IoT Catalyst
Edge Gateway

IoT Catalyst Edge

IoT Catalyst Edge gateway is an IoT edge computing device designed for use in industrial application in control and automation systems.

Features

- **Powered by ARM Processor**

  BCM2837 processor
  32Gbyte RAM
  1Gbyte eMMC Flash

- **Hardware Security**

  HW Crypto Element to securely store private keys of digital certificates, making sure they never leave the gateway

- **A lot of inputs and outputs**

  16 x digital opto-isolated inputs

  4 x dry contact inputs

  2 x Relays
  8 x open drain outputs 4 x analog inputs 0-10V
  2 x analog outputs 0-10V

- **Rich set of interfaces**
  4 x USB 2.0
  CAN
  1-Wire
  RS-232
  RS-485
  Ethernet
  HDMI
  2 X mPCIE for GPRS/3G/4G/LTE, LoRa, NB-IoT, WM-BUS

- **Real Time Clock**

  Real Time Clock with supercapacitor backup

- **Robust design**

  Two watchdogs

  Meets requirements of EN 61326-1:2013 for basic and industrial electromagnetic environments

- **Created for long life**

  Designed, developed, produced in Italy

  No moving parts

  No electrolytic capacitors

- **Designed for low power consumption**

  High efficiency isolated DC/DC converters
  Peripherals power supply control

- **Integrated UPS**

  Supercapacitor based UPS for reliable operation
  Safe shut down procedure
  Power button

- **Linux on board**

  Full support for all interfaces

  Open source and commercial software for automation and control systems

- **DIN rail enclosure**

  DIN rail enclosure with optional wall mount bracket

Applications

- **Control and automation systems**
- **Home automation**
- **Building management systems**
- **Process control**
- **Industrial automation**
- **Machine control**
- **Industrial control networks**
- **Monitoring**

Technical Specifications

CPU & memory			
SoC	BCM2837, ARM Cortex A53 core, 1.2GHz		
RAM memory	1 Gbyte		
Flash memory	32 Gbyte eMMC		
Power supply			
Supply voltage	18 – 75 V DC (Isolated)		
User selectable power port	12 V DC (input/output)		
Power consumption	Conditions	Supply current @ 24V	
	CPU 100% load, Ethernet 100Mbit active	210 mA	
	CPU 1% load, Ethernet no active	75 mA	
	CPU 1% load, +3V3 peripherals switched off	40 mA	
Interfaces			
Ethernet	1 x Ethernet 10/100-Mbit, Auto MDI-MDIX, RJ-45		
CAN	1 x CAN, MCP2515, terminal blocks		
1-WIRE	1 x 1-WIRE, DS2482S-100+, terminal blocks		
RS-232	1 x RS-232 (RXD, TXD, RTS, CTS), DB9 male		
RS-485	1 x RS-485, terminal blocks		
USB	4 x USB host 2.0 Type-A, 1 x Mini USB 2.0 Type B		
PCI Express Mini Card	2xmPCIewithUSB2.0andMini-SIMcardsupport,cableU.FLtoSMAfemale connector for external antenna		
Inputs & Outputs			
Relay	Channels	2	
	Configuration	NC-COM-NA	
	Max Ratings	30 VDC / 1 A	
Digital opto-isolated inputs	Channels	16	
	Low-level input voltage	0 ... +5 V DC	
	High-level input voltage	+10 ... +28V DC	
	Isolation voltage	5 kV_{RMS}	
	Input resistance	>=10kΩ	
Dry contact inputs	Channels	4	
Open drain outputs	Channels	8	
	Maximum current	500 mA	
	Maximum voltage	28 V DC	
Analog inputs	Channels	4	
	Voltage Range	0 ... +10V	
	Resolution	10-bit	
Analog outputs	Channels	2	
	Voltage Range	0 ... +10V	
	Resolution	10-bit	
5V output DC	Total maximum current	1 A	
	Note: Total maximum current is the current of +5V DC connector output and all USB +5V outputs		
Terminal blocks	Wire range	0.5 - 1.5 mm^2, 28 -16 AWG	
	Torque	0.2 Nm	

	Strip length	7 mm
Standards		
EU standard	EN 61326-1:2013	

MTBF	
50 °C	> 515.000 hours
65 °C	> 200.000 hours

Environment		
EMC	EN 55011 group 1 class A, EN 55011 group 1 class B	
Operating Temperature	-30 °C ~ 70 °C	
Operating Relative Humidity	5 ~ 95%, non-condensing	
Storage Temperature	-30 °C ~ 80 °C	
Protection Rating	IP20	
Miscellaneous		
Watchdog	Two watchdogs: WDT 1: SoC BCM2837 built-in WDT 2: connected to GPIO	
Dimension	212 x 114 x 59 mm (including connectors)	
Enclosure	Mount	Din-rail, wall mount
	Material	ABS UL-94-HB
Weight	295g	

Connections

Power supply and relays

Fig. 1 shows power supply and two relays whose contacts are arranged on the terminal board.

