



p/n YPM08125

Breakout Box Hardware Manual

Effective: October 7, 2002



This page intentionally left blank.

CHANGE NOTICE

Breakout Box Hardware Manual P/N PM08125 Version Change:

From: Version 1.00, Dated 5/18/2000

To: Version 1.01, Dated 12/8/2001

1. Miscellaneous Added ACR8020 to document.

Breakout Box Chassis P/N PM08125 Version Change:

Release: Version 1.00, Dated 5/18/2000

TABLE OF CONTENTS

INTRODUCTION.....	1
CHAPTER 1.....	3
BREAKOUT BOX INTERCONNECION.....	3
Chapter 1 Overview	4
Breakout Box Interconnect Wiring	5
Breakout Box to Acroloop Interconnect.....	6
Overview	6
Encoder Input Cables HP1A/HP1B TO P1A/P1B.....	8
Digital I/O Cables HP3/HP4 TO P3/P4	9
Communication Cable HP5 to P5	10
Breakout Box to User Interconnect	11
Overview	11
Breakout Box Digital I/O LED Power (HPWR).....	12
COM1/COM2 Serial Port Connectors	13
Parallel Port Connector	14
DSP Network Connector.....	15
ACR1000 Master Connector.....	15
CHAPTER 2.....	17
BREAKOUT BOX MECHANICAL DRAWINGS.....	17
Breakout Box Mechanical Dimensions.....	18

TABLES

Table 1	Breakout Box LED Isolated Power Connector – Sinking Outputs Option	12
Table 2	Breakout Box LED Isolated Power Connector – Sourcing Outputs Option ..	12
Table 3	COM1/COM2 Serial Port Connectors	13
Table 4	Parallel Port Connector	14

FIGURES

Figure 1.	Breakout Box Connections	5
Figure 2.	Typical 34-Pin Breakout Box Ribbon Cable	6
Figure 3.	Typical ACR2000 34-Pin Split Digital I/O Ribbon Cable	7
Figure 4.	Breakout Box Mechanical Dimensions	18

This page intentionally left blank.

INTRODUCTION

This document provides hardware connection information for the Acroloop P/N RBD084XX series of Breakout Boxes.

This page intentionally left blank.

CHAPTER 1

BREAKOUT BOX INTERCONNECTION

CHAPTER 1 OVERVIEW

This section contains wiring diagram information for the Acroloop series of Breakout Box Interconnect Chassis.

Before the optically-isolated digital inputs and outputs can be monitored using the Breakout Box LED's, the chassis must be connected to an external +24V DC power supply. This connection is made at the PWR connector.

WARNING

Wiring VEXT with the incorrect voltage will permanently damage the Digital I/O circuitry. The isolated voltage (VEXT) is +24VDC.

Selecting the wrong Breakout Box for the type of output drivers installed on the connecting Acroloop Board will permanently damage the output driver IC's and will cause all of the Breakout Box I/O status LED's to turn on. The Breakout Box is configured at the factory, based on the Sinking or Sourcing Option selected when ordered, and is **NOT** field configurable.

BREAKOUT BOX INTERCONNECT WIRING

The following is an outline drawing of the connector locations on the Breakout Box .

