INTEGRA INT-1422
MULTIFUNCTION METER

KEY FEATURES

- True RMS measurements upto 31st Harmonic
- Programmable CT/PT Primary
- Programmable CT/PT Secondary
- Single phase 2 wire, single phase 3 wire, 2ph 2 wire, 3ph 3wire or 3ph4wire Network
- Pre-Paid Cost Based Energy Tripping
- Upto 9000 MVA (L-N)
- Dual Tariff
- Health monitoring of 3ph load
- 5 Digits ultra bright back lit LCD display
- Historical values stored after reset
- 96x96mm DIN

OPTIONS

- Connection via Modbus or Ethernet
- 2 Digital Inputs
  - -Status Mode
  - - Pulse
- 2 Digital Outputs
  - - None
  - - Pulse
  - - Limit
  - - Timer
  - - Load Health
  - - Pre-Paid Energy
- Relay Output

APPROVALS

- IEC 61326
- IEC 61010-1-2010
- IEC 61557-12 Cl 0.2
- IEC 62053-22 Cl 0.2S

TE Connectivity's (TE) Crompton Instruments Integra 1422 multifunction meters have been designed for industrial on-site applications, where the precise measurement of electrical parameters like AC voltage, Current, Frequency, Power, Energy (Active / Reactive Quadrant/ Apparent), phase angle, power factor, individual harmonics & many more is required.

The instrument integrates accurate measurement technology (All Voltages & current measurements are True RMS upto 31st Harmonic) the LCD display is backlit.

It can be configured & programmed on-site for the following : PT Primary, PT Secondary, CT Primary, CT Secondary 3 Phase 3W, 3 Phase 4W, 1 Phase 2W, 2 Pase 2 Wire. Single phase 3 wire system.

The instrument has two optional digital outputs available as pulse or alarm with programmable pulse duration and width. This instrument also has two optional digital inputs for monitoring the external contact status, pulse counting and/or energy accumulation according to tariff.

The Integra 1422 multifunction instrument is a panel mounted 96 x 96mm DIN.

Customers can count on consistent, high quality products, driven by TE's proven innovation and backed by our extraordinary customer support.

TECHNICAL SPECIFICATIONS

Input Voltage:	
Nominal input voltage (Vn) Programmable on-site	100VLL to 600 VLL AC RMS 57.5VLN to 346.42 VLN AC RMS
System PT primary values	100VLL to 1200kVLL programmable on site
Measuring Range	20%....120% of nominal value
Overload Withstand	2 x Nominal value for 1 second, repeated 10 times at 10 second intervals
Overload Indication	"-OL-" >121% of Nominal value
Nominal input voltage burden	< 0.3VA approx. per phase (at nominal 240V)
Input Current:	
Nominal input current (In)	1A / 5A programmable on site
System CT primary values	1A to 9999A programmable on site
Measuring Range	1%....200% of nominal value (1%....180% of nominal value for CF = 2)
Overload Withstand	20 x Nominal value for 1 second, repeated 5 times at 5 minute intervals
Overload Indication	"-OL-" >205% of Nominal value
Nominal input current burden	< 0.3VA approx. per phase
Auxiliary Supply:	
Higher Auxiliary supply range As per IEC 61557-12	100-550V AC/DC (230V AC/DC nominal) 100-320V AC/DC (230V AC/DC nominal)
Lower Auxiliary supply range	12-60V AC/DC (24 V AC /48 V DC nominal)
Aux Supply frequency	45 to 66 Hz range
Auxiliary Supply burden (at nominal value) With Add-on RS485 card With Add-on Ethernet card	 < 6VA approx < 8VA approx
Operating Measuring Ranges:	
Current (Energy Measurement)	1....200% of nominal value
Starting current	0.1% of Nominal
Voltage	20... 120% of nominal value
Power Factor	0.5 Lag ... 1... 0.8 Lead
Frequency	40Hz to 70Hz
Reference conditions for Accuracy:	
Reference temperature	23°C +/- 2°C
Input waveform	Sinusoidal (distortion factor 0.005)
Input Frequency	50 Hz / 60 Hz +/- 2%
Auxiliary supply frequency	50/60 Hz +/- 1%
Total Harmonic Distortion	THDv <= 50% upto 31st Harmonic at Vn THDi <= 200% upto 31st Harmonic at In THDi <= 180% upto 31st Harmonic at In CF=2
Voltage Range	20%...100% of Nominal Value
Current Range	10%...100% of Nominal Value
Display Specification:	
Display	3 Line 5 Digit and 1 Line 9 Digit seven segment LCD with Backlit
Response time to step input	1 sec approx.
LED Indications	Integration of energy (Impulse)
Display scrolling	Automatic/Manual (Programmable)
Push buttons	4 Buttons

