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HUR Series Multi Slot Modbus TCP Remote I/O Devices with MQTT Publisher and with LoRaWAN Connectivity

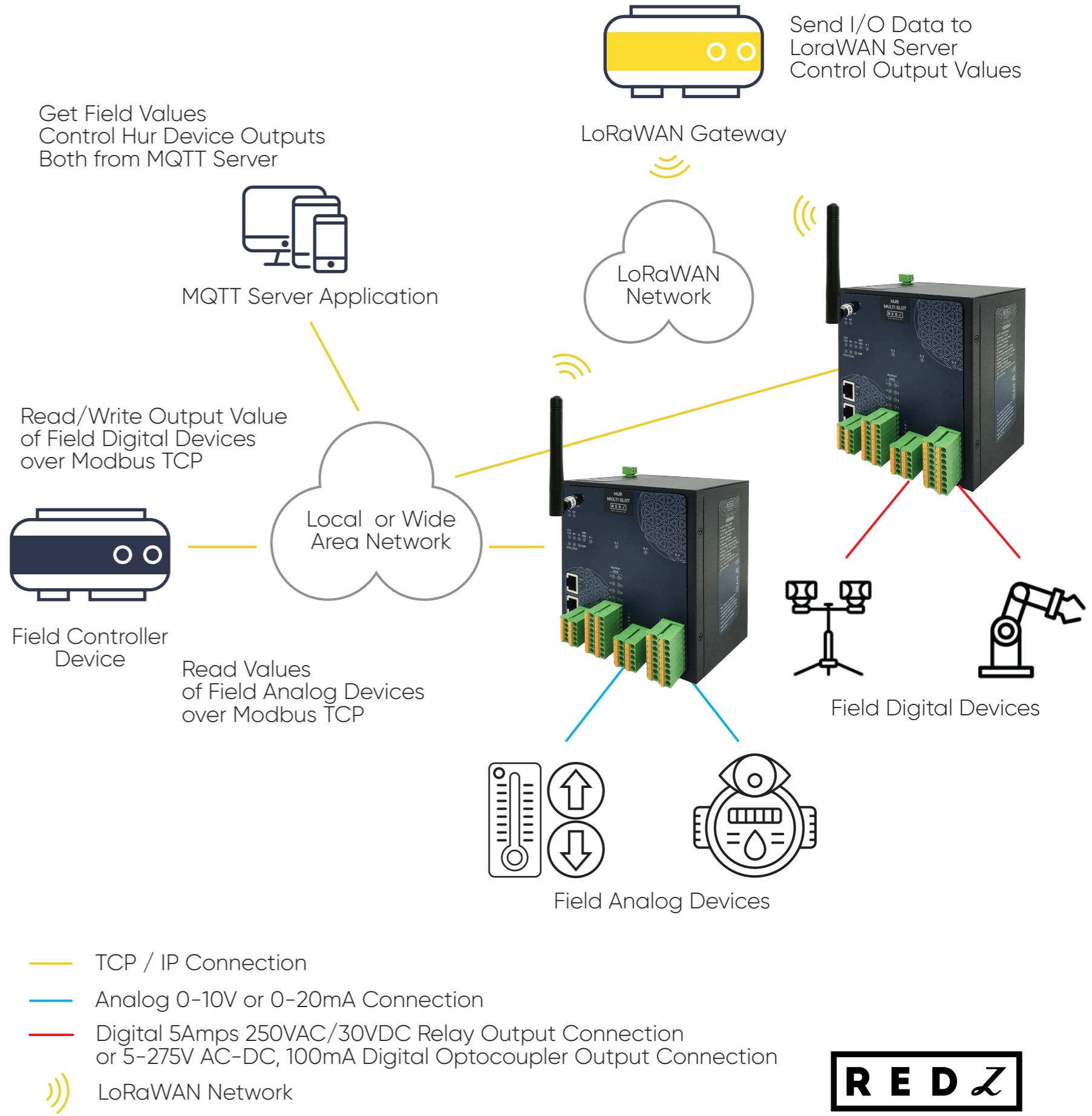
Different I/O Options on Each Slot
and 2 x 10/100Base-T(x) Ports



HUR HUR Series Modbus TCP Remote Input/Output (I/O) Devices are designed for facilities of rugged industry and infrastructure. HUR Series Modbus TCP Remote I/O Devices are tailored to perform various features such as wide temperature, wide range power input range... etc. HUR Series Modbus TCP Remote I/O Devices offers different I/O combinations, which provide greater flexibility and are compatible with many different applications that makes them the perfect choice for establishing a cost-effective remote I/O system.