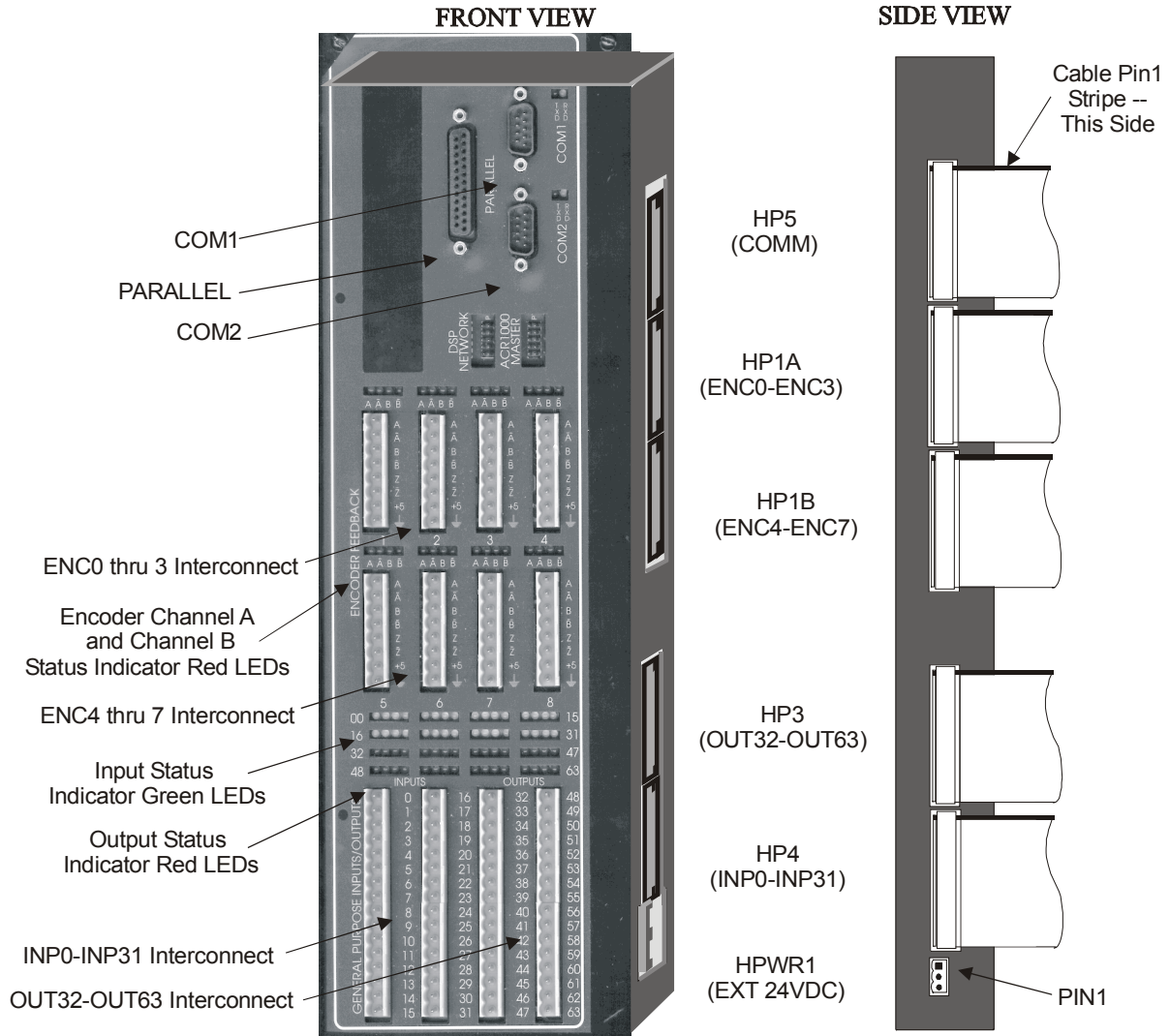


Figure 1. Breakout Box Connections

NOTE: When connecting ribbon cables from Acroloop Motion Control Cards to the Breakout Box, check the location of Pin 1 to assure proper connection. Pin 1 is indicated by the red marker stripe on the ribbon cable. See Breakout Box to Acroloop Board Interconnect section of this manual.

BREAKOUT BOX TO ACROLOOP BOARD INTERCONNECT

Overview

This section provides the cable interface information for connecting the Breakout Box to an Acroloop Motion Control Board.

For the ACR8000, ACR8010 and ACR8020, there are up to five (5) 34-Pin ribbon cables supplied (HP1A, HP1B, HP3, HP4, and HP5), depending on the configuration ordered (i.e. 2/4/6/8 Axes). Figure 2 shows a typical 34-Pin ribbon cable.