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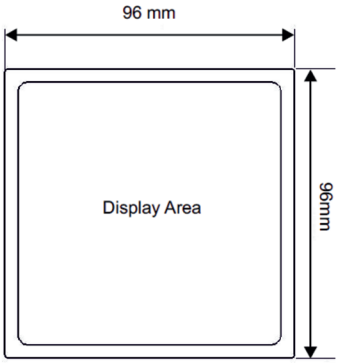
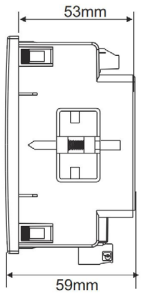
Multifunction meter

TECHNICAL SPECIFICATIONS

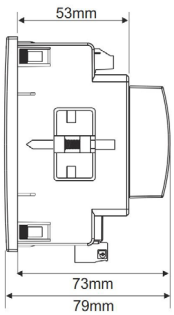
Accuracy:	
Active Energy (Bidirectional)	
IEC 62053-22 : Standard-Class 0.2S IEC 61557-12 : Standard-Class 0.2 for 5A In (Class 0.5 for 1A In)	
Apparent Energy	Class 1 as per IEC 61557-12
Reactive Energy (Bidirectional) Quadrant wise Reactive energy (kVArh) measurement of system as well as phase wise.	Class 2 as per IEC 62053-23 and IEC 61557-12
Voltage	± 0.2% of Nominal value
Current	± 0.2% of Nominal value
Active Power	± 0.2% of Nominal value
Re-Active Power	± 1.0% of Nominal value
Apparent Power	± 0.2% of Nominal value
Frequency	± 0.05% of Mid frequency
Power Factor/angle	±3°
THD (V/I) w.r.t. fundamental	±5% (upto 31st Harmonics)
Total Demand Distortion	Instrument measures system current TDD (Total Demand Distortion) as per IEEE-519
Individual Harmonics	±5% (upto 31st Harmonics)
Applicable standards:	
Electromagnetic Compatibility	IEC 61326 - 1, Table 2 (Influence on Measured Quantity-Voltage: 1% of Vnom,Current: 5% of Inom)
Immunity	IEC 61000-4-2,-3,-4,-5,-6,-8,-11
Emission	CISPR 11
Safety	IEC 61010-1-2010
IP for water & dust	IEC 60529
Pollution degree:	2
Installation category:	III
High Voltage Test All Circuit Vs Surface Input / Aux Vs Others DI/Relay/RS485/USB Vs Others DI Vs DI / Relay Vs Relay	 4kV RMS, 50Hz for 1min 3.3kV RMS, 50Hz for 1min 3.3kV RMS, 50Hz for 1min 2.2kV RMS, 50Hz for 1min
Environmental:	
Operating temperature	-20 to +70 °C
Storage temperature	-40 °C to +85 °C
Relative humidity	0...95% non condensing
Warm up time	Minimum 3 minute
Shock (As per IEC 60068-2-27)	Half sine wave, Peak acceleration 30gn (300 m/s^2), duration 18ms
Vibration	10... 150...10 Hz, 0.15mm amplitude
Altitude	< 2000 m
Number of Sweep cycles	10 per axis
Enclosure	IP 20 (Terminal side) and IP54 (Front side)
Memory	512 kB
Installation:	
Mechanical Housing	Lexan 940(polycarbonate), Flammability Class V-0 acc. to UL 94, self extinguishing, non dripping, free of halogen
Mounting Position	Panel Mounted (96X96)
Connection Element	Conventional screw type terminal with indirect wire terminals
Connection Terminal	4 mm solid or 2.5 mm² stranded cable
Interfaces:	
Impulse Led	For Energy testing
2 Digital Inputs (Optional)	20... 300 VAC / 10... 60 VDC, Optical couplers, Min pulse width 10ms, Min length between 2 pulses 18ms, VA < 0.25VA at 240 VAC
2 Digital Outputs (Optional)	Type - Relay, 250 VAC, 5 A AC / 30VDC, 5A DC Programmable Pulse Duration and Pulse Width
Modbus (Optional)	RS485, max 1.2Km : 4.8,9.6,19.2,38.4,57.6kbps
Ethernet (Optional)	Ethernet access on Modbus TCP/IP Protocol