Multi Slot versions of HUR Series Modbus TCP Remote Input/Output (I/O) Devices support up to 32 I/O. A combination of Analog Input, Digital Input, Analog Output or Digital Output can be selected for each slot. All I/O data can be read via Modbus TCP and can be sent to MQTT Server in same time. I/O data can also be controlled through MQTT Server via commands for output models. Output versions also support I/O Mirror function which is copying an input of in 1 HUR device to Output on 1 or more HUR devices.

LoRaWAN versions of Multi Slot HUR Series Modbus TCP Remote Input/Output (I/O) Devices adds LoRaWAN connectivity on top of all features that HUR Multi versions support. Up to 32 I/O can be read/controlled via Modbus TCP protocol, I/O data can be sent to MQTT Server and I/O data can be sent to LoRaWAN Server and all takes place simultaneously.



Main Features

- Supports 2 x 10/100Base-T(X) ports
- Supports Full/Half-Duplex, auto MDI/MDI-X on each port
- Embedded web interface for ease of use
- **2 different Operating Modes:**

Modbus TCP Remote I/O Device with MQTT Publisher in Server Mode

Modbus TCP Remote I/O Device as a slave Device in Client Mode and Supports I/O Mirror for Output Devices

- MQTT Publisher with different data transfer options

OBIS Values as Data Objects

OBIS Values as Modbus Frame

- **HUR can send Data to Server and MQTT Server can remotely control**

Output Versions of HUR Devices in the same time

- Up to 10 client connection in Server Mode
- DHCP Server Capability
- Easy to follow Device Status on web interface
- Device Address changeable via web interface
- Easy to follow Device Parameters such as Device Up Time, Modbus read counter etc. on web interface
- Easy to follow Ethernet data packages on web interface
- Black List and White List based IP Filter in TCP Server Mode
- Firmware Upgrade over Web
- 2 firmware storage capability on same device (1 active only)
- AC or DC wide range power options
- Wide operating temperature range from -25 to 70 °C AC and -40 to 85 °C DC power input versions
- Rugged Metal IP-40 housing design
- DIN-Rail mounting

Extra Features for Output Models

- Output configuration can be defined by user for restart
- Output values can be saved and applied during auto restart
- I/O Mirror functionality: Device can duplicate output from a Modbus input device

LoRaWAN Features

- **Radio Band Options:**

868MHz

EU 868 MHz – Europe, LoRaWAN RF Communication

LoRaWAN data send interval configurableWide

Built in LoRaWAN Duty Cycle Check

Activation Over Air (OTAA) or Activation by Personalization (ABP) Selectable

User defined LoRAWAN Port

- Adaptive Data Rate functionality
- Selectable Uplink Data Rate
- Selectable Power Level
- LoRaWAN Class C and Class A support
- Easy to follow Device Status on web interface
- Easy to follow LoRaWAN packages on web interface

Technical Specifications

LoRa TECHNOLOGY

Based on	STM32L151CxU6Axx Pre-Certified according to EN 300 220
Sensitivity	Down to -138 dBm
Link Budget	Up to 156 dB
Communication Distance	Up to 15 km (Line of Sight)
Typical Communication Distance Indoor/Urban	> 2 km
LoRaWAN Activation Options	Activation Over Air (OTAA) Activation by Personalization (ABP) User Selectable
LoRaWAN Port	User Selectable
Adaptive Data Rate	Available
LoraWAN Class	Class A Class C
Tx Power Level	0 to 16dBm Configurable
Sent Data	Sends Status Message and I/O Status

Uplink Data Rate	SF12 / 125 kHz / 250 bps SF11 / 125 kHz / 440 bps SF10 / 125 kHz / 980 bps SF9 / 125 kHz / 1760 bps SF8 / 125 kHz / 3125 bps SF7 / 125 kHz / 5470 bps SF7 / 250 kHz / 11000 bps FSK 50k / NA / 50000 bps
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ETHERNET SWITCH TECHNOLOGY

Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-T(X) IEEE 802.3x Flow Control
Mac Table	1K MAC address entry
Processing	Store-and-Forward
Memory	448K bits packet buffer memory

MODBUS TCP CHARACTERISTICS

Modbus Protocol	<ul style="list-style-type: none">• Modbus TCP
Modbus Address	<ul style="list-style-type: none">• Default value is 0x01• Changeable via Web Interface
Monitoring Parameters	<ul style="list-style-type: none">• Modbus Read counter• Time counter (in seconds)• FW version• Device Up Time• Serial and TCP packages