For the ACR2000, there are two (2) 34-Pin ribbon cables (HP1A, HP5) and one (1) 34-Pin split-ribbon cable (HP3/HP4) supplied. Figure 3 shows a typical 34-Pin split ribbon cable for ACR2000 Digital I/O connections.

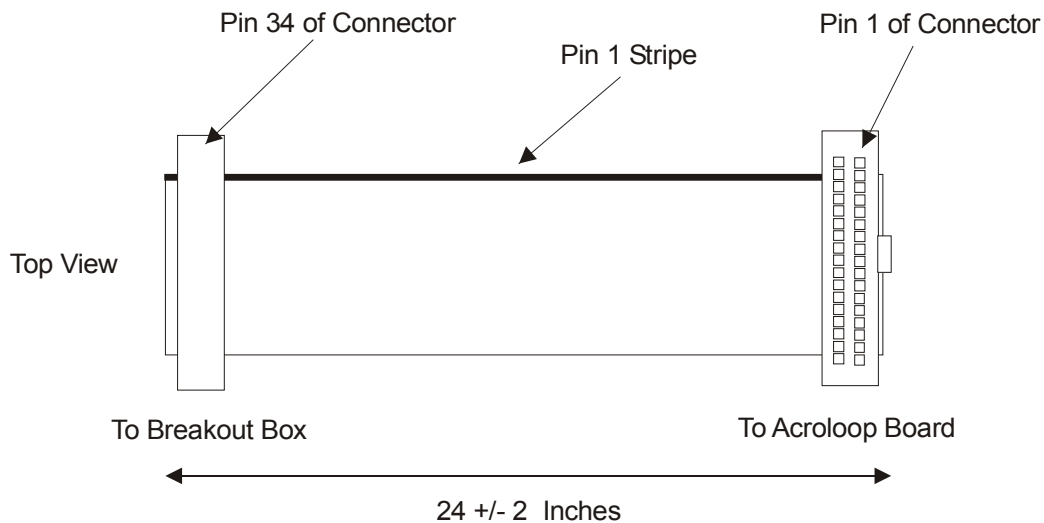


Figure 2. Typical 34-Pin Breakout Box Ribbon Cable

BREAKOUT BOX TO ACROLOOP BOARD INTERCONNECT

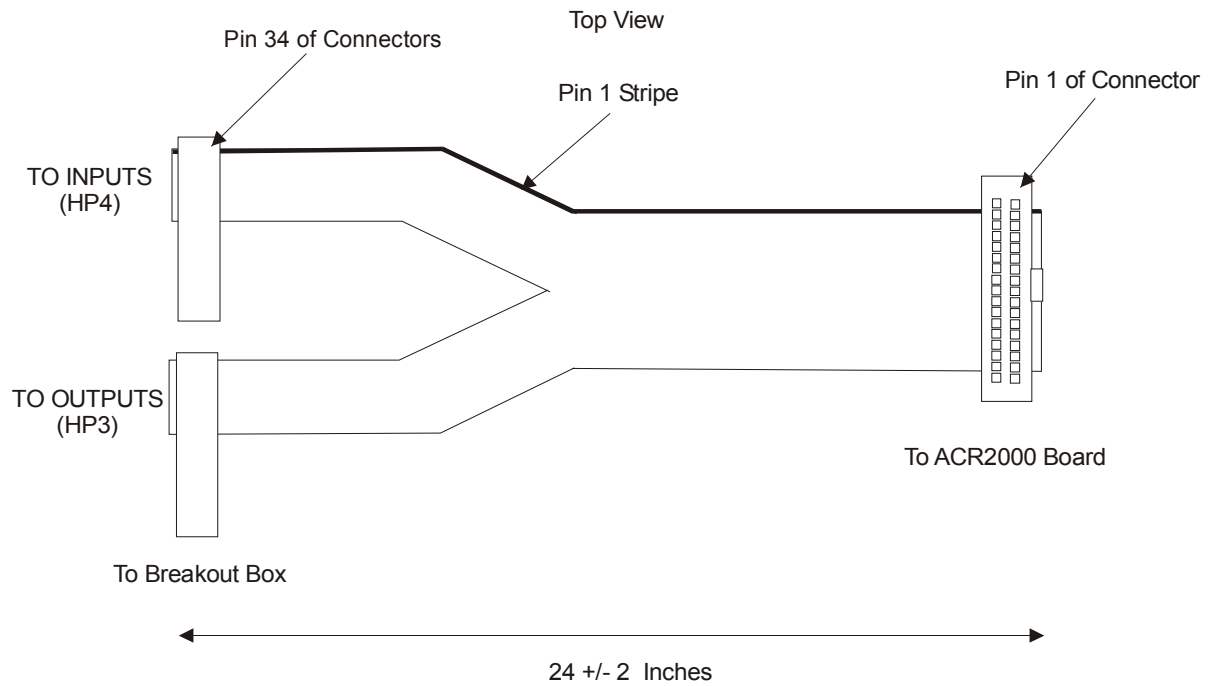


Figure 3. Typical ACR2000 34-Pin Split Digital I/O Ribbon Cable

NOTE: The ACR2000 Digital I/O Split Ribbon Cable will require a cross between HP3 and HP4 on the Breakout Box side so that the inputs and outputs are connected correctly. Please note the connector labels when installing.

BREAKOUT BOX TO ACROLOOP BOARD INTERCONNECT

Encoder Input Cables HP1A/HP1B TO P1A/P1B

There are two 34-pin headers provided on the Breakout Box to supply encoder feedback signals to an Acroloop Motion Control Card. The two 34 pin headers provide up to eight (8) axes of encoder feedback (Encoders 0 thru 7). Refer to Figure 1 for ribbon cable connection location.

Connections are as follows:

ACR8000/ACR8010/ACR8020:

ENC0-ENC3, HP1A (Breakout Box) to P1A (Acroloop Card)
ENC4-ENC7, HP1B (Breakout Box) to P1B (Acroloop Card)

ACR2000:

ENC0-ENC3, HP1A (Breakout Box) to P1 (Acroloop Card)

BREAKOUT BOX TO ACROLOOP BOARD INTERCONNECT

