

# JKD114 Data Sheet

## Dual Meter board 100A

### Dual Metered board configurable

- 14 way configurable 100 A Dual metered A board
- 100A direct connected
- High definition LCD display with white backlight
- Import and export energy measurement
- Pulse output and RS485 Modbus communication or Mbus
- Two pulse outputs
- Two module width DIN rail mounted
- MID B+D Certified
- LED pulse indication
- Simple programming and operation
- Auto or manual page scrolling

#### Product Description

The Enclosure is constructed from mild steel with a locking door via a coin lock, fitted with a 100A switch disconnector and meter with 14 configurable outgoing ways.

#### Characteristics:

- Conforms to BS EN 61439-3. InA = 100A, Inc = 63A, Icc = 10kA
- Cable Sizes: 100A: 50mm<sup>2</sup>.
- Ample wiring space, with provision to accept RCBO's.
- Full complement of earth and neutral terminal bars to accept up to 16mm<sup>2</sup> cable. - Suitable for cable entry on all sides and back.

#### Meter Characteristics:

The HGR20 series is a range of single phase multifunction DIN rail MID approved energy meters. Suitable for monitoring energy consumption in residential, solar PV, industrial and utility applications.

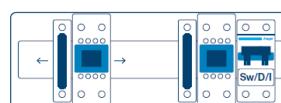
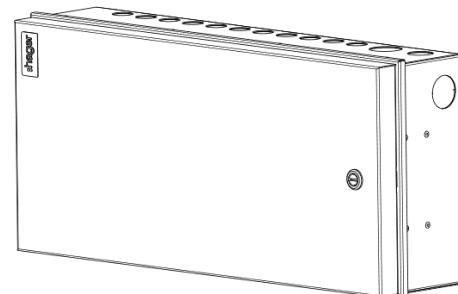
All models are MID approved (B and D) and may be used for billing purposes.

A high efficiency white backlit LCD display provides a clear indication of measured values in all light conditions.

The meter is available in two versions:-

- Single tariff with two pulse outputs and RS485 Modbus communication.
- Single tariff with two pulse outputs and Mbus communication.

The unit is housed in a compact two module width case suitable for 35mm DIN rail mounting.



100A Dual Metered with MID Meter - JKD114



#### Displayed Parameters

**Phase to Neutral Voltage (V)**

**Phase Current (A)**

**Frequency (Hz)**

**Power Factor (PF)**

**Power Max. Demand (MD kW)**

**Active Power (kW)**

**Reactive Power (kVAr)**

**Apparent Power (kVA)**

**Import Active Energy (kWh)**

**Export Active Energy (kWh)**

**Total Active Energy (kWh)**

**Import Reactive Energy (kVArh)**

**Export Reactive Energy (kVArh)**

**Total Reactive Energy (kVArh)**



## Display

Display Type	LCD, high definition with white back-light																		
Digit height	4mm (displayed value)																		
Page scrolling	Manual by front key / or auto scroll mode																		
Displayed parameters and accuracies	<table> <tr><td>Voltage</td><td>0.5% of Max. range</td></tr> <tr><td>Current</td><td>0.5% of nominal</td></tr> <tr><td>Frequency</td><td>0.2% of nominal frequency</td></tr> <tr><td>Power factor</td><td>1% of unity (0.01)</td></tr> <tr><td>Active power</td><td>1% of range maximum</td></tr> <tr><td>Reactive power</td><td>1% of range maximum</td></tr> <tr><td>Apparent power</td><td>1% of range maximum</td></tr> <tr><td>Active Energy</td><td>Class B (IEC/EN50470-1/3) / Class 1 (IEC/EN62053-21)</td></tr> <tr><td>Reactive Energy</td><td>1% of range maximum</td></tr> </table>	Voltage	0.5% of Max. range	Current	0.5% of nominal	Frequency	0.2% of nominal frequency	Power factor	1% of unity (0.01)	Active power	1% of range maximum	Reactive power	1% of range maximum	Apparent power	1% of range maximum	Active Energy	Class B (IEC/EN50470-1/3) / Class 1 (IEC/EN62053-21)	Reactive Energy	1% of range maximum
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Reactive Energy	1% of range maximum																		
Energy maximum display	99999.99																		
Resolution	10wh																		