EXTRA FEATURES FOR OUTPUT MODELS

Save Output Values Before Auto Restart	<ul style="list-style-type: none">• Default enabled and when system auto restarts the values are saved and applied after restart• Changeable via Web Interface
Save Output Values and Apply on Power Up	<ul style="list-style-type: none">• Default disabled, user can activate and enter parameters for each output individually• Changeable via Web Interface
I/O Mirror Functionality	<ul style="list-style-type: none">• Default disabled• If enabled, device can read input value of remote HUR device and duplicate those values as output

CONNECTORS AND PORTS

SMA Antenna Connector For LoRa	1 Standard SMA female interface, 50 Ohm
Console Port	Micro USB or USB Type-C connection for LOG in 115200 baud
10/100T(X) RJ45 Ports	Ethernet Connection on 2 ports
Reset Buttons	Reset to Client and Reset to Server Operating modes buttons

LED INDICATORS

Power Indicator	Power LED
10/100T(X) Indicators	Activity LEDs: ETH1, ETH2 and HUR (Activity of device itself)
System Indicators	Status LED, Tx and Rx of data LEDs and Server LED (LED ON: Server Operating Mode, LED OFF: Client Operating Mode)
System LED	Flashes during normal operation of I/O module
Slot LEDs	S-1, S-2, S-3 and S-4: Turns On for 1 second and Turns OFF for 1 second under normal operation of I/O Interface. Each LED corresponds to related I/O Slot.
Console Indicators	Tx and Rx of data LEDs

I/O CONNECTORS AND INDICATORS - HUR1711 & HUR1811

I/O Connector

- Terminal Connectors
Digital Outputs: 4 Slots x 8 Channel Input Terminals, polarity is not important.
Total 16 connection pins for each slot.
- 5-275V AC-DC, 100mA Digital Optocoupler Outputs

Isolation

- Digital Optocoupler Output: 3750 Vrms for 1 min

Over Voltage Protection

- Digital Optocoupler Output: 275V
- Non-repetitive peak on-state pulse current: 80A

Output Status LEDs

- Shows which pin is ON and OFF for Digital Output versions.



I/O CONNECTORS AND INDICATORS - HUR1712 & HUR1812

I/O Connector

- Terminal Connectors
Digital Outputs: 4 Slots x 8 Channel 5Amps 250VAC/30VDC Digital Relay Output
8 Channel Output terminals and polarity is not important. 2 pins for each connection and total 16 connection pins.
Maximum 5 Amperes 250VAC/30VDC for each channel.

Dielectric Strength

- 3kV dielectric strength (between coil and contacts)
Meets IEC61131-2 reinforce insulation

Output Status LEDs

- Shows which pin is ON and OFF for Digital Output versions.



I/O CONNECTORS AND INDICATORS - HUR1713 & HUR1813

I/O Connector

- Terminal Connectors
Digital Inputs: 4 Slots x 8 Channel
12-275V AC-DC, 60mA Digital
Optocoupler Input
8 Channel Input terminals and polarity
is not important. 2 pins for each
connection and total 16 connection
pins for each slot.

Isolation

- Digital Optocoupler Input:
4470Vrms 1min

Over Voltage Protection

- Digital Optocoupler Input:
275V



I/O CONNECTORS AND INDICATORS - HUR1714 & HUR1814

I/O Connector

- Terminal Connectors
Analog Inputs: 4 Slots x 8 Channel
0-20mA Analog Input
Polarity is important and all inputs
references to Common point.
2 Common points 8 Analog Inputs total
10 connection pins for each slot.
0-10V and 0-20mA Selectable during
order (default is 0-20mA) Analog Input

Analog Input Features

- 16-bit resolution with no missing codes
Throughput: 250 kSPS



I/O CONNECTORS AND INDICATORS - HUR1715 & HUR1815

I/O Connector

- Terminal Connectors
Analog Outputs: 4 Slots x 5 Channel
4-20mA Analog Output
5 Analog Outputs total 10 connection pins for each slot.

4-20mA Analog Output designed for 24V 250ohm load or 12V 125ohm load.