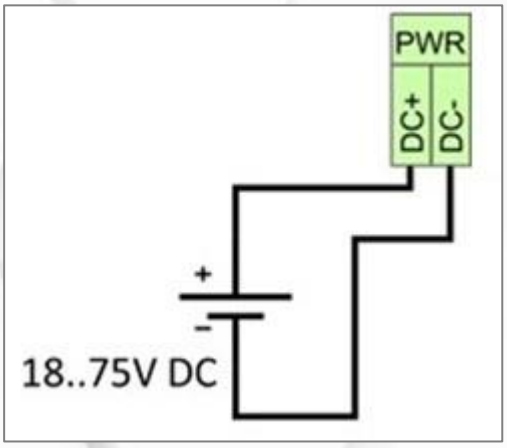

Fig. 1. Power supply and relays connections

Digital opto-isolated inputs

Fig. 2 shows digital opto-isolated inputs connections.

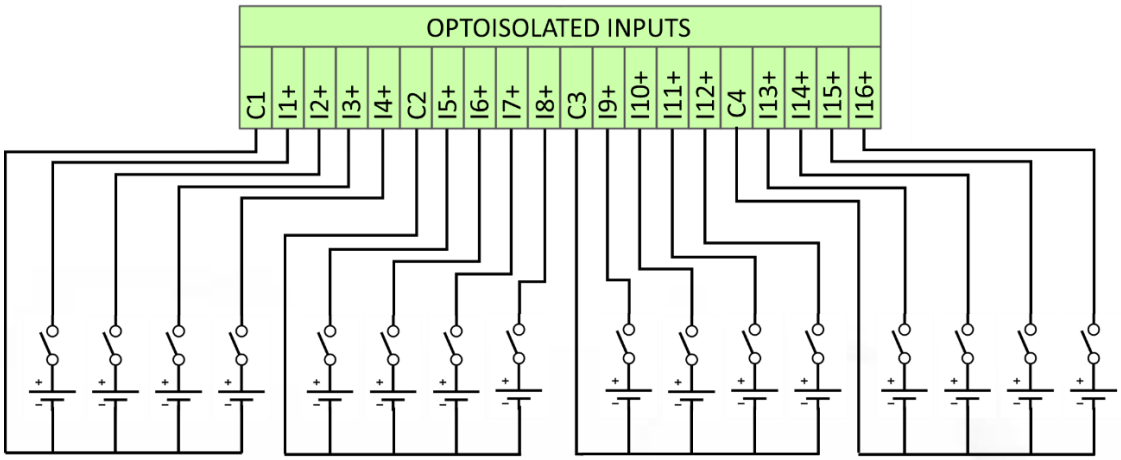

Fig. 2. Digital opto-isolated inputs connections

Open drain outputs

Recommended connection of LED (a) and relays (b,c) to open drain outputs is shown on fig. 3. O+ is terminal to connect + potential when switching inductive load. The internal diodes protect the output transistors from transient voltage peaks (b). In case of long cables to relay, connection with external diode (c) is recommended.

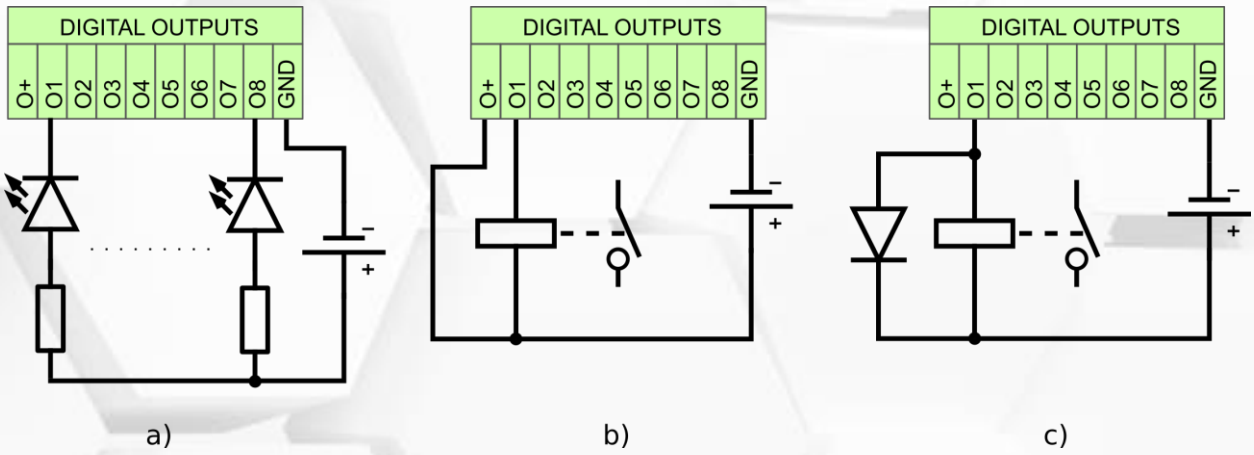

Fig. 3. Example digital outputs connections: (a) LED, (b,c) relay

Analog inputs and outputs

Fig. 4 shows analog inputs and outputs connections.

