B&B ELECTRONICS

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RS232/485 SERIAL OPTION CARD FOR VLINX FIELDBUS GATEWAY

- *CONFIGURED USING VLINX FIELDBUS GATEWAY MANAGER*
- *ISOLATED RS232 AND RS485 MULTIPLEXED PORTS CAPABLE OF COMMUNICATING WITH RS232, RS422, RS485 AND DH485 DEVICES AT UP TO 115,200 BAUD*
- *EASY INSTALLATION*

GENERAL DESCRIPTION

The Vlinx Fieldbus Gateway contains a proprietary expansion port which provides a high speed, parallel architecture that extends the functionality and flexibility of the platform. This approach allows these products to evolve concurrently with the latest advances in communications and standards, without sacrificing performance. This high bandwidth channel has significantly greater throughput when compared to the traditional (external) serial gateway approach.

The VFG9000-SERIAL option card adds an additional RS232 and RS422/485 port to the series. This isolated card protects user equipment from potentially harmful ground loops while providing high-speed RS232, RS422, RS485, and DH485 communication options to the end user.

The VFG9000-SERIAL communication card is easily installed by removing the blank expansion port cover of your Fieldbus Gateway, and plugging the VFG9000-SERIAL card into the expansion port. Configuration is simple using B&B Electronics' free Fieldbus Gateway Manager software.

SAFETY SUMMARY

All safety related regulations, local codes and instructions that appear in the literature or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Do not use the controller to directly command motors, valves, or other actuators not equipped with safeguards. To do so can be potentially harmful to persons or equipment in the event of a fault to the controller.

⚠ **CAUTION: Risk of Danger.**
Read complete instructions prior to installation and operation of the unit.

⚠ WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2

⚠ THIS EQUIPMENT IS SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C, D, OR NON-HAZARDOUS LOCATIONS ONLY

SPECIFICATIONS

1. **POWER REQUIREMENTS:** 24 V @ 50 mA max. Power is supplied to the option card from the main board of the Fieldbus Gateway.
2. **COMMUNICATIONS:**
   Serial Ports: Format and Baud Rates for each port are individually software programmable up to 115,200 baud and are isolated to help prevent ground loops. The RS422/485 and DH485 port via RJ45 and the RS232 port via RJ12 share the same hardware. The VFG9000-SERIAL option card multiplexes the ports to communicate via two protocols. These ports may be used to configure different master protocols, but only one port may be used if configuring a slave protocol or AB DH485.
   DH485 TXEN: Transmit enable; open collector, $V_{OH} = 15$ VDC, $V_{OL} = 0.5$ VDC
   Isolation from VFG9000-SERIAL Communication ports to the Fieldbus Gateway: 1000 VDC for 1 minute.
3. **CERTIFICATIONS AND COMPLIANCES:**
   Refer to main unit manual or "Agency Approvals" section of B&B Electronics' website for agency certifications.
   ELECTROMAGNETIC COMPATIBILITY
   Emissions and Immunity to EN 61326: Electrical Equipment for Measurement, Control and Laboratory use.
   Reference Fieldbus Gateway unit for EMC specifications
4. **ENVIRONMENTAL CONDITIONS**:
   Refer to the specifications of the Fieldbus Gateway you are installing this card in.
5. **CONSTRUCTION:** For indoor use only. Installation Category II, Pollution Degree 2.
6. **INSTALLATION REQUIREMENTS:** See "Installing the VFG9000-SERIAL Option card" for more details.
7. **WEIGHT**: 1.9 oz (53.9 g)

ORDERING INFORMATION

DESCRIPTION	PART NUMBER
RS232/485 serial option card for Fieldbus Gateway	VFG9000-SERIAL

CONTENTS OF PACKAGE
- VFG9000-SERIAL option card
- This hardware bulletin

LP0838X
Effective 01/10

BLOCK DIAGRAM
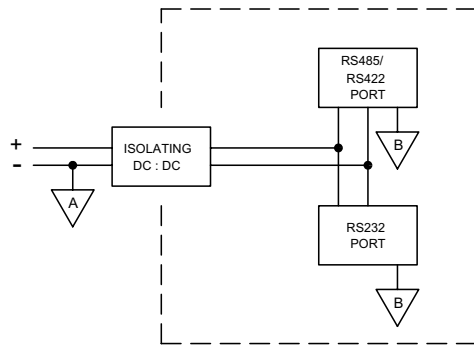
Caution: The expansion and main circuit boards contain static sensitive components. Before handling the cards, discharge static charges from your body by touching a grounded bare metal object. Ideally, handle the cards at a static controlled clean workstation. Also, handle the cards by the edges only. Dirt, oil, or other contaminants that may contact the cards can adversely affect circuit operation.