Over Voltage Protection

- Analog Output:
40V



I/O CONNECTORS AND INDICATORS - HUR1721 & HUR1821

I/O Connector

SLOT 1
SLOT 2

- Terminal Connectors
Digital Outputs: 2 Slots x 8 Channel
Input Terminals, polarity is not important.
Total 16 connection pins for each slot.
- 5-275V AC-DC, 100mA Digital Optocoupler Outputs

I/O Connector

SLOT 3
SLOT 4

- Terminal Connectors
Digital Inputs: 2 Slots x 8 Channel
12-275V AC-DC, 60mA Digital Optocoupler Input

8 Channel Input terminals and polarity is not important. 2 pins for each connection and total 16 connection pins for each slot.



I/O CONNECTORS AND INDICATORS - HUR1722 & HUR1822

I/O Connector SLOT 1 SLOT 2

- Terminal Connectors
Digital Outputs: 2 Slots x 8 Channel
5Amps 250VAC/30VDC Digital Relay
Output
8 Channel Output terminals and polarity
is not important. 2 pins for each
connection and total 16 connection pins
for each slot.

I/O Connector SLOT 3 SLOT 4

- Terminal Connectors
Digital Inputs: 2 Slots x 8 Channel
12-275V AC-DC, 60mA Digital
Optocoupler Input
8 Channel Input terminals and polarity
is not important. 2 pins for each
connection and total 16 connection
pins for each slot.



I/O CONNECTORS AND INDICATORS - HUR1725 & HUR1825

I/O Connector SLOT 1 SLOT 2

- Terminal Connectors
Analog Outputs: 2 Slots x 5 Channel
4-20mA Analog Output
5 Analog Outputs total 10 connection
pins for each slot.
4-20mA Analog Output designed for
24V 250ohm load or 12V 125ohm load.

I/O Connector SLOT 3 SLOT 4

- Terminal Connectors
Analog Inputs: 2 Slots x 8 Channel
0-20mA Analog Input. Polarity is
important and all inputs references to
Common point. 2 Common points 8
Analog Inputs total 10 connection pins
for each slot. 0-10V and 0-20mA
Selectable during order.



I/O CONNECTORS AND INDICATORS - HUR1741 & HUR1841

I/O Connector SLOT 1

- Terminal Connectors
Analog Outputs: 1 Slot x 5 Channel
4-20mA Analog Output
5 Analog Outputs total 10 connection pins.
4-20mA Analog Output designed for 24V 250ohm load or 12V 125ohm load.

I/O Connector SLOT 2

- Terminal Connectors
Digital Outputs: 1 Slot x 8 Channel
5Amps 250VAC/30VDC Digital Relay Output
8 Channel Output terminals and polarity is not important. 2 pins for each connection and total 16 connection pins.

I/O Connector SLOT 3

- Terminal Connectors
Analog Inputs: 1 Slot x 8 Channel
0-20mA Analog Input. Polarity is important and all inputs references to Common point. 2 Common points 8 Analog Inputs total 10 connection pins.
0-10V and 0-20mA Selectable during order.

I/O Connector SLOT 4

- Terminal Connectors
Digital Inputs: 1 Slot x 8 Channel
12-275V AC-DC, 60mA Digital Optocoupler Input
8 Channel Input terminals and polarity is not important. 2 pins for each connection and total 16 connection pins.





POWER - DC MODELS

Input Range	5-48V DC wide range power input (Allows up to 60 V DC)
Reverse Polarity Protection	Available
Thermal Shutdown and Current Limit Protection	Available

PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

Enclosure	Metal, IP 40
Dimensions	115 x 970 x 126 (w x d x h) mm
Weight	~700gr
Storage Temperature	-65 to 150 °C
Operating Temperature	-40 to 85 °C
Operating Humidity	5% to 95% Non-condensing



POWER - AC MODELS

Input Range	100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Input
Isolation	Fully Isolated >4200Vrms, 5mA 1 Min Insulation: Class II

PHYSICAL AND ENVIRONMENTAL CHARACTERISTICS

Enclosure	Metal, IP 40
Dimensions	115 x 970 x 126 (w x d x h) mm
Weight	~700gr
Storage Temperature	-40 to 105 °C
Operating Temperature	-30 to 70 °C
Operating Humidity	5% to 95% Non-condensing

Ordering Information

HUR1711: Multi Slot, 4 x 8 Channels 5-275V AC-DC, 100mA Digital Optocoupler Output Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 5-48V (max. 60V) DC Power Input

HUR1811: Multi Slot, 4 x 8 Channels 5-275V AC-DC, 100mA Digital Optocoupler Output Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Power Input

HUR1712: Multi Slot, 4 x 8 Channels Digital 5Amps 250VAC/30VDC Relay Output Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 5-48V (max. 60V) DC Power Input

