6100F / 6200F

REMOTE DISPLAY WITH PARALLEL BCD OUTPUTS

USER'S MANUAL

Catalog Number 6100-594M

ADVANCED
MICRO CONTROLS INC.

Important User Information

The products and application data described in this manual are useful in a wide variety of different applications. Therefore, the user and others responsible for applying these products described herein are responsible for determining the acceptability for each application. While efforts have been made to provide accurate information within this manual, AMCI assumes no responsibility for the application or the completeness of the information contained herein.

UNDER NO CIRCUMSTANCES WILL ADVANCED MICRO CONTROLS, INC. BE RESPONSIBLE OR LIABLE FOR ANY DAMAGES OR LOSSES, INCLUDING INDIRECT OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM THE USE OF ANY INFORMATION CONTAINED WITHIN THIS MANUAL, OR THE USE OF ANY PRODUCTS OR SERVICES REFERENCED HEREIN.

Throughout this manual the following two notices are used to highlight important points.

⚠WARNING WARNINGS tell you when people may be hurt or equipment may be damaged if the procedure is not followed properly.

ⓘCAUTION CAUTIONS tell you when equipment may be damaged if the procedure is not followed properly.

No patent liability is assumed by AMCI, with respect to use of information, circuits, equipment, or software described in this manual.

The information contained within this manual is subject to change without notice.

Standard Warranty

ADVANCED MICRO CONTROLS, INC. warrants that all equipment manufactured by it will be free from defects, under normal use, in materials and workmanship for a period of [1] year. Within this warranty period, AMCI shall, at its option, repair or replace, free of charge, any equipment covered by this warranty which is returned, shipping charges prepaid, within one year from date of invoice, and which upon examination proves to be defective in material or workmanship and not caused by accident, misuse, neglect, alteration, improper installation or improper testing.

The provisions of the "STANDARD WARRANTY" are the sole obligations of AMCI and excludes all other warranties expressed or implied. In no event shall AMCI be liable for incidental or consequential damages or for delay in performance of this warranty.

Returns Policy

All equipment being returned to AMCI for repair or replacement, regardless of warranty status, must have a Return Merchandise Authorization number issued by AMCI. Call (203) 585-1254 with the model number and serial number (if applicable) along with a description of the problem. A "RMA" number will be issued. Equipment must be shipped to AMCI with transportation charges prepaid. Title and risk of loss or damage remains with the customer until shipment is received by AMCI.

24 Hour Technical Support Number

24 Hour technical support is available on this product.

For technical support, call (203) 583-7271.

Table of Contents

List of Figures

Revision History

This revision, 6100-594M, superceeds revision 6100-393M. Changes in this revision include adding information concerning the 6200F, changing print B1183 to Revision C, and minor changes to text and figures. it was first released May 4, 1994.

Introduction

This Manual is written to explain the installation and use of AMCI's 6100F and 6200F Remote Displays. With the execption of a smaller faceplate on the 6200F, the two displays are identical. All references to the 6100F apply equally to the 6200F.

The 6100F offers six digit position information on its front panel display and optically isolated, parallel BCD position data from a connector on its back panel. Connection to an AMCI Module is made through a Fiber Optic or RS-485 compatible link.

Installation

The 6100F and 6200F Remote Displays are designed to be front mounted in an enclosure or panel. Figure 1 shows the dimensions of the 6100F front panel and suggested front panel cutout for mounting. Figure 2 on the following page is the same information for the 6200F. Both displays require approximately 7 inches of depth for proper mounting if the parallel data outputs are used. If the outputs are not used, mounting depth is approximately 6 inches. Print B1183 on page 8 shows all dimensions of the 6100F. Print B1213 on page 9 shows all dimensions for the 6200F.

