000:18000)xCT xUT	0.1 VAr	SI	L3 Min. Reactive Power	228	00E4	R/W	(- 18000:18000)xCT	0.1 VAr	SI	L1 Import Max. Dem. Reactive Power
Power	148	0094	R/W	(0:18000)xCTxUT	0.1 VA	USI	L1 Min. Apparent Power	230	00E6	R/W	xU1 (-	0.1 VAr	SI	L1 Export Max. Dem. Reactive
	152	0090	R/W	(0:18000)xCTxUT	0.1 VA	USI	L3 Min. Apparent Power				18000:18000)xCT	••••		Power
e Power	154	009A	R/W	(- 18000:18000)xCT xUT	0.1 Watt	SI	Total Min. Import Active Power	232	00E8	R/W	(- 18000:18000)xCT	0.1 VAr	SI	L2 Import Max. Dem. Reactive Power
e Power	156	009C	R/W	(- 18000:18000)xCT xUT	0.1 Watt	SI	Total Min. Export Active Power	234	00EA	R/W	xUI (- 18000:18000)xCT	0.1 VAr	SI	L2 Export Max. Dem. Reactive Power
e Power	158	009E	R/W	(- 18000:18000)xCT xUT	0.1 VAr	SI	Total Min. Import Reactive Power	236	00EC	R/W	xUI (- 18000:18000)xCT	0.1 VAr	SI	L3 Import Max. Dem. Reactive Power
t Power t Power t Power	160	00A0	R/W	(- 18000:18000)xCT xUT	0.1 VAr	SI	Total Min. Export Reactive Power	238	00EE	R/W	xUI (- 18000:18000)xCT	0.1 VAr	SI	L3 Export Max. Dem. Reactive Power
SΦ	162	00A2	R/W	(0:18000)xCTxUT	0.1 VA	USI	Total Min. Apparent Power				xUT			
SΦ	164	00A4	R/W	(0:3000)xUT	0.1 Volt	USI	L1 Max. Voltage	240	00F0	R/W	(0:18000)xCTxUT	0.1 VA	USI	L1 Max. Dem. Apparent Power
sφ	166	00A6	R/W	(0:3000)xUT	0.1 Volt	USI	L2 Max. Voltage	242	00F2	R/W	(0:18000)xCTxUT	0.1 VA	USI	L2 Max. Dem. Apparent Power
tive Power	168	00A8	R/W	(0:3000)xUT	0.1 Volt	USI	L3 Max. Voltage	244	00F4	R/W	(0:18000)xCTxUT	0.1 VA	USI	L3 Max. Dem. Apparent Power
ctive Power	170	00AA	R/W	(0:5000)xUT	0.1 Volt	USI	L12 Max. Voltage	246	00F6	R/W	-)	0.1 Watt	SI	Total Import Max. Dem. Active
eactive Power	172	00AC	R/W	(0:5000)xUT	0.1 Volt	USI	L23 Max. Voltage				10000.10000)XC1			Power
eactive Power	174	00AE	R/W	(0:5000)xUT	0.1 Volt	USI	L31 Max. Voltage	2/12		R/\//	/_	0 1 \/\_++	21	Total Export Max Dom Activo
nt Power CTIVE Cosφ	176	00B0	R/W	(0:6000)xCT	0.001 Amps	USI	L1 Max. Current	240	0010	10.00	18000:18000)xCT xUT	0.1 Wall	01	Power
CITIVE Cos	178	00B2	R/W	(0:6000)xCT	0.001 Amps	USI	L2 Max. Current	250	00FA	R/W	(- 18000:18000)xCT	0.1 VAr	SI	Total Import Max. Dem. Reactive Power
e Angle e Angle	180	0084	R/W	(0:6000)XC1	Amps	051	L3 Max. Current	252	00FC	R/W	xU1 (-	0.1 VAr	SI	Total Export Max. Dem. Reactive
Angle t Angle	182	00B6	R/W	(- 18000:18000)xCT xUT	0.1 Watt	SI	L1 Max. Active Power	254	00FF	R/W	18000:18000)xCT xUT (0:18000)xCTxUT	0 1 VA	USI	Power
t Angle t Angle te Thd	184	00B8	R/W	(- 18000:18000)xCT	0.1 Watt	SI	L2 Max. Active Power	Тур	e Code	:		0.1 171	001	Totar Max. Bon. Apparont Tower
e Thd	186	00R4	R///	xu i (-	0.1 Watt	SI	1.3 Max Active Power	US	=	Unsig	ned integer (4 byte	s)		
e Thd nt Thd	100	000/1	1000	18000:18000)xCT xUT	0.1 Wall	0		SI = LGI	=	Signe Long	ed integer (4 bytes) integer (8 bytes)			
nt Thd nt Thd	188	00BC	R/W	(- 18000:18000)xCT	0.1 VAr	SI	L1 Max. Reactive Power							
t Status hergy:Reg 1	190	00BE	R/W	(- 18000:18000)xCT	0.1 VAr	SI	L2 Max. Reactive Power							
nergy:Reg1	192	00C0	R/W	(- 18000:18000)xCT	0.1 VAr	SI	L3 Max. Reactive Power							
	404	0000	D/M	XUI	0.4.1/4	1101	14 Mov America Di sta							
e Enerav:Rea 1	194	0002	K/W	(0:18000)XC1XU1	0.1 VA	USI	L1 Wax. Apparent Power							
	196	00C4	R/W	(0:18000)xC1xUT	0.1 VA	USI	L2 Max. Apparent Power							
	198	0006	K/W		U.1 VA	USI	L3 IVIAX. Apparent Power							

While Tyco Electronics and its affiliates referenced herein have made every reasonable effort to ensure the accuracy of the information is error tree. For this reason, Tyco Electronics does not make any representation or offer any guarantee that such information is accurate, correct, reliable or current. Tyco Electronics reserves the right to make any adjustments to the information at any time. Tyco Electronics expressly disclaims any implied warranties of merchantability or fitness for a particular purpose. Tyco Electronics' only obligations are those stated in Tyco Electronics' standard Terms and Conditions of Sale. Tyco Electronics will in no case be liable for any incidental, indirect or consequential damages arising from or in connection with, including, but not limited to, the sale, resale, use or misuse of its products. Users should rely on their own judgement to evaluate the suitability of a product for a certain purpose and test each product for its intended application. TE (logo) and Tyco Electronics are trademarks of the Tyco Electronics group of companies and its licensors. Crompton Instruments is a trademark of Crompton Parkinson and is used by Tyco Electronics under a licence