Digital I/O Cables HP3/HP4 TO P3/P4

There are two 34-pin headers provided on the Breakout Box to interface Digital I/O signals to an Acroloop Motion Control Card. The 34 pin headers are used for the 32 Digital Inputs and 32 Digital Outputs. Refer to Figure 1 for connector location.

Connections are as follows:

ACR8000/ACR8010/ACR8020:

OUT32-OUT63, HP3 (Breakout Box) to P3 (Acroloop Card)

INP00-INP31, HP4 (Breakout Box) to P4 (Acroloop Card)

ACR2000:

OUT32-OUT47, HP3 (Breakout Box) to P3** (Acroloop Card)

INP00-INP15, HP4 (Breakout Box) to P3** (Acroloop Card)

ACRIO (I/O Expansion Card):

OUT32-OUT63, HP3 (Breakout Box) to AP3 (I/O Expansion Card)

INP00-INP31, HP4 (Breakout Box) to AP4 (I/O Expansion Card)

**ACR2000 uses a split ribbon cable. See Figure 3.

BREAKOUT BOX TO ACROLOOP BOARD INTERCONNECT

Communication Cable HP5 TO P5

There is one 34-pin header provided on the Breakout Box for the 2 serial and 1 parallel communications ports interfacing to an Acroloop Motion Control Card. Refer to Figure 1 for connector location.

Connections are as follows:

ACR2000 Comm Board/ACR8000/ACR8010/ACR8020 Comm Board:

Communication Signals, HP5 (Breakout Box) to P5 (Acroloop Card)

BREAKOUT BOX TO USER INTERCONNECT

Overview


This section contains hardware wiring information for the connectors on the Breakout Box.

