ECM-IO16D

Digital Input/Output Module

Quick Reference Guide (revision 1.60 for H/W Rev.B)

OVERVIEW

The Highcross ECM-IO16D module has sixteen digital input/output channels.

Digital inputs can be configured as normally-open or normally-close input type.

Digital outputs are implemented as open collector.

Control of device is produced by TCP/IP network. Built-in web-interface is used to device configuration.

The module is designed to be installed on a standard 35 mm DIN rail.

SPECIFICATIONS

Number of channels	16
Type of digital inputs	TTL, reference voltage 5 VDC, short circuit current ~ 1 mA
Type of digital outputs	Open collector
Maximum current of digital outputs	200 mA
Maximum voltage on digital outputs	24 VDC
Supply voltage range	12–24 VDC via power terminals 48 VDC via PoE port
Consumption current	120 mA @ 12 VDC

Operating temperature	-20° C to 45° C -5° F to 115° F
Operating humidity	5 to 80% RH non-condensing
Dimensions (HWD)	90 mm x 88 mm x 58 mm 3.54" x 3.46" x 2.28"
Weight	175 g 0.38 lbs
Supported data exchange protocols	NetString ModBus TCP ModBus RTU over TCP

DEVICE CONTROL COMPONENTS

FACE PANEL COMPONENTS	
1–16	Activity indicators of channels 1–16
status	Indicates power status and connection to controllers
link/act	Ethernet link and activity indicator
reset	Multifunctional button (reboot, reset, bootloader)
TERMINAL PANELS	
LAN	Ethernet network and PoE power connector
1–16	Terminals of digital inputs/outputs
GND	Ground contact of digital inputs/outputs, electrically connected to **PWR "–"** contact
PWR	Power supply terminals (12–24 VDC)
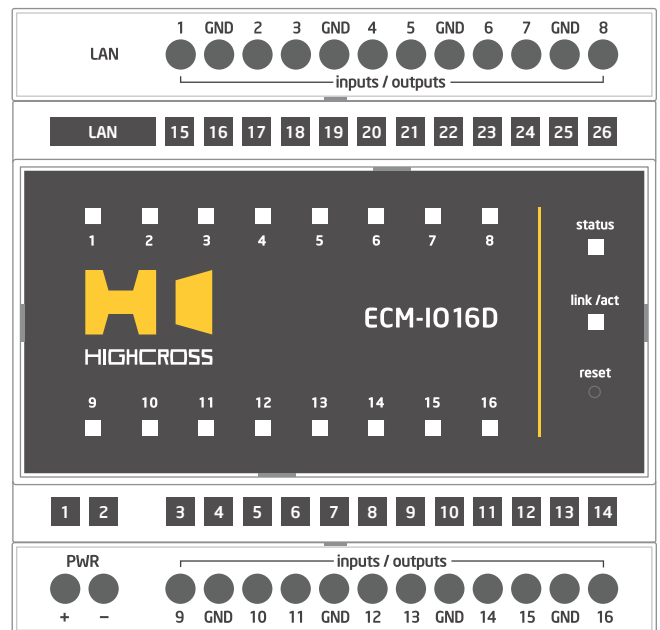
LED "status" indicates the power connection and connection status with controllers	
Off	No power connected
Blink (1 Hz)	No connection with external controllers
Fast blink (4 Hz)	The device is in bootloader mode
On	Connected to external controllers

LED "link" indicates Ethernet network link and activity	
Off	No connection to Ethernet network
Blink	Connected to Ethernet network Receiving Ethernet data packets
On	Connected to Ethernet network No network activity

LEDs "1-16" display status of digital inputs only	
Off	Input is not activated
On	Input is active

Multifunctional button "reset"

To reboot the device push the button for 1 second

To reset the device to factory defaults push and hold the button for 5 seconds.

IP-address will be set to 10.0.1.101, subnet mask - to 255.255.255.0. All other settings will be set to default values

For firmware update, power off the device, push and hold the button and power the device on. Release the button after the LED "**status**" will start to blink fast.

The network settings of the device started in bootloader mode are: IP-address – **10.0.1.101**, subnet mask – **255.255.255.0**

The **PWR "+"** and **"–"** terminals are designed to power the device 12–24 VDC if connected Ethernet switch has no PoE support.

Terminals **1–16** and **GND** of channels 1–16 are designed to connect wires from monitored equipment in case of digital input and from controlled device in case of digital output.

In case of digital output activation the corresponded digital input will change its state too. If the input is in NO mode, the LED will light when the output is turned on. And if the input is in NC mode, the LED will NOT light when the output is turned on.

SETUP AND CONFIGURATION

The configuration of the module is handled via web-interface.

To start working with the device:

- Connect the device to the Ethernet switch. If the switch has no PoE support, connect the power 12–24 VDC to the **PWR** terminal

- Ensure that your computer can connect to the network address 10.0.1.101 or set the TCP/IP settings of active network adaptor to: IP address – **10.0.1.100**, subnet mask – **255.255.255.0**

- Enter **10.0.1.101** in address bar of your web-browser

- Enter: login – **root**, password – **root**

- Configure the device settings

The web-interface contains the next web-pages:

Home	Displays the hardware revision and the firmware version
Settings	Network settings, type of data exchange protocol, outputs and inputs settings
Control	Displays current state of inputs and outputs. Control of outputs
Status	Displays current TCP/IP connections and device uptime info

For further information refer to www.highcross.pro