HORNER
APG

User Manual for the
HE190IBSRMU

Remote
Message Unit
For use with Phoenix Interbus-S™ and Nemasoft FloPro™

First Edition
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MAN0006-01

PREFACE

This manual explains how to use the Horner APG Remote Message Units.

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To obtain warranty service, return the product to your distributor with a description of the problem, proof of purchase, post paid, insured and in a suitable package.

ABOUT PROGRAMMING EXAMPLES

Any example programs and program segments in this manual or provided on accompanying diskettes are included solely for illustrative purposes. Due to the many variables and requirements associated with any particular installation, Horner APG cannot assume responsibility or liability for actual use based on the examples and diagrams. It is the sole responsibility of the system designer utilizing Remote Message Unit to appropriately design the end system, to appropriately integrate the Remote MessageUnit and to make safety provisions for the end equipment as is usual and customary in industrial applications as defined in any codes or standards which apply.

Note: **The programming examples shown in this manual are for illustrative purposes only. Proper machine operation is the sole responsibility of the system integrator.**

Revisions to This Manual

This version (MAN0006-01) contains the following revisions, additions and deletions:

1. Converted manual into Word format.

2. Changed company name from Horner Electric, Inc. to Horner APG, LLC.

Table of Contents

CHAPTER 1: INTRODUCTION

This document describes the HE190IBSRMU Remote Message Unit (RMU). This manual provides instruction on proper installation and operation.

1.1   What is an RMU?

In the realm of factory automation, it often becomes necessary to provide one or more points of distributed access for operator control. An RMU device:

- Communicates on a network, usually the same network that is used to control the machine I/O,
- Provides real-time textual and/or graphic machine status information, and
- Allows the operator to perform functions that alter machine behavior using a keypad or other manual input device.

1.2   What is Interbus-S?

Interbus-S is a serial protocol designed, maintained and controlled by the Interbus-S Club e.V., and by Phoenix Contact. Interbus-S data is transmitted on one of two media; remote bus and local bus. The RMU(s) described in this document will be connected via the remote bus, therefore this document will limit discussion to the remote bus. Note that the software protocol and data framing for both the local and remote bus are identical, the differences are only in the physical layer and hardware interface. Interbus-S is a high-speed I/O network whereby each remote bus "node" is connected in a daisy-chain arrangement. Each device allocates from 1 to 32 16-bit words of data on the bus (both input and output). The RMU device(s) occupy 4 words which provide a channel for the Interbus-S MMI-COM protocol (described in section 3).

For a more detailed overview of the Interbus-S protocol, obtain *Data Sheet 0005C* from Phoenix Contact.

1.3   Basic RMU Function

As stated earlier, the RMU provides textual and/or graphic display information, and allows the operator to affect machine control in a location remote to the main system controller. The RMU's display and keypad are primarily controlled by the main system controller. The system controller sends messages to the RMU that contain ASCII text data to be displayed on the RMU display, with cursor control and positioning capability. The state of the RMU keypad is returned as real-time I/O for the system controller to read and act upon. Monitor mode functionality can be equated with that of a "dumb" ASCII terminal, little or no processing of the data is done by the RMU.
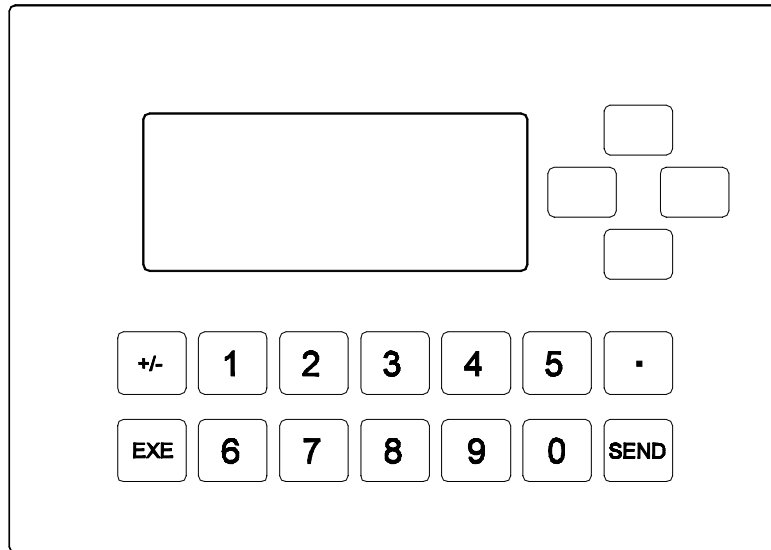
Figure 1.1 - Terminal