DIMENSIONS

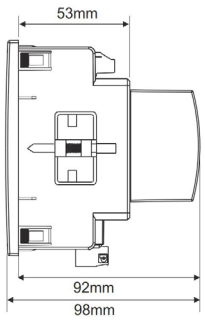




Standard Unit
*Part No.
INT-1422-x-000



with RS485/Ethernet
*Part No.
INT-1422-x-010
INT-1422-x-015
INT-1422-x-070



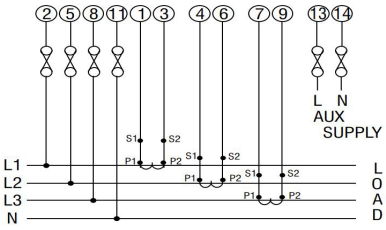
Ethernet + 2 Digital Inputs
+ 2 Digital Outputs
*Part No.
INT-1422-x-075

DIMENSIONS	
Bezel size (DIN 43 718)	96 mm x 96 mm.
Panel cut-out	92 +0.8 mm x 92 + 0.8 mm
Weight	320 gm Approx

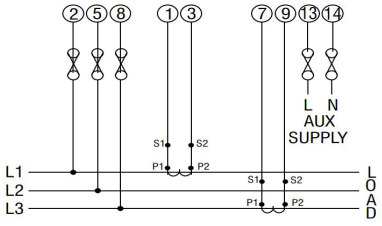
*replace -**x-** with either
M (Higher Auxiliary) or **L** (Lower Auxiliary)

WIRING DIAGRAMS

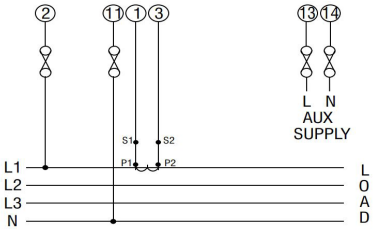
3PH - 4 Wire



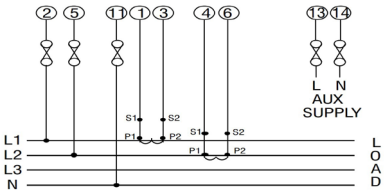
3PH - 3 Wire



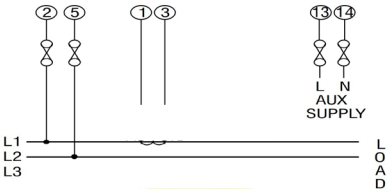
Single Phase



1PH - 3 Wire



2PH - 2 Wire



Note:
1. It is recommended that the wires used for connections to the instrument should have lugs soldered at the end i.e., the connections should be made with Lugged wires for secure connections.

2. For MODBUS B refers to positive, A refers to Negative and G refers to ground.

WIRING GUIDELINES	
Solid with Pin type lugs (sq. mm)	1 to 2.5
Stranded with pin types lugs (sq. mm)	1 to 2.5
Torque value (Nm): 1. Aux and Voltage ternals 2. Current Terminals 3. RS485, DI and Relay terminals	 0.5 to 0.6 0.4 to 0.5 0.3 TO 0.4
Length available for lug entry in terminal (mm)	9.5

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✓: Available x: Not Available ✓[4]: L3 Not Available