Warning: Risk of Danger: Be sure to remove all power before removing the expansion port cover.

WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR AREA IS KNOWN TO BE NON-HAZARDOUS.

INSTALLING THE VFG9000-SERIAL OPTION CARD

1. Remove power from the unit
2. Insert a flat-bladed screwdriver into the slot at the top of the expansion port cover. Gently apply pressure on the screwdriver in an upward direction until the expansion port cover disengages from the unit as shown in Figure 1.
3. Verify that the option card knobs are in the "unlocked" position as shown in Figure 2.
4. Carefully insert the option card into the expansion port opening while aligning the card-edge connector on the option card with the main board's header, as shown in Figure 3. Once aligned, gently press on the front of the card until it is flush with the front of the case.
5. Turn the option card knobs to the locked position as shown in Figure 4.
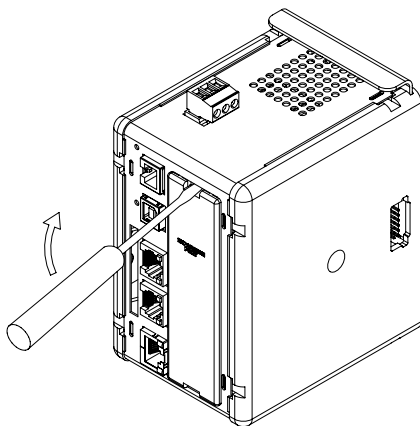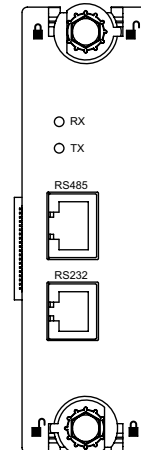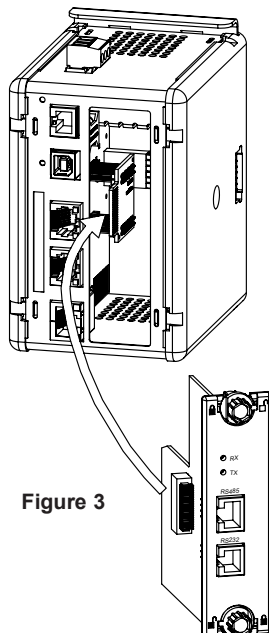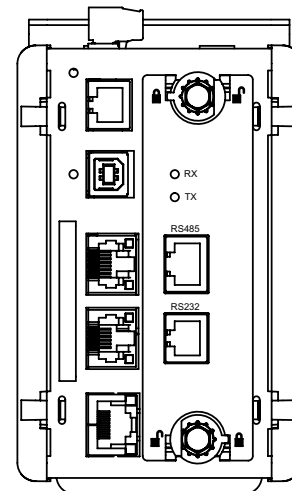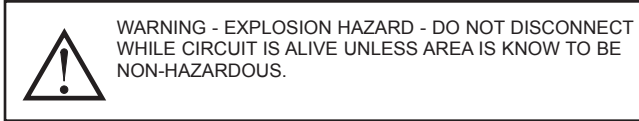

Figure 1

Figure 2

Figure 3

Figure 4

POWER SUPPLY REQUIREMENTS
NEW AND EXISTING INSTALLATIONS

The VFG9000-SERIAL option card draws all of its power from the main board of the Fieldbus Gateway. The specifications of the Fieldbus Gateway account for the power needs of an option card.

> ⚠ WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT WHILE CIRCUIT IS ALIVE UNLESS AREA IS KNOW TO BE NON-HAZARDOUS.

COMMUNICATING WITH THE VFG9000-SERIAL OPTION CARD
CONFIGURING A VFG9000-SERIAL OPTION CARD

The VFG9000-SERIAL is configured using Fieldbus Gateway Manager software. The software is available as a free download or it can be ordered on CD. By configuring the VFG9000-SERIAL using the latest version of the software, you are assured that your unit has the most up-to-date feature set. The software can configure the VFG9000-SERIAL through the RS232 PGM port, USB port, Ethernet port, or CompactFlash socket on your Fieldbus Gateway. Additional information can be found in your Fieldbus Gateway hardware bulletin and the Fieldbus gateway Manager user manual.