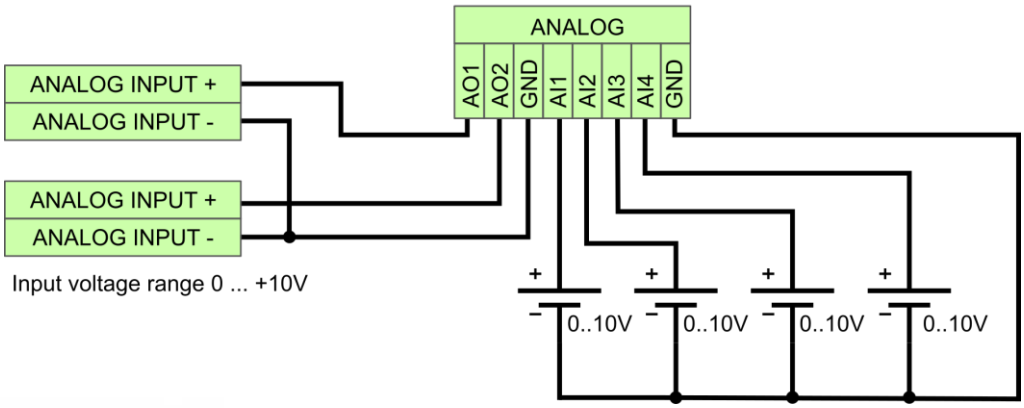

Fig. 4. Analog inputs and outputs connecti

Dry contact inputs

Fig. 5 show dry contact inputs connections.

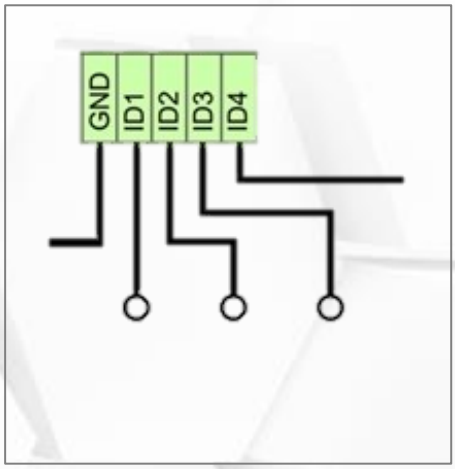

Fig. 5. Dry contact inputs connections

Cable length

Connector	Maximum cable length
Power supply	3 m
USB	3 m
HDMI	3 m
1-wire	3 m
Analog inputs/outputs	3 m
Digital inputs/outputs	3 m
RS-232	3 m
Ethernet 10/100Mbit	30 m
CAN	1000 m *
RS-485	1200 m *

* Note: Maximum cable length depends of the baudrate and cable quality.

Dimensions

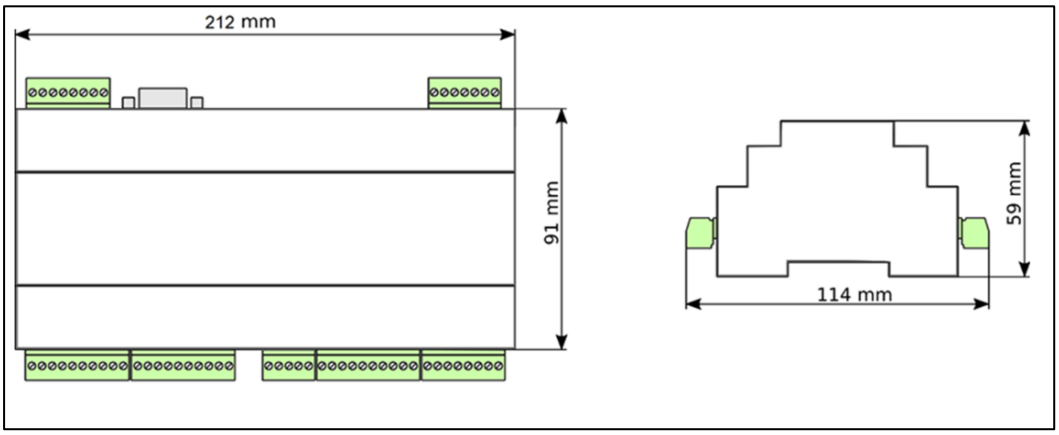

Fig. 6. FWD Edge XT dimensions

Environmental protection

This marking on the product, accessories or literature indicates that the product and its electronic accessories should not be disposed of with other household waste. To prevent possible harm to the environment please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.