MEASURED PARAMETERS						
Sr No.	**Parameters**	**3 Phase 4 wire**	**3 Phase 3Wire**	**1Phase 2Wire**	**1Phase 3Wire**	**2Phase 2Wire**
1	System Import Active Energy[1]	✓	✓	✓	✓	✓
2	L1, L2, L3 Import Active Energy[1]	✓	x	x	✓[4]	x
3	System Export Active Energy[1]	✓	✓	✓	✓	✓
4	L1, L2, L3 Export Active Energy[1]	✓	x	x	✓[4]	x
5	System Total Active Energy[1]	✓	✓	✓	✓	✓
6	L1, L2, L3 Total Active Energy[1]	✓	x	x	✓[4]	x
7	System Inductive Reactive Energy[1]	✓	✓	✓	✓	✓
8	L1, L2, L3 Inductive Reactive Energy[1]	✓	x	x	✓[4]	x
9	System Capacitive Reactive Energy[1]	✓	✓	✓	✓	✓
10	L1, L2, L3 Capacitive Reactive Energy[1]	✓	x	x	✓[4]	x
11	System Total Reactive Energy[1]	✓	✓	✓	✓	✓
12	L1, L2, L3 Total Reactive Energy[1]	✓	x	x	✓[4]	x
13	System Apparent Energy[1]	✓	✓	✓	✓	✓
14	L1, L2, L3 Apparent Energy[1]	✓	x	x	✓[4]	x
15	System Q1 Reactive Energy[1]	✓	✓	✓	✓	✓
16	L1, L2, L3 Q1 Reactive Energy[1]	✓	x	x	✓[4]	x
17	System Q2 Reactive Energy[1]	✓	✓	✓	✓	✓
18	L1, L2, L3 Q2 Reactive Energy[1]	✓	x	x	✓[4]	x
19	System Q3 Reactive Energy[1]	✓	✓	✓	✓	✓
20	L1, L2, L3 Q3 Reactive Energy[1]	✓	x	x	✓[4]	x
21	System Q4 Reactive Energy[1]	✓	✓	✓	✓	✓
22	L1, L2, L3 Q4 Reactive Energy[1]	✓	x	x	✓[4]	x
23	System Q1+Q2 Reactive Energy[1]	✓	✓	✓	✓	✓
24	L1, L2, L3 Q1+Q2 Reactive Energy[1]	✓	x	x	✓[4]	x
25	System Q3+Q4 Reactive Energy[1]	✓	✓	✓	✓	✓
26	L1, L2, L3 Q3+Q4 Reactive Energy[1]	✓	x	x	✓[4]	x
27	System Q1+Q3 Reactive Energy[1]	✓	✓	✓	✓	✓
28	L1, L2, L3 Q1+Q3 Reactive Energy[1]	✓	x	x	✓[4]	x
29	System Q2+Q4 Reactive Energy[1]	✓	✓	✓	✓	✓
30	L1, L2, L3 Q2+Q4 Reactive Energy[1]	✓	x	x	✓[4]	x
31	System Net active total Energy[1]	✓	✓	✓	✓	✓
32	System Apparent Energy while active import	✓	✓	✓	✓	✓
33	System Apparent Energy while active export	✓	✓	✓	✓	✓
34	System Active Power (kW)[3]	✓	✓	✓	✓	✓
35	L1,L2,L3 Active Power (kW)[3]	✓	x	x	✓[4]	x
36	System Total Re-active Power (kVAr)[3]	✓	✓	✓	✓	✓
37	L1,L2,L3 Total Re-active Power (kVAr)[3]	✓	x	x	✓[4]	x
38	System Fundamental Re-active Power (kVAr)	✓	✓	✓	✓	✓
39	L1,L2,L3 Fundamental Re-active Power (kVAr)	✓	x	x	✓[4]	x
40	System Distorted Re-active Power (kVAr)	✓	✓	✓	✓	✓
41	L1,L2,L3 Distorted Re-active Power (kVAr)	✓	x	x	✓[4]	x
42	System Apparent Power (kVA)[3]	✓	✓	✓	✓	✓
43	L1,L2,L3 Apparent Power (kVA)[3]	✓	x	x	✓[4]	x
44	System Power Factor[3]	✓	✓	✓	✓	✓
45	L1,L2,L3 Power Factor[3]	✓	x	x	✓[4]	x
46	System Displacement Power Factor[2]	✓	✓	✓	✓	✓
47	L1,L2,L3 Displacement Power Factor[2]	✓	x	x	✓[4]	x
48	System Reactive Power Factor[2]	✓	✓	✓	✓	✓
49	L1,L2,L3 Reactive Power Factor[2]	✓	x	x	✓[4]	x
50	System LF Factor SgnQ (1-(P/S)[2]	✓	✓	✓	✓	✓
51	L1,L2,L3 LF Factor SgnQ (1-(P/S)[2]	✓	x	x	✓[4]	x
52	System Phase Angle[3]	✓	✓	✓	✓	✓
53	L1,L2,L3 Phase Angle[3]	✓	x	x	✓[4]	x

