ECM-AO4D

Analog Output Module

Quick Reference Guide (revision 1.40 for H/W Rev.B)

OVERVIEW

The analog output module ECM-AO4D is designed to control equipment via analog 0-10V interface.

The module has open collector terminals to control the external power relays or as an additional source of ON and OFF signal.

The control, data exchange and configuration are all handled via TCP/IP protocol.

Every channel has a pair of digital inputs for manual control and supports one-button and two-button control modes.

SPECIFICATIONS

Number of channels	4
Number of digital inputs	4 pair
Maximum current of 0-10V output	10 mA
Isolation of 0-10V outputs	Yes
Continuous short circuit current	20 mA
Open collectors rating	max 200 mA, up to 24 VDC
Supply voltage range	12–24 VDC via power terminals 48 VDC via PoE port
Consumption current	200 mA @ 12 VDC

Network interface	Ethernet (10/100)
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	180 g 0.40 lbs
Supported data exchange protocols	NetString ModBus TCP ModBus RTU over TCP

DEVICE CONTROL COMPONENTS

FACE PANEL COMPONENTS	
outputs 1–4	Indicators of outputs status
inputs 1–4	Indicators of inputs status
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
PWR	Power supply terminals (12–24 VDC)
outputs 0-10V 1–4	Terminals of isolated 0-10V outputs
OC 1–4	Terminals of open collectors
inputs 1A–4B	Terminals of digital inputs
GND	Ground contact for inputs, electrically connected to **PWR "–"** contact
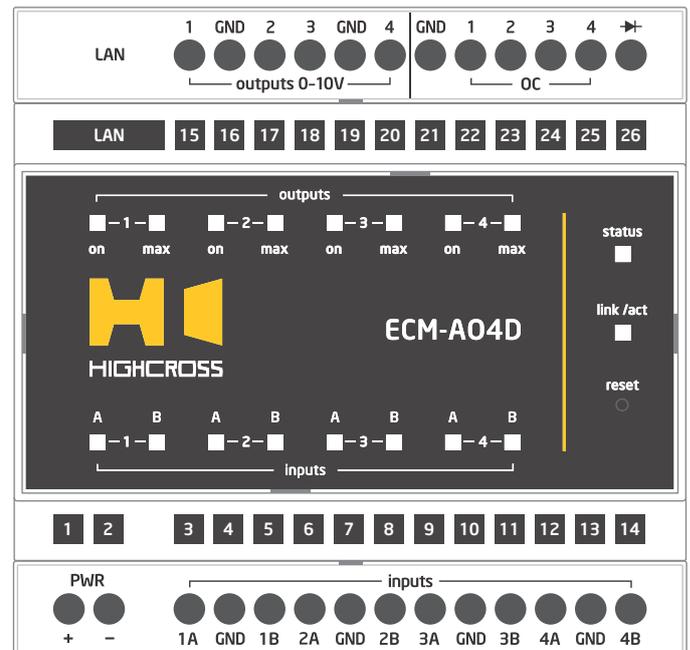
LED "status" indicates the power connection and connection status with controllers	
Off	No power connected
Blink (1 Hz)	No connection with external controllers
Fast blink (4 Hz)	The device is in bootloader mode
On	Connected to external controllers

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 "1–4 on" display status of output	
Off	The output is off
On	The output is on

LEDs "1–4 max" display that output power is 100%	
Off	The output power is less 100%
On	The output power is 100%

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.

For connection diagrams refer to the Instruction manual.

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 digital inputs settings
Control	Control of output channels
Status	Displays current TCP/IP connections and device uptime info

For further information refer to www.highcross.pro