HUR1812: Multi Slot, 4 x 8 Channels Digital 5Amps 250VAC/30VDC Relay Output Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Power Input

HUR1713: Multi Slot, 4 x 8 Channels 12-275 AC-DC, 60mA Digital Optocoupler Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 5-48V (max. 60V) DC Power Input

HUR1813: Multi Slot, 4 x 8 Channels 12-275 AC-DC, 60mA Digital Optocoupler Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Power Input

HUR1714: Multi Slot, 4 x 8 Channels 0-20mA Analog Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 5-48V (max. 60V) DC Power Input

HUR1814: Multi Slot, 4 x 8 Channels 0-20mA Analog Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Power Input

Ordering Information

HUR1715: Multi Slot, 4 x 5 Channels 4-20mA Analog Output Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 5-48V (max. 60V) DC Power Input

HUR1815: Multi Slot, 4 x 5 Channels 4-20mA Analog Output Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Power Input

HUR1721: Multi Slot, 2 x 8 Channels 5-275V AC-DC, 100mA Digital Optocoupler Output, 2 x 8 Channels 12-275 AC-DC, 60mA Digital Optocoupler Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 5-48V (max. 60V) DC Power Input

HUR1821: Multi Slot, 2 x 8 Channels 5-275V AC-DC, 100mA Digital Optocoupler Output, 2 x 8 Channels 12-275 AC-DC, 60mA Digital Optocoupler Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Power Input

HUR1722: Multi Slot, 2 x 8 Channels Digital 5Amps 250VAC/30VDC Relay Output, 2 x 8 Channels 12-275 AC-DC, 60mA Digital Optocoupler Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 5-48V (max. 60V) DC Power Input

HUR1822: Multi Slot, 2 x 8 Channels Digital 5Amps 250VAC/30VDC Relay Output, 2 x 8 Channels 12-275 AC-DC, 60mA Digital Optocoupler Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Power Input

Ordering Information

HUR1725: Multi Slot, 2 x 5 Channels 4-20mA Analog Output, 2 x 8 Channels 0-20mA Analog Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 5-48V (max. 60V) DC Power Input

HUR1825: Multi Slot, 2 x 5 Channels 4-20mA Analog Output, 2 x 8 Channels 0-20mA Analog Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Power Input

HUR1741: Multi Slot, 1 x 5 Channels 4-20mA Analog Output, 1 x 8 Channels Digital 5Amps 250VAC/30VDC Relay Output, 1 x 8 Channels 0-20mA Analog Input, 1 x 8 Channels 12-275 AC-DC, 60mA Digital Optocoupler Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 5-48V (max. 60V) DC Power Input

HUR1841: Multi Slot, 1 x 5 Channels 4-20mA Analog Output, 1 x 8 Channels Digital 5Amps 250VAC/30VDC Relay Output, 1 x 8 Channels 0-20mA Analog Input, 1 x 8 Channels 12-275 AC-DC, 60mA Digital Optocoupler Input Modbus TCP Remote IO Device with MQTT and 868MHZ LoRaWAN Connectivity, 100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Power Input

PRODUCT SELECTION

Model	868MHz LoRaWAN Connectivity	5-48V (max. 60V) DC Power input	100 - 240V AC (120 - 370V DC), 50Hz to 60Hz AC Power Input	2 x 10/100 T(x) ETH ports	8 Channel 5-275V AC-DC, 100mA Digital Optocoupler Output	8 Channel Digital 5Amp. Relay Output	8 Channel 12-275 AC-DC, 60mA Digital Optocoupler Input	8 Channel 0-10V and 0-20mA Selectable Analog Input	5 Channel 4-20mA Analog Output
HUR1711	●	●		●	● (x4)				
HUR1811	●		●	●	● (x4)				
HUR1712	●	●		●		● (x4)			
HUR1812	●		●	●		● (x4)			
HUR1713	●	●		●			● (x4)		
HUR1813	●		●	●			● (x4)		
HUR1714	●	●		●				● (x4)	
HUR1814	●		●	●				● (x4)	
HUR1715	●	●		●					● (x4)
HUR1815	●		●	●					● (x4)
HUR1721	●	●		●	● (x2)		● (x2)		
HUR1821	●		●	●	● (x2)		● (x2)		
HUR1722	●	●		●		● (x2)	● (x2)		
HUR1822	●		●	●		● (x2)	● (x2)		
HUR1725	●	●		●				● (x2)	● (x2)
HUR1825	●		●	●				● (x2)	● (x2)
HUR1741	●	●		●		●	●	●	●
HUR1841	●		●	●		●	●	●	●