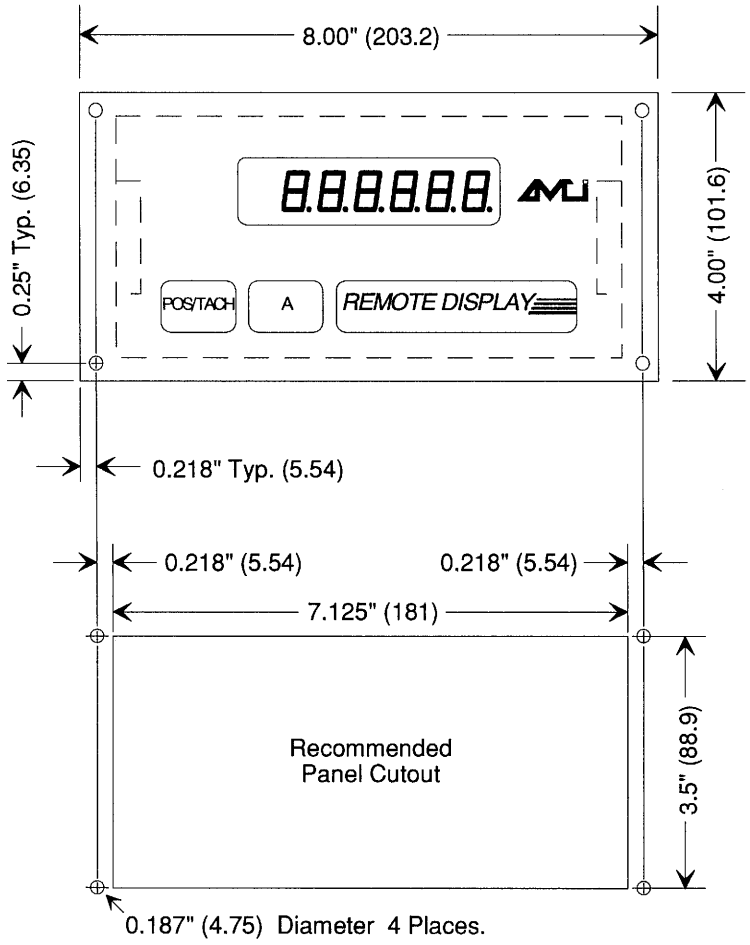


Fig. 1 6100F Panel Cutout

Installation (cont'd)