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✓: Available x: Not Available ✓[4]: L3 Not Available

PARAMETERS						
Sr No.	**Parameters**	**3 Phase 4 wire**	**3 Phase 3Wire**	**1Phase 2Wire**	**1Phase 3Wire**	**2Phase 2Wire**
54	Current Demand	✓	✓	✓	✓	✓
55	kVA Demand	✓	✓	✓	✓	✓
56	Import kW Demand	✓	✓	✓	✓	✓
57	Export kW Demand	✓	✓	✓	✓	✓
58	Inductive Var Demand	✓	✓	✓	✓	✓
59	Capacitive Var Demand	✓	✓	✓	✓	✓
60	Max Current Demand	✓	✓	✓	✓	✓
61	Max kVA Demand	✓	✓	✓	✓	✓
62	Max Import kW Demand	✓	✓	✓	✓	✓
63	Max Export kW Demand	✓	✓	✓	✓	✓
64	Max Inductive Var Demand	✓	✓	✓	✓	✓
65	Max Capacitive Var Demand	✓	✓	✓	✓	✓
66	Run Hour	✓	✓	✓	✓	✓
67	On Hour	✓	✓	✓	✓	✓
68	Number of Interruptions	✓	✓	✓	✓	✓
69	System Voltage[3]	✓	✓	✓	✓	✓
70	L1,L2,L3 Voltage[3]	✓	x	x	✓[4]	x
71	L12,L23,L31 Voltage[3]	✓	✓	x	✓[4]	x
72	System Voltage THD	✓	✓	✓	✓	✓
73	L1-L2-L3 Voltage THD	✓	✓	x	✓[4]	x
74	System Current[3]	✓	✓	✓	✓	✓
75	L1,L2,L3 Current[3]	✓	✓	x	✓[4]	x
76	System Current THD	✓	✓	✓	✓	✓
77	L1-L2-L3 Current THD	✓	✓	x	✓[4]	x
78	Individual Harmonics VL1 (Up to 31st Harmonics)	✓	✓	✓	✓	✓
79	Individual Harmonics VL2 (Up to 31st Harmonics)	✓	✓	x	✓	x
80	Individual Harmonics VL3 (Up to 31st Harmonics)	✓	✓	x	x	x
81	Individual Harmonics IL1 (Up to 31st Harmonics)	✓	✓	x	✓	x
82	Individual Harmonics IL2 (Up to 31st Harmonic)	✓	✓	x	✓	x
83	Individual Harmonics IL3 (Up to 31st Harmonics)	✓	✓	x	x	x
84	System Current TDD	✓	✓	✓	✓	✓
85	Neutral Current (Calculated)	✓	x	x	✓[4]	x
86	Frequency[3]	✓	✓	✓	✓	✓
87	RPM	✓	✓	✓	✓	✓
88	Phase Sequence Indication	✓	✓	x	x	x
89	Current Reversal Indication	✓	x	✓	✓[4]	x
90	Phase (V-I) Absent Indication	✓	x	x	✓[4]	x
91	Tariff Source 1 Energy Count	✓	✓	✓	✓	✓
92	Tariff Source 2 Energy Count	✓	✓	✓	✓	✓
93	Tariff Source 3 Energy Count	✓	✓	✓	✓	✓
94	Tariff Source 4 Energy Count	✓	✓	✓	✓	✓
95	Tariff Source 5 Energy Count	✓	✓	✓	✓	✓
96	Tariff Source 6 Energy Count	✓	✓	✓	✓	✓
97	Old Max A Demand[2]	✓	✓	✓	✓	✓
98	Old Max VA Demand[2]	✓	✓	✓	✓	✓
99	Old Max kW Import Demand[2]	✓	✓	✓	✓	✓
100	Old Max kW Export Demand[2]	✓	✓	✓	✓	✓
101	Old Max Var Inductive Demand[2]	✓	✓	✓	✓	✓
102	Old Max Var Capacitive Demand[2]	✓	✓	✓	✓	✓
103	Old System Import Active Energy[2]	✓	✓	✓	✓	✓
104	Old L1-L2-L3 Import Active Energy[2]	✓	x	x	✓[4]	x