## Programming

Programmable parameters	Primary address - Mbus version only Secondary address - Mbus version only Pulse output (kWh or kVarh) Pulse output resolution Pulse duration Demand period (for integration) Auto page scroll time Back-light time-out period Reset Max. demand Change password Communication address - Modbus version Communication speed (Baud) - Modbus and Mbus versions Communication Parity - Modbus (Fixed) and Mbus (Even) versions
Programming access	Password protected (user selectable)
Memory retention	Non volatile memory (EEPROM)

## Input

Connection	Single phase only
Certified voltage range	MID certified for 1 x 230V/400V ±10%
Operating voltage range	176...276V
Voltage circuit power consumption (Max.)	<8VA
Current rating (Imin-Iref)	0.5...10A
Max current (Imax)	100A
Current circuit power consumption (Max.)	0.5VA
Starting current	40mA
Short time overcurrent	30 Imax/ 10ms (IEC/EN 62053-21 and -23)
Impulse voltage withstand	6kV 1.2μS
AC voltage withstand	4kV for 1 minute
CT ratio range	N/A direct connection
VT ratio range	N/A direct connection
Frequency	50Hz
Current distortion factor	According to IEC/EN50470

## Auxiliary Supply

Voltage range	Self-supplied from measuring input
Operating frequency	See input section
Power consumption	See input section

## Outputs

<b>Energy pulses</b>	
Number of pulse outputs	2
Pulse output function	1 x 1000imp/kWh. 1 x User configurable pulse rate and energy type (kWh or kVarh)
Pulse output type	Semiconductor (does not support volt-free operation)
Pulse output Max. current	27mA (Class A to IEC/EN62053-31)
Pulse output voltage range	5...27VDC
Pulse duration	Selectable 60, 100, 200mS
Selectable pulse resolution	0.001, 0.01, 0.1, 1

### Communication - Modbus Version

Communication protocol	Modbus
Address	1...255
Number of bits	8bits
Parity	None, odd, even
Baud rate	1200, 2400, 4800, 9600
Required response time to request	≤100ms
Number of meters connected on the bus	32 (up to 255 with RS485 repeater)
Max. distance from Master device	1200M

### Communication - Mbus Version

Communication protocol	Mbus
Communication standard	IEC/EN13757
Primary address	1...250
Secondary address	0...99999999
Parity	Even
Baud rate	300, 600, 1200, 2400, 9600

## Insulation

Installation category	III
Pollution degree	2
Insulation voltage rating	300V (L-N)

## Environmental Conditions

Reference temperature	23°C ±1°C
Specified temperature operating range	-10°C...+55°C
Storage temperature	-20°C...+70°C
Relative humidity	0...85%, non condensing
Mechanical environment	M1
Electromagnetic environment	E2

## Mechanical

### Housing

Housing Type	2 module DIN 43880
Mounting	Snap-on 35mm rail
Tamper sealing	Terminal cover and meter housing (meter housing by means of a tamper sticker)
Housing material	Self-extinguishing polycarbonate (UL94 V-0)
Protection degree (IEC/EN60529)	IP20 (terminals), IP51 (front of housing)
Weight	170g

### Termination

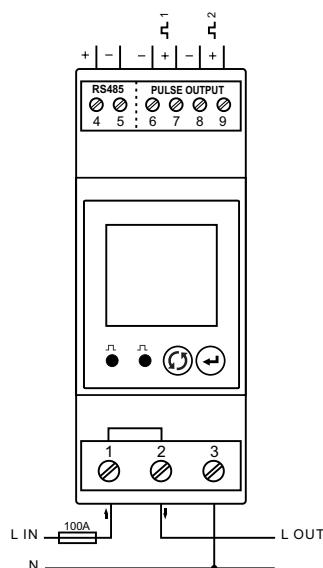
Current input terminal type	Screw type - rising clamp
Max. wire size	35mm <sup>2</sup>
Voltage input terminal type	Combined with current circuit
Max. wire size	N/A
Output terminal type	Screw type - rising clamp
Max. wire size	2.5mm <sup>2</sup>

