



ACGW001 Modbus RTU to Modbus TCP/IP Gateway

Overview

1. The ACGW001 MODBUS RTU to MODBUS TCP/IP gateway uses the Intellicom NetBiter® MB100, as its core component.
2. The gateway is pre-configured with an IP Address and the MODBUS RTU Serial settings to communicate with the FFU units (ENVIRCO – MAC10 STD) with an additional differential pressure sensor provided by ENVIRCO. The speed control and pressure sensor feedback/tach input will be accessible from the SCADA TCP/IP system.
3. The gateway supports RS-485 “2-wire” (plus reference) connection to the Modbus network using Cat5e cable and RJ-45 connectors.
4. The gateway is supplied in a 12”x12”x 6” Steel NEMA 1 enclosure.
The ACGW001 requires an enclosure or restricted-access closet to be compliant with safety standards.

The IP Address of the ACGW001 is 192.168.1.10. This is a fixed IP address if a different IP address is required please contact AirCare for instructions.

Modbus Register Data Points

1. Five (6) Modbus registers are available for each FFU controller.
2. The data points for accessing the Modbus registers are shown in Table 1.
3. Each data point is configured as a 16-bit (2-byte) Unsigned Long WORD.

Table 1: Configured Modbus Register Data Points

Data Point Name	Register Address [zero-based indexing]	Type	Poll Rate (sec)	Value Range	Volatility	NVI	NVO
RunStop	40001 [0]	R/W	1	0/1	Runtime	Y	Y
Speed	40002 [1]	R/W	1	0-100	Runtime	Y	Y
Tach Feedback	40006 [5]	R	1	0-9999	Runtime	Y	N
SensorInput	40007 [6]	R	1	0-1023	Runtime	Y	N
DefaultSpeed	40010 [9]	R/W	1	0-100	Persistent	Y	Y
DefaultRunStop	40014 [13]	R/W	1	0/1	Persistent	Y	Y

Persistent values are stored in EEPROM in the FFU controllers and will persist across operating sessions of the FFU controllers.

Modbus Register Data Point Descriptions

- **RunStop:** Zero shuts down fan motor. 1 enables fan motor to run at value in Speed register.
- **Speed:** Runtime speed control. Zero (off) to 100% applied speed.
- **SensorInput:** 0 to 5V sensor signal scaled 0 to 1023; 0 = 0V; 1023 = 5V.
- **TACH Feedback:** Feedback from FFU Controller with tach feedback from EC motor
- **DefaultSpeed:** % Speed applied at power-up of FFU controller.
- **DefaultRunStop:** Motor enable/disable at power-up of FFU controller.

Operation of Modbus Registers

The FFU controllers load values from their own DefaultRunStop and DefaultSpeed registers into their runtime RunStop and Speed registers at the instant of power-up. These values are used by the FFU controllers for operation until they are changed.

Absence of FFU Speed Controller during Update

If a speed or run/stop value is changed while the target FFU speed controller is not operating or is not connected to the ACGW001, then the change may need to be repeated when operation or connectivity is restored.

HTTP Connection to the ACGW001

The ACGW001 IP address is 192.168.1.10. To connect to the embedded web server, use the IP address <http://192.168.1.10>

ACGW001 password is set to factory default value of “admin.”

Pressure Sensor Data Point Value & Electrical Signal Scaling

The SETRA sensor is configured for sensing pressure ranging 0-1” WC.

Sensor data points are scaled 0-1” WC to data point values 0-1023.

The SETRA sensor electrical signal is scaled 0-5V for 0-1” WC.

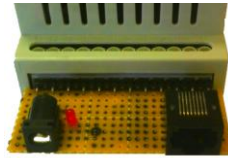
Electrical Power Parameters

Parameter	Min	Typical	Max	Units
Input Voltage Range	100	115	240	V RMS
Supply Frequency		50/60		Hz
Power			15	Watts

Modbus Serial Communication

- RS485: 2-wire + common
- Baud rate: 9600kbps
- Data bits: 8
- Parity: none
- Start/Stop bits: 1/1
- Cat5e cabling; RJ-45 wire terminals

An RJ-45 and 12Vdc jack adapters are supplied with the ACGW001 for convenient connection of standard Cat5e cable to the RS-485 Serial port. Cable cutting/stripping not required.



PowerSupply, Digital inputs, RS-232/485



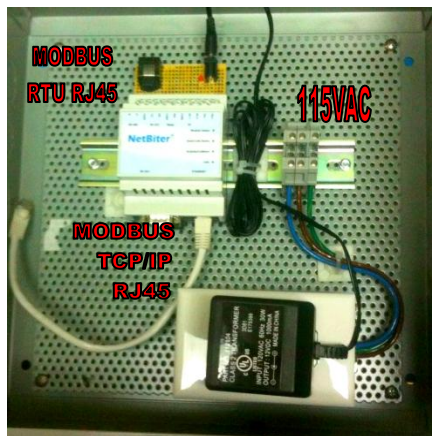
Serial interface
(DSUB-9, RS-232)

Ethernet interface
(RJ-45, 10/100Mbps)

Installation, Mechanical & Connection

The ACGW001 is installed in a 12"x12"x6" NEMA 1 Enclosure. The following is required to complete the installation of the ACGW001 to network.

- 2 Cat. 5e cables: 1 to connect to the TCP/IP network, the other to connect the MODBUS RTU FFU network to the RS232/485 serial port.
- 115VAC Line



WARNING: HIGH VOLTAGE IS REQUIRED AND SHOULD BE INSTALLED BY A LICENSED ELECTRICIAN.

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