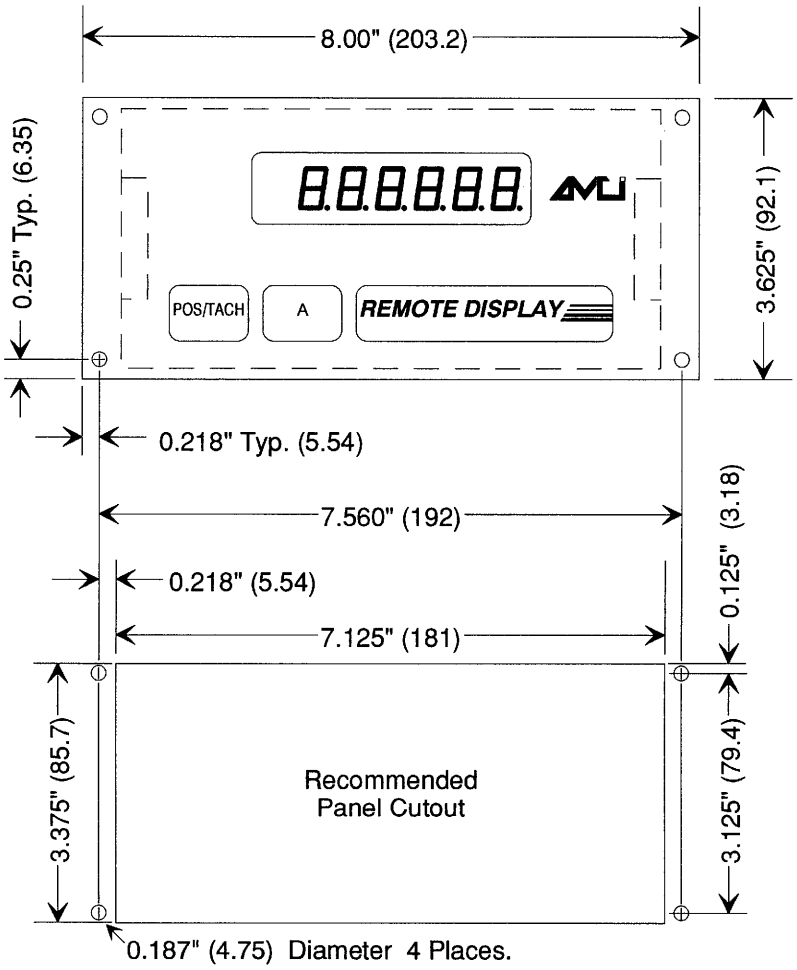


Fig. 2 6200F Panel Cutout

RS-485 Wiring Hook-up

Data transfer between an AMCI Module and a 6100F Remote Display can be accomplished over a RS-485 compatible link. The AMCI part number for the RS-485 Cable is CDC-(x) where (x) is the Cable length in meters. Maximum cable length is 300 meters (1000 feet). CDC-(x) cable can be ordered pre-assembled and tested from AMCI or, if you prefer to manufacture your own cables, MS-5W Connectors can be ordered separately. Figure 3 below shows the CDC-(x) pinout. Print A1083 on Page 10 lists connector pinouts and a color equivalency chart for Carol C0842 cable.

> If you splice the CDC-(x) Cable, it should be done in a grounded junction box. THE SHIELD MUST BE ISOLATED FROM THE JUNCTION BOX. If this practice is not followed, you may form a ground loop between the 6100F and the junction box that may effect the RS-485 Communications or damage the 6100F.

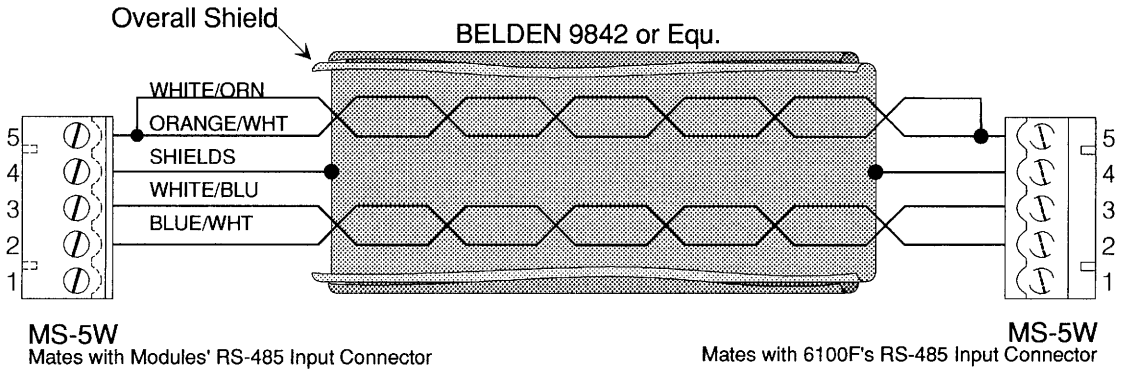


Fig. 3 CDC-(x) Wiring Diagram

Fiber Optic Hook-up

If noise immunity or complete electrical isolation is paramount in your application, data transfer between an AMCI Module and the 6100F Remote Display can be accomplished over plastic fiber optic cable. The part number of the fiber optic cable is CDP-(x) where (x) is its length in meters. All fiber optic cables must be manufactured by AMCI. You must not splice these cables in the field. If your installation requires a splice in the cable run, order two or more cables from AMCI of the proper lengths.

Because splices in the cable run cause light losses, the number of splices in a cable run effects its maximum length. The table on the following page, figure 4, lists the maximum run lengths based on the number of splices. The connections to the fiber optic transmitter and receiver are not considered splices.

