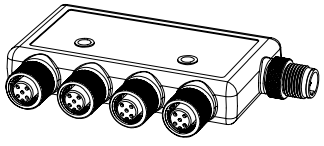
R90C 4-Port Modbus® to Analog Hub

Quick Start Guide

This guide is designed to help you set up and install the R90C 4-Port ModBus to Analog Hub. For complete information on programming, performance, troubleshooting, dimensions, and accessories, please refer to the Instruction Manual at www.bannerengineering.com. Search for p/n 227463 to view the Instruction Manual. Use of this document assumes familiarity with pertinent industry standards and practices.



- Compact ModBus® to analog converter that generates a current or voltage output on each of the four ports
- Rugged over-molded design meets IP65, IP67, and IP68
- Connects directly to a sensor or anywhere in-line for ease of use
- R90C ModBus hubs are a quick, easy, and economical way to integrate analog outputs into a ModBus system

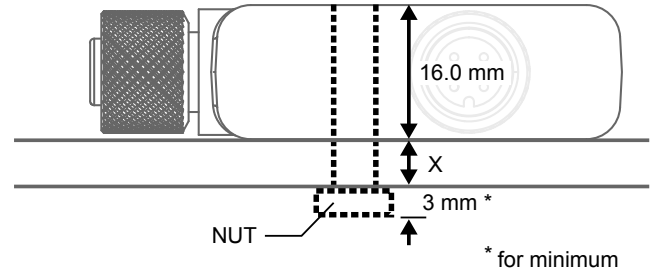
Overview

The R90C 4-Port ModBus to Analog Hub can output either 0 V to 10 V, or 4 mA to 20mA, to each of the four unique ports. Writing to the appropriate ModBus RTU register allows the user to select the type of output - voltage or current - for each port.

Mechanical Installation

Install the R90C 4-Port ModBus to Analog Hub to allow access for functional checks, maintenance, and service or replacement.

All mounting hardware is supplied by the user. Fasteners must be of sufficient strength to guard against breakage. Use of permanent fasteners or locking hardware is recommended to prevent the loosening or displacement of the device. The mounting hole (4.5 mm) in the R90C 4-Port ModBus to Analog Hub accepts M4 (#8) hardware. See the figure below to help in determining the minimum screw length.



Screw Length = 16.0 mm + “X” mm + 3 mm

CAUTION: Do not overtighten the R90C 4-Port ModBus to Analog Hub's mounting screw during installation. Overtightening can affect the performance of the R90C 4-Port ModBus to Analog Hub.

Status Indicators

The R90C 4-Port ModBus to Analog Hub has matching amber LED indicators on both sides for each analog output port to allow for installation needs and still provide adequate indication visibility.

Analog Output Amber LEDs	
Indication	**Status**
Off	Turns off if the actual analog out value is outside the defined output range
Solid Amber	Turns on if the actual analog out value is within the defined output range

Power and Communication Green LED	
Indication	**Status**
Off	Power off
Solid Green	Power on
Flashing Green, 4 Hz	ModBus Communications are active

Original Document
227462 Rev. A

15 December 2022

227462

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

Specifications

Supply Voltage
24 V DC (± 10%) at 125 mA maximum

Power Pass-Through Current
4 A maximum total across all four ports

Load Requirements
Voltage Mode = Resistance > 1000 ohms
Current Mode = Resistance < 500 ohms

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Leakage Current Immunity
400 µA

Indicators
Green: Power, ModBus communication
Amber: Analog output status

Connections
(4) Integral 4-pin M12 female quick-disconnect connector
(1) Integral 5-pin M12 male quick-disconnect connector

Construction
Coupling Material: Nickel-plated brass
Connector Body: PVC translucent black

Vibration and Mechanical Shock
Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 0.5 mm amplitude, 5 minutes sweep, 30 minutes dwell)
Meets IEC 60068-2-27 requirements (Shock: 15G 11 ms duration, half sine wave)

Certifications

Banner Engineering BV Park Lane, Culliganlaan 2F bus 3, 1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House, Blenheim Court, Wickford, Essex SS11 8YT, Great Britain

Environmental Rating
IP65, IP67, IP68
NEMA/UL Type 1

Operating Conditions
Temperature: –40 °C to +70 °C (–40 °F to +158 °F)
90% at +70 °C maximum relative humidity (non-condensing)
Storage Temperature: –40 °C to +80 °C (–40 °F to +176 °F)

Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.
Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.
Supply wiring leads < 24 AWG shall not be spliced.
For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

Banner Engineering Corp. Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

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For patent information, see www.bannerengineering.com/patents.

FCC Part 15 Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Industry Canada

This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

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