



## G3 Technologies, Inc.

### G303-558 RIO User Documentation

(Supplement to "G303 RIO User Documentation" and "G303 RIO Data Sheet")

#### Introduction:

G3 Technologies, Inc. is pleased to introduce the Model G303-558 RIO (Remote I/O). It is a specialized version of the G303 RIO configured as a **drop-in replacement for the AMOCAMS ASC 558 Combo RTU**.

Many of the Amocams ASC 558 RTUs are still in use in the oil/gas well fields as well as in the water/wastewater industry. However, because of the proprietary nature of the Amocams system along with the fact that new equipment is not available, users are often faced with huge challenges when even simple system expansion and/or upgrade is required. Expensive gross replacement of their system has often been the only viable option... until now.

#### Strategy, AMOCAMS System upgrade:

G3 Technologies has responded to the need for system expansion and up-grade with a strategy that allows incremental addition or replacement of RTUs using the Amocams compatible G303-558. At a later date, then, the G303-558 RTUs can easily be converted to the standard MODBUS version of the G303 supporting your choice of Host Computer software (HMI) and a wide variety of standard data communication systems.

This strategy allows system expansion and up-grade requirements to be met without having to do a gross replacement of the entire SCADA system. Further, it yields an up-to-date SCADA system using modern industry standards, and at the same time costs are reduced and are spread over a manageable migration process... often from operating budget rather than requiring capital expense. With this strategy the challenges of system expansion and conversion are greatly reduced.

#### Description:

The G303-558 uses the standard G303 RIO hardware platform but contains Firmware that emulates the Amocams ASC 558 protocol. The G303-558 also has an internal plug-on FSK Modem that is "Amocams compatible" to interface with existing VHF/UHF audio-based radio system. Other communication interfaces are also available.

#### G303-558 RIO Features and ASC 558 Compatibility Limitations:

1. The G303 has the same types of I/O as the ASC 558. It has 8 ea. Digital Inputs, 4 ea. Digital (relay) Outputs, 4 ea. Analog Inputs and 1 ea. Meter Totalizer Input.
2. The ASC 558 has more of each type I/O than the G303, but rarely is more utilized than is supported by the G303-558. I/O usage should be confirmed prior to replacement.
3. Analog Inputs on G303 are standard 0-5Vdc/1-5Vdc or 0-20mA/4-20mA (on-board 250 ohm res.), whereas on the ASC 558 they are non-standard 0-4Vdc/0.8-4Vdc or 0-20mA/4-20mA (200 ohm res., external). This is not an issue when using 4-20mA signals, but a 0-4Vdc/0.8-4Vdc transducer signal would need to be re-calibrated for 0-5Vdc/1-5Vdc.
4. AI#5 internally monitors power supply voltage, 0-16Vdc range.

5. Bytes of I/O data in the ASC 558 transmit message protocol that do not have supporting I/O on the G303-558 are held at "0" value.
6. G303-558 Relay outputs are pulsed 0.5 second. Contact rating is greater than ASC 558.
7. The ASC 558 has eight (8) bit Address and four (4) bit Addr. Mult. The G303-558 has eight (8) bit Address, but only two (2) bit Addr Mult. The G303-558 Addr. Mult. is set using the two DIP Switch positions labeled on the face of the unit as "Baud (rate) Select, Bit 1 & Bit 2".
8. As on the ASC 558, the G303-558 has a fixed baud rate of 600 baud.
9. The FSK Modem in the G303-558 provides Tx Audio, Rx Audio, /PTT and Gnd. These signals are suitable for radio interface or short-run audio interface. It does not provide 600 ohm balanced pairs for telephone line interface. Wiring is done through a four-pin latching connector on the end of the unit, defined as follows:
  - a. Pin 1, white wire, PTT (active low)
  - b. Pin 2, red wire, Tx audio out (approx. 0dbm level)
  - c. Pin 3, green wire, Rx audio in (-20dbm to -3dbm level recommended)
  - d. Pin 4, black wire, Power Common
10. G303-558 supports Amocams protocol Command Codes 0-9, same as ASC 558.
  - a. Command Code 0                      Reply with all I/O data
  - b. Command Codes 1-8                Corresponding Relay (1-8), 0.5 sec. pulse
  - c. Command Code 9                    Reset Meter totalizer to zero
11. Unlike the ASC 558, the G303 RIO internally provides 24Vdc for transducer power (selectable for 12Vdc or 24Vdc).
12. G303 firmware is in non-volatile FLASH memory, in-circuit programmable.

See the "G303 RIO Data Sheet" and "G303 User Documentation" (pdf download from [www.g3ti.com](http://www.g3ti.com) products page) for a complete description of the G303 hardware, as well as description of the Modbus usage and communication options (including integral Spread Spectrum Radio) on the standard G303 models.

Also, remember that the standard G303 RIO is a robust and economical solution for I/O expansion and remote Wireless I/O for any standard RTU, PLC or PC. Any standard Modbus port can be configured to address the G303 RIO.

For pricing and additional information, contact:

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