Fiber Optic Hook-up (cont'd)

Number of Splices	Maximum Cable Run Length
0	75 meters (245 feet)
1	66 meters (215 feet)
2	57 meters (185 feet)
3	48 meters (155 feet)
4	35 meters (115 feet)

Fig. 4 Maximum Fiber Optic Cable Run Lengths

All fiber optic connections are made with snap-action connectors. (See Fig. 5) All CDP-(x) cables have these connectors installed on the cable. Cable splices are made with the connector AMCI Part # FS-1P. This connector can be used for bulkhead feedthrough or panel mount applications. Maximum bulkhead thickness is 0.16 inches.

Figure 5 below shows a typical installation. A 7451-01 is used to measure the shutheight of a press. The rack that houses the 7451-01 is in an enclosure so a FS-1P connector is used to bring the cable out of the enclosure. A single length of cable is then used to the 6100F.

NOTE: DO NOT REMOVE the red cap from the snap-action connector until you are ready to plug the connector in its receptacle. Any oil, dirt, or grease on the optic fiber will affect the transmission distance of the cable. DO NOT use tape to protect the optic fiber during installation.

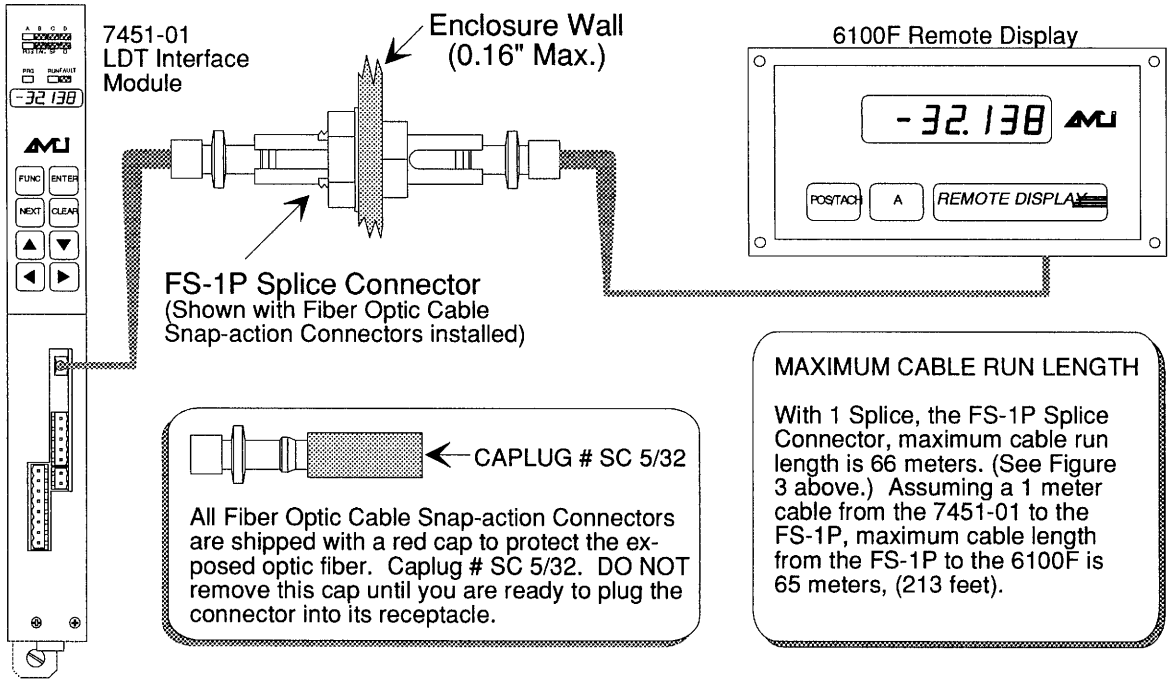


Fig. 5 Typical Fiber Optic Cable Installation

Data Outputs/Inputs

Besides displaying position data, the 6100F and 6200F makes this data available in BCD format from its Parallel Data Output Connector, located on the back of the module. See Print B1183, page 8 for the 6100F or B1213, page 9 for the 6200F. The Displays use two inputs and one output for handshaking purposes.