1.4　　　Specifications

Remote Message Unit

Power: 13-32 VDC 8 Watts Maximum Power Draw
　　　　24VDC @ 330mA typical　　　　2.1A Surge for 100mS

NEMA Rating:　NEMA 4-12

Noise:　Emissions　　　FCC part 15, section J, Class A, Computing Devices
　　　　　　　　　　　　CISPR11 Class A

Susceptibility:　IEC 801-2　ESD, 8KV Air, 4KV Contact
　　　　　　　　　IEC 801-3　RF Radiated Immunity, 10V/m
　　　　　　　　　IEC 801-4　Fast Transient Immunity, 1KV I/O, 2KV Power
　　　　　　　　　IEC 801-5　Surge, 2KV
　　　　　　　　　IEC 801-6　RF Conducted Immunity, 10V/m
　　　　　　　　　ENV50140 RF Radiated Immunity, 10V/m
　　　　　　　　　ENV61000-4-11　Voltage Dip and Variation

Temperature:　0° C to 60° C Operational
　　　　　　　　-40° C to 100° C Storage

Humidity:　　5% to 95%, non-condensing

UL Class I Division 2 Approved　-- Control Number XXXX

CE Mark Approval:　Tests Passed, Approval Pending Application Processing

CHAPTER 2: INSTALLATION

2.1   Mounting

Mounting of the RMU should be done in three steps. First the cutout and holes should be made. Then the RMU is mounted into the panel, and finally the back-cover is mounted onto the unit. For your convenience a drawing of the cutout and the placement of the holes is shown below. All dimensions shown in brackets are in millimeters, and those shown without brackets are in inches.
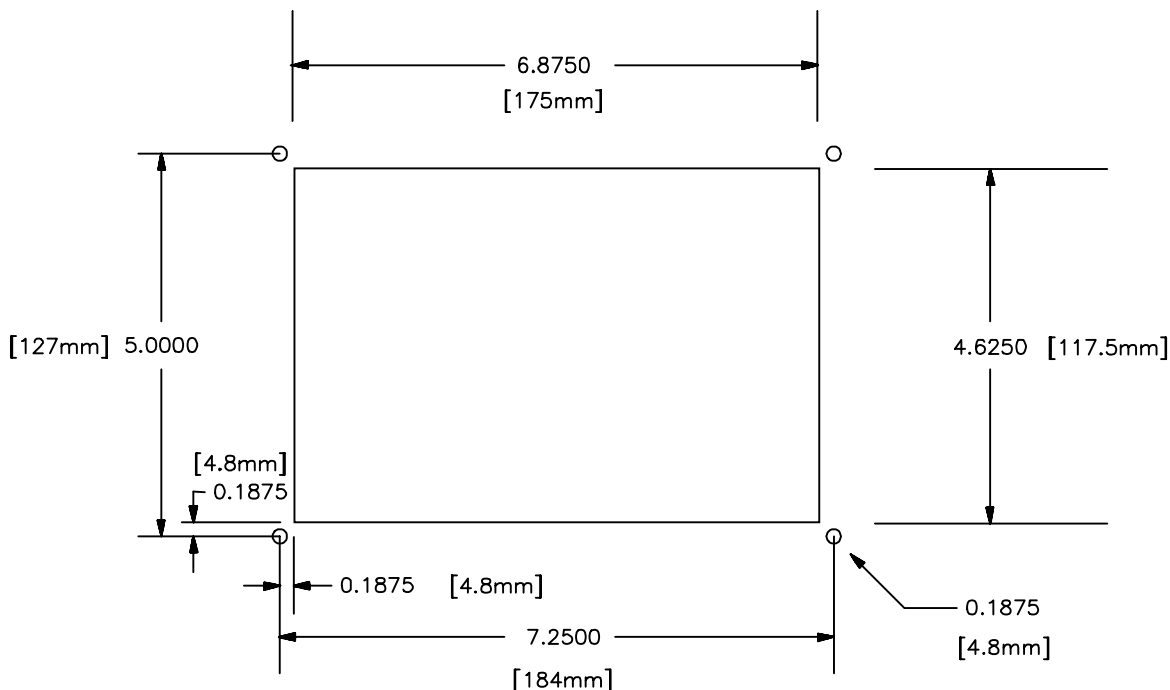
Figure 2.1 – Panel Cutout