Note: 1. Energy on display is autoranging & unit for Energy parameters on modbus are dependent on CT PT ratio or unit selected by user.
2. Parameters are available only on modbus. 3. Min-Max parameters are also available.

INTEGRA INT-1422
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DESCRIPTION	PART NUMBER
Higher Auxiliary supply range	
INTEGRA 1422 100-550V AC/DC (230V AC/DC nominal) - **NO OUTPUTS**	INT-1422-M-000
INTEGRA 1422 100-550V AC/DC (230V AC/DC nominal) - **RS485 MODBUS**	INT-1422-M-010
INTEGRA 1422 100-550V AC/DC (230V AC/DC nominal) **RS485 + 2 DIGITAL INPUTS (DI) + 2 DIGITAL OUTPUTS**	INT-1422-M-015
INTEGRA 1422 100-550V AC/DC (230V AC/DC nominal) - **ETHERNET**	INT-1422-M-070
INTEGRA 1422 100-550V AC/DC (230V AC/DC nominal) **ETHERNET + 2 DIGITAL INPUTS (DI) + 2 DIGITAL OUTPUTS**	INT-1422-M-075
Lower Auxiliary supply range	
INTEGRA 1422 12-60V AC/DC (24 V AC /48 V DC nominal) - **NO OUTPUTS**	INT-1422-L-000
INTEGRA 1422 12-60V AC/DC (24 V AC /48 V DC nominal) - **RS485 MODBUS**	INT-1422-L-010
INTEGRA 1422 12-60V AC/DC (24 V AC /48 V DC nominal) **RS485 + 2 DIGITAL INPUTS (DI) + 2 DIGITAL OUTPUTS**	INT-1422-L-015
INTEGRA 1422 12-60V AC/DC (24 V AC /48 V DC nominal) - **ETHERNET**	INT-1422-L-070
INTEGRA 1422 12-60V AC/DC (24 V AC /48 V DC nominal) **ETHERNET + 2 DIGITAL INPUTS (DI) + 2 DIGITAL OUTPUTS**	INT-1422-L-075
OPTIONAL MODULES	
RS485 MODBUS ONLY	OPT-1422-010
RS485 + 2 DIGITAL INPUTS (DI) + 2 DIGITAL OUTPUTS	OPT-1422-015
ETHERNET	OPT-1422-070
ETHERNET + 2 DIGITAL INPUTS (DI) + 2 DIGITAL OUTPUTS	OPT-1422-075

COMPATIBLE PARTS

TE's CROMPTON INSTRUMENTS
NEW EBONY EXCEL CURRENT TRANSFORMERS

- 33 Models available with a wide range held in stock
- Large range of case & apertures sizes
- Ebony Excel Range Accuracy Class 3/1/0.5
- Ebony Excel Plus Range Accuracy Class 0.2/0.2S/0.5S
- Primary Ratings 1A to 6000A / Secondary 5A or 1A
- Optional DIN Rail mounting adaptor
- Bespoke specifications available upon request

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Germany:	+ 49 896 089 903
Spain:	+ 34 916 630 400
Italy:	+ 39 333 250 0915
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