## Conformity

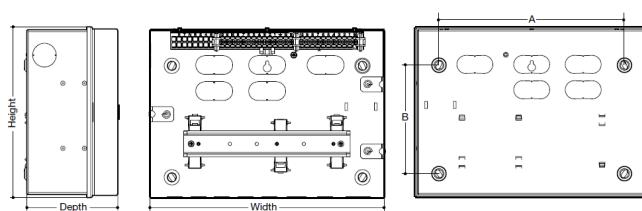
Electromagnetic compatibility	Emission and immunity tests according to IEC/EN50470 Immunity test according to IEC/EN50470
Accuracy and functionality	IEC/EN50470-1:2006 - Electricity metering equipment (a.c.). Part 1: General requirements, tests and test conditions Metering equipment (class indexes A, B and C) IEC/EN50470-3:2006 - Electricity metering equipment (a.c.) Part 3: Particular requirements Static meters for active energy (class indexes A, B and C) EC Directive 2014/32/EC

## Wiring Diagrams

### HGR20C (Modbus)



Interface characteristics - Dual Metered Board											
<b>Rated &amp; operational voltage (Un / Ue)</b> 230V a.c. 50Hz											
<b>Rated insulation voltage (Ui)</b> 320V a.c. 50Hz											
<b>Rated impulse withstand voltage (Uimp)</b> 4kV											
<b>Rated current of the Assembly (InA)</b> 100A											
<b>Rated current of an Outgoing circuit (Irc)</b> MCB 6A - 63A (marked rated current on device) RCBO 6A - 50A (marked rated current on device)				<b>Rated current of outgoing unit (Irc)</b> RCCB 40A -100A (marked rated current on device) Direct Fed Meter - 100A (marked rated current on device)							
<b>Rated conditional short-circuit current of the ASSEMBLY (Icc)</b> Annex ZB: 16 kA rms at 250V, power factor 0.6 with equipment and arrangements specified in Hager's technical documentation / catalogue. JK A Board DBO Icc = 10kA, Ipk 17kA (Does not include metered type A distribution boards)											
<b>Protection against electric shock</b> Consumer unit shall be installed in an electrical system conforming to the current edition of IEC 60364 / BS 7671											
<b>Rated diversity factor (RDF) / Values of assumed loading</b> 0.5				Note: RDF only applies to continuously and simultaneously loaded circuits.  In principle, this means adjacent circuit-breakers having a load 'on' time exceeding 30 minutes or where a load not exceeding 30 minutes has an 'off' time less than the 'on' time, will need to have the rated diversity factor applied as indicated.							
<b>Rated frequency (fn)</b> 50 Hz											
<b>Pollution degree</b> 2											
<b>Types of system earthing for which the ASSEMBLY is designed</b> TNC-S, TN-S when installed in an electrical installation complying with BS 7671 Hager recommends for TT systems a 100A type S time delayed RCCB or a main switch with RCBO protection only on all outgoing circuits.											
<b>Indoor use only</b>											
<b>Stationary ASSEMBLY</b>											
<b>Degree of protection</b> IP2XC with door open and full compliment of outgoing devices and or blanks fitted. IP30 with door closed and full compliment of outgoing devices and or blanks fitted. Note: Where cables are installed through top wall of enclosure, gaps of IP4X to be maintained.											
<b>Intended use</b> Intended for use in domestic (residential) or similar premises.											
<b>Electromagnetic compatibility (EMC) classification</b> EMC Environment B											
<b>External design</b> JKA: Wall-mounted, surface type, enclosed assembly.											
<b>Mechanical impact protection</b> IK 05											
<b>The type of construction</b> Fixed parts											
<b>Type A DBO (Distribution board for use by ordinary persons)</b>											



Enclosure Size	Dimensions			Fixing Centres		Knockout Size	N° of Knockouts				
	Width	Height	Depth	A	B		Top	Bottom	Left	Right	Back
7	505	236	125	437	150	ø.20	11	11	-	-	-
						ø.32	1	1	1	1	-
						ø.25	1	1	-	-	-
						25 x 50	-	-	-	-	9