Mounting depth is approximately 2.5 inches.

Mounting Steps:

        A.   Cut the host panel as shown by figure 2.1
        B.   Make sure all connectors are removed from the RMU
        C.   Remove the steel back cover
        D.   Remove the #6-32 nuts and washers from the mounting studs on the OIU panel.
        E.   Insert the RMU through the panel cutout, then install the lock washers and #6-32 nuts.
        F.   Reinstall the rear cover, with the five mounting screws. This completes the mechanical installation of the RMU.

2.2   Power Connection

The RMU power supply requires a DC supply voltage between 13 and 32 volts. The RMU will draw a maximum of 8 watts of power though it has a high inrush that may draw as much as 2.1 amps for up to 100ms. Be aware of this surge when choosing a power supply. Power is connected to the RMU via a removable 2-position terminal block, see figure 2.2.
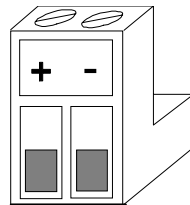

Figure 2.2 – 24VDC Power Connector for RMU

To meet European standards for CE Mark, a dedicated 24VDC supply should be installed in the control cabinet.

2.3   Cable Wiring

As stated the RMU resides on the Remote Bus of the Interbus-S network. The cable wiring for the RMU is shown below in Figure 2.3.
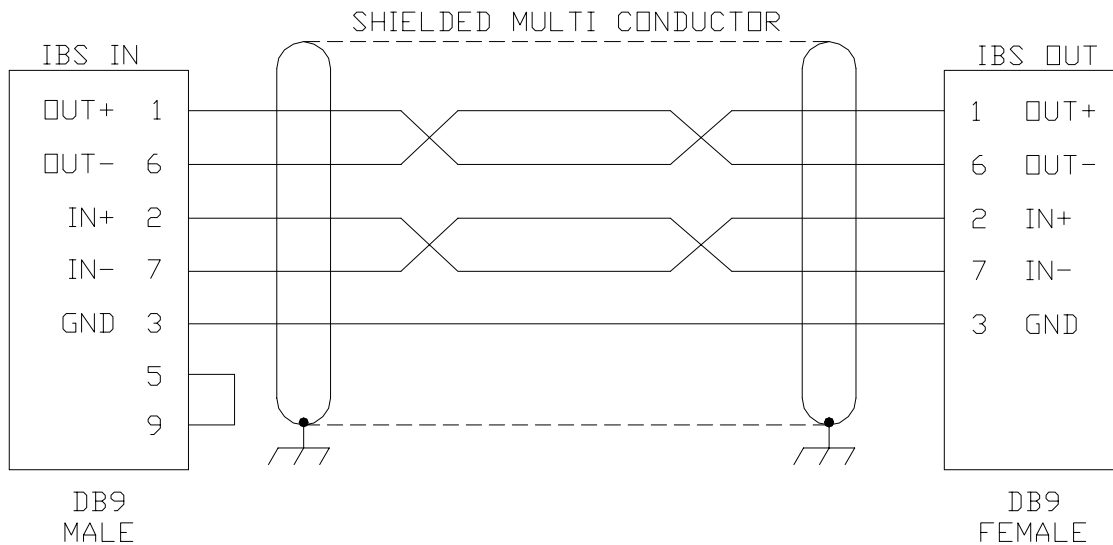