BREAKOUT BOX TO USER INTERCONNECT

Breakout Box Digital I/O LED Power (HPWR)

HPWR is the connection for the user supplied voltage for the Digital Input and Digital Output Status LED's and should be wired to VEXT as shown in the table below. Refer to Figure 1 for connector location.

Isolated voltage (VEXT) refers to +24VDC.

 **WARNING**

Wiring VEXT with the incorrect voltage will permanently damage the Digital I/O LED circuitry. The isolated voltage (VEXT) is +24VDC.

Selecting the wrong Breakout Box for the type of output drivers installed on the connecting Acroloop Board will permanently damage the output driver IC's and will cause all of the Breakout Box I/O status LED's to turn on. The Breakout Box is configured at the factory, based on the Sinking or Sourcing Option selected when ordering and is **NOT** field configurable.

Note: HPWR1 is a 3-pin male Weidmuller plug.

HPWR Sinking Outputs Option LED Isolated Power Connector	
Usage	Pin
Isolated Voltage (VEXT)	1
Isolated Voltage (VEXT)	2
Isolated Common (GEXT)	3

Table 1. Breakout Box LED Isolated Power Connector – Sinking Outputs Option

HPWR Sourcing Outputs Option LED Isolated Power Connector	
Usage	Pin
Isolated Common (GEXT)	1
Isolated Common (GEXT)	2
Isolated Voltage (VEXT)	3

Table 2. Breakout Box LED Isolated Power Connector – Sourcing Outputs Option

BREAKOUT BOX TO USER INTERCONNECT

COM1/COM2 Serial Port Connectors

There are two standard DB-9 male connectors provided on the Breakout Box to interface to user serial communication ports. Refer to Figure 1 for connector location.

COM1 Serial Port Connector				COM2 Serial Port Connector		
RS-232 Signal	RS-422/ RS-485 Signal	Pin		RS-232 Signal	RS-422/ RS-485 Signal	Pin
MUX1	N.C.	1		MUX2	N.C.	1
RXD1	N.C.	2		RXD2	N.C.	2
TXD1	N.C.	3		TXD2	N.C.	3
N.C.	N.C.	4		N.C.	N.C.	4
GND	GND	5		GND	GND	5
N.C.	TXD1A	6		N.C.	TXD2A	6
N.C.	TXD1B	7		N.C.	TXD2B	7
N.C.	RXD1A	8		N.C.	RXD2A	8
N.C.	RXD1B	9		N.C.	RXD2B	9

Table 3. COM1/COM2 Serial Port Connectors

BREAKOUT BOX TO USER INTERCONNECT

Parallel Port Connector

There is one standard DB-25 female connector provided on the Breakout Box to interface to user parallel communication ports. Refer to Figure 1 for connector location.

Signal	Pin		Signal	Pin
STROBE	1		AUTO FEED	14
DATA0	2		ERROR	15
DATA1	3		INIT	16
DATA2	4		SEL IN	17
DATA3	5		GND	18
DATA4	6		GND	19
DATA5	7		GND	20
DATA6	8		GND	21
DATA7	9		GND	22
ACK	10		GND	23
BUSY	11		GND	24
PAPER OUT	12		GND	25
SEL OUT	13			

Table 4. Parallel Port Connector

BREAKOUT BOX TO USER INTERCONNECT

DSP Network Connector

This connector is for factory use only.

ACR1000 Master Connector

This connector is for factory use only.

This page intentionally left blank.