All inputs and outputs are optically isolated and require an external power supply. All Inputs and Outputs will work with a 12 to 28 Vdc Power Supply. A 24 Vdc, 500 mA, regulated power supply is recommended.

Figure 6 below shows the electrical characteristics of the 6100F inputs and outputs. Refer to Print A1082, Page 11 for pin assignments. Note that the outputs are open collector sinking that turn on when outputting a logic '0'. The outputs are in a high impedence state for logic '1'.

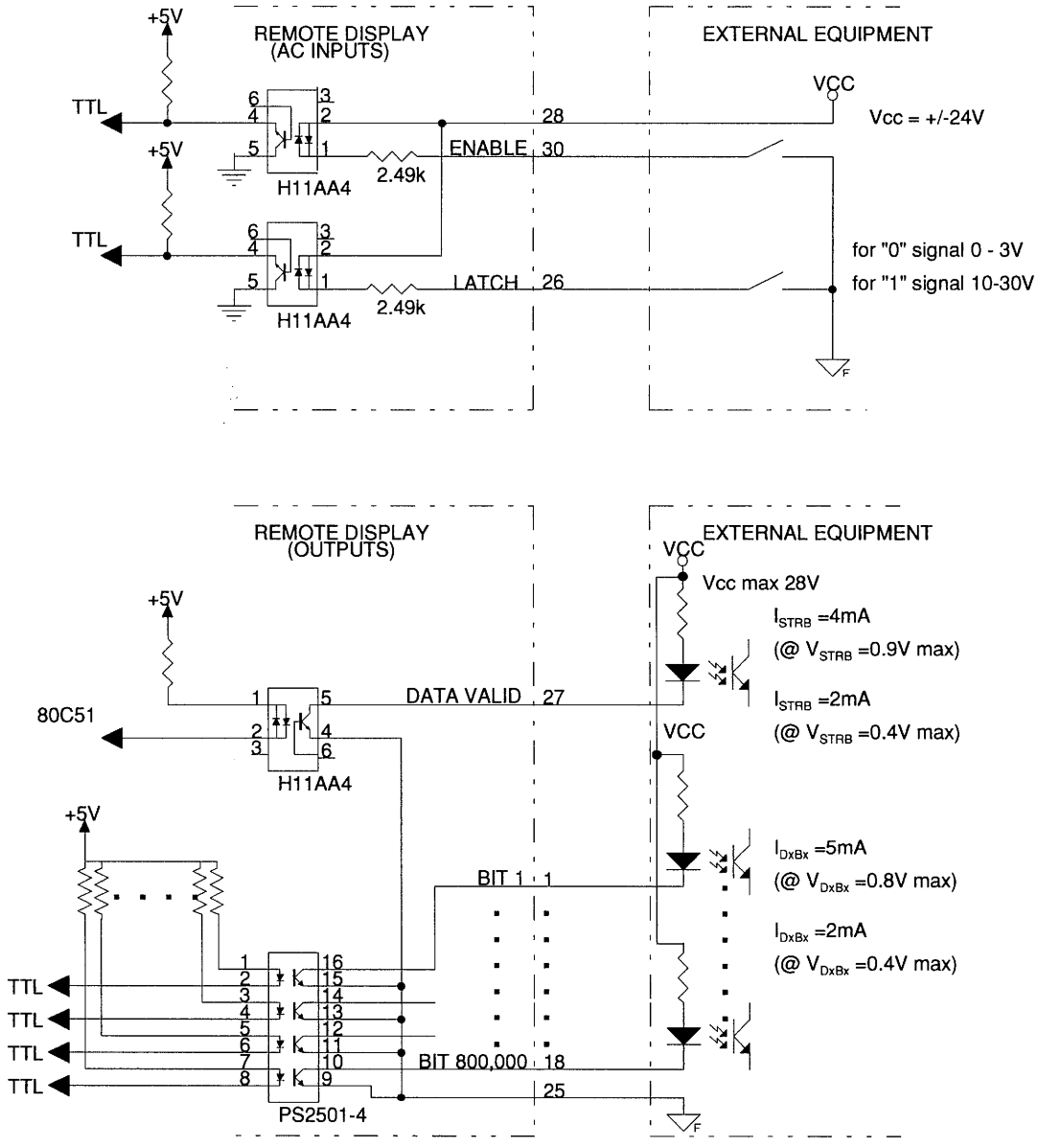
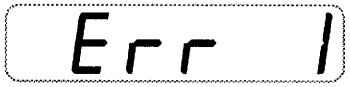