Figure 2.3 – Interbus-S 9 Pin D-Sub Wiring
Cable: Phoenix Part Number IBC BC Meter P/N 2785093
Three Twisted Pairs, Belden Equiv. 9843, Max Capacitance 120pF/m
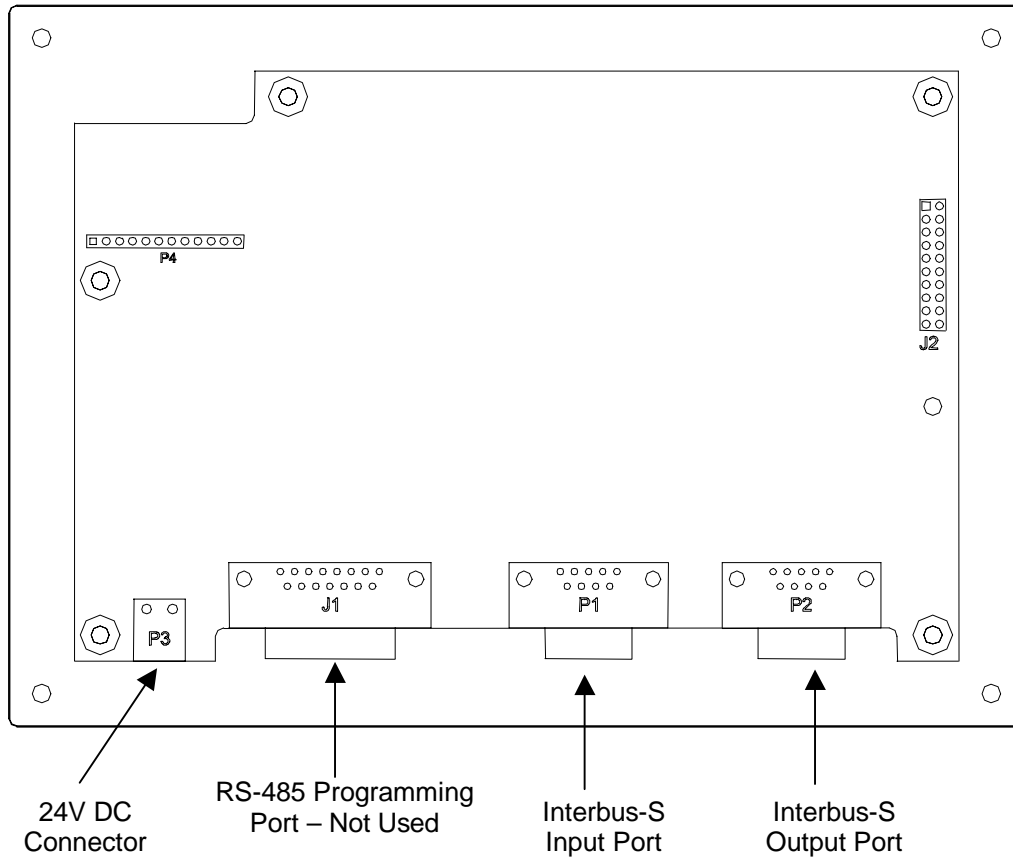
2.4   Connector Locations

Figure 2.4 – Connector Locations

2.5   Interbus-S Configuration

When configuring the RMU in FloPro the RMU is set as **Module ID # 47**, this is required for the FloPro setup. Also the RMU is setup with 8 bytes of Process Data (PD Bytes).

NOTES