CHAPTER 2

BREAKOUT BOX MECHANICAL DRAWINGS

BREAKOUT BOX MECHANICAL DIMENSIONS

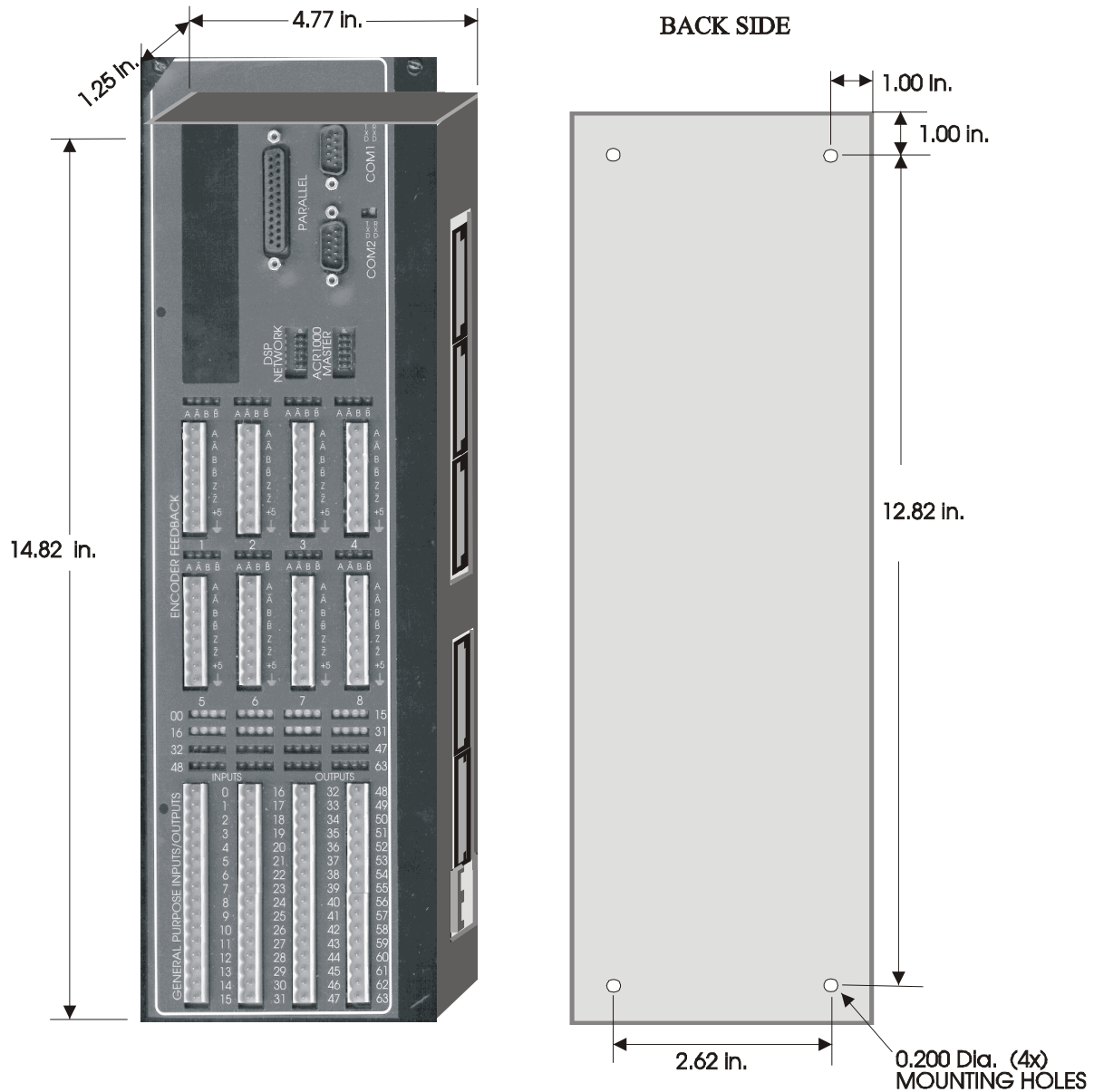


Figure 4. Breakout Box Mechanical Dimensions

Suggested Mounting Orientation:

Breakout Box P/N RBD084XX should be mounted on end, as shown in above figure. This will prevent any debris from falling into the terminal block connectors, causing electrical connection problems.