Fig. 6 6100F Input/Output Electrical Characteristics

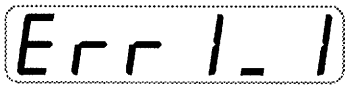
Error Messages

The 6100F will display all of the error messages of its "master" module as well as a "No Connection" message if there is no serial data on the fiber optic or RS-485 link. Error Messages are listed below.

NO CONNECTION - Displayed when the 6100F is not receiving serial data on either its fiber optic of RS-485 inputs.

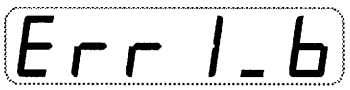


TRANSDUCER FAULT - Available with 1431/41-03 and 7451-01. Displayed when the transducer is not attached to the module.



TRANSDUCER FAULT / FINE RESOLVER - Available with 1461-01. Displayed when the Fine resolver of the HTT-20-100/180 is not attached to the module.

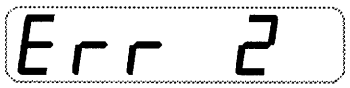
TRANSDUCER FAULT / COURSE RESOLVER - Available with 1461-01. Displayed when the Course resolver of the HTT-20-100/180 is not attached to the module.



TRANSDUCER FAULT - Available with 1461-01. Displayed when the HTT-20-100/180 is not attached to the module.

POSITION OVERFLOW - Available with 7451-01. Displayed when position data exceeds +99,999 counts.

POSITION UNDERFLOW - Available with 7451-01. Displayed when position data goes below -99,999 counts.



E^2PROM ERROR - Available with all modules. Displayed when the module faults due to improper parameter values stored in E^2PROM memory.

POWER SUPPLY FAULT - Available with 7451-01. Displayed when the modules' internal power supply is shut down due to an excessive current draw.

REMOTE DISPLAY BOARD FAULT - Available with all modules. Displayed when there is a communications fault between the remote display board and the modules' main board.

NOTES:

RS485 Input Connector Pin-out
Pin 1 NO CONNECTION
Pin 2 - Rx
Pin 3 + Rx
Pin 4 SHIELD
Pin 5 +Vn Isolated Supply
For use with RS-485 Interface ONLY! Do not connect to any other equipment.