CABLES AND DRIVERS

B&B has a wide range of cables and drivers for use with many different communication types. A list of these drivers and cables along with pin outs is available from www.bb-elec.com. If making your own cable, refer to the "VFG9000-SERIAL Port Pin Outs" for wiring information.

RS232 PORTS

The VFG9000-SERIAL option card has one RS232 port. The port can be used for either master or slave protocols with any Fieldbus Gateway configuration. The RS232 port and RS422/485 port on the VFG9000-SERIAL option card are multiplexed because they share the same hardware. Both ports can be used with master protocols. However, when the RS232 port is used with a slave protocol, the RS422/485 port is not available. For examples of RS232 communications refer to your Fieldbus Gateway literature.

RS422/485 COMMS PORT

The VFG9000-SERIAL option card has one RS422/485 port. This port can be configured to act as either RS422 or RS485.

The RS422/485 port and RS232 port are multiplexed because they share the same hardware. Both ports can be used with master protocols. However, when the RS422/485 port is used with a slave protocol, the RS232 port is not available.
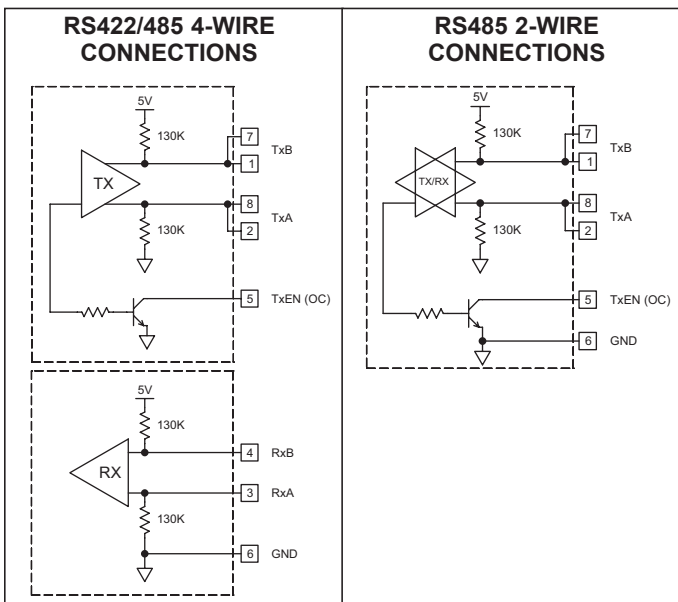
For examples of RS422/485 communications refer to your Fieldbus Gateway literature.

DH485 COMMUNICATIONS

The VFG9000-SERIAL option card's RS422/485 port can also be used for Allen Bradley DH485 communications. When this port is configured to communicate DH485, the RS232 port can not be used because the ports share the same hardware and the VFG9000-SERIAL option card multiplexes the ports to communicate via two protocols.

WARNING: DO NOT use a standard DH485 cable to connect this port to Allen Bradley equipment doing so may cause irreparable damage to the equipment connected. A cable and wiring diagram are available from B&B.

Fieldbus Gateway to AB SLC 500 (CBLAB003)

Connections			
RJ45: B&B	Name	RJ45: A-B	Name
1	TxB	1	A
2	TxA	2	B
3, 8	RxA	-	24V
4, 7	RxB	-	COMM
5	TxEN	5	TxEN
6	COMM	4	SHIELD
4, 7	TxB	-	COMM
3, 8	TxA	-	24V

SOFTWARE/UNIT OPERATIONS
VFG9000-SERIAL PORT PIN OUTS
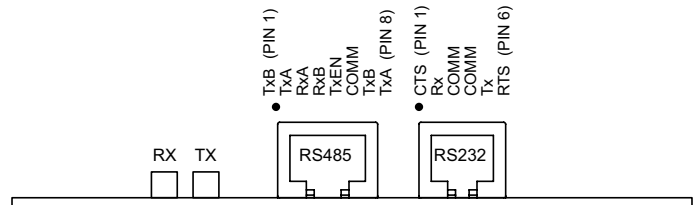
LEDS

The transmit LED(TX) will flash when information is transmitted from the VFG9000-SERIAL card. The receive LED(RX) will flash when information is received.

TROUBLESHOOTING YOUR VFG9000-SERIAL OPTION CARD

If for any reason you have trouble operating, connecting, or simply have questions concerning your new VFG9000-SERIAL option card, contact B&B Electronics' technical support. For contact information, refer to the back page of this bulletin for phone and fax numbers.

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