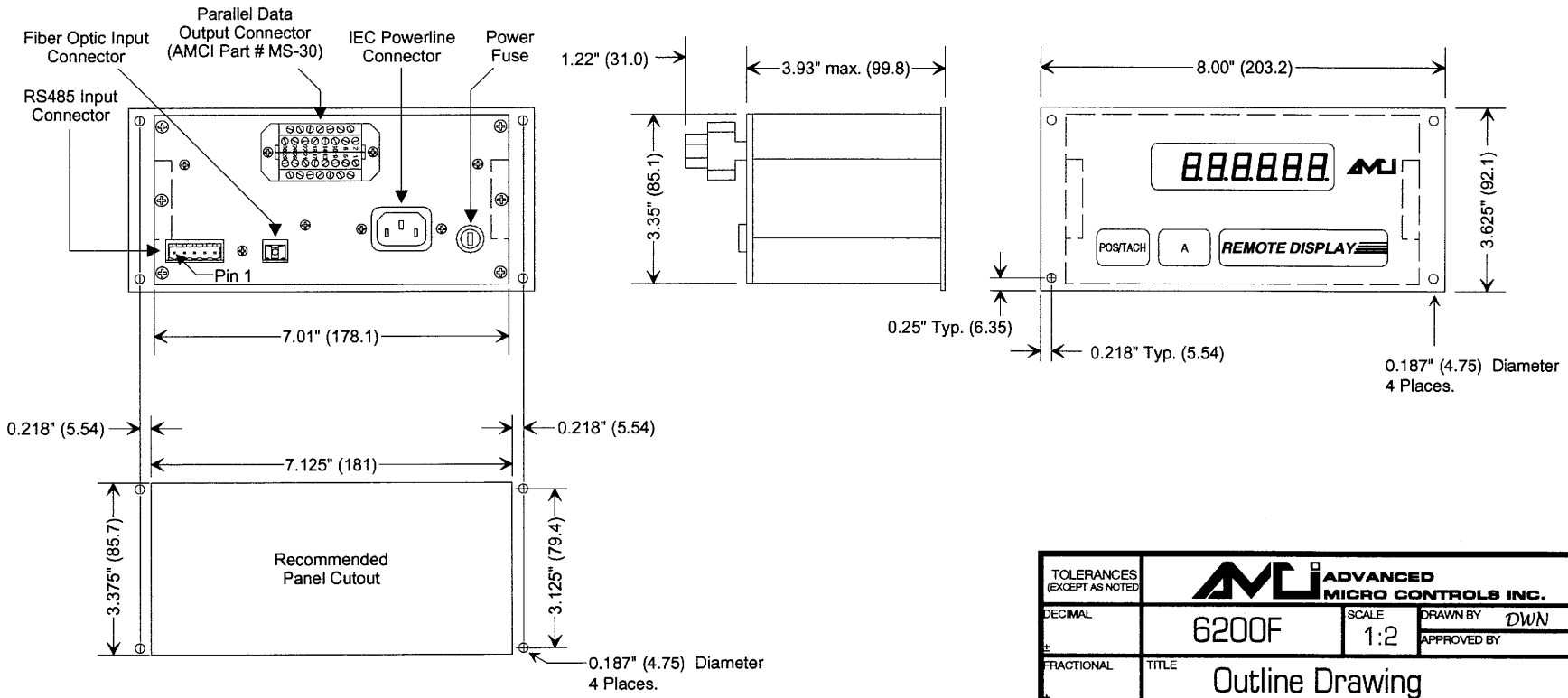
RS485 Input Connector Mates with:
Phoenix # MVSTBW 2.5/5-ST-5.08
AMCI # MS-5W

RS-485 Cable [AMCI # CDC-(x)] Wiring Diagram
See Print # A1083

Parallel Data Output Connector Pin-out
See Print # A1082.

Power Fuse: Littelfuse # 225.250
2AG 0.25 Amp

DATE	SYM	REVISION RECORD	AUTH	DR	CK



TOLERANCES (EXCEPT AS NOTED)	ADVANCED MICRO CONTROLS INC.		
DECIMAL ±	6200F	SCALE 1:2	DRAWN BY DWN / APPROVED BY
FRACTIONAL ±	TITLE Outline Drawing		
ANGULAR ±	DATE 12/6/93	DRAWING NUMBER B1213	

RS485 Input Connector Pin-out
Pin 1 NO CONNECTION
Pin 2 - Rx
Pin 3 + Rx
Pin 4 SHIELD
Pin 5 +Vn Isolated Supply
For use with RS-485 Interface ONLY! Do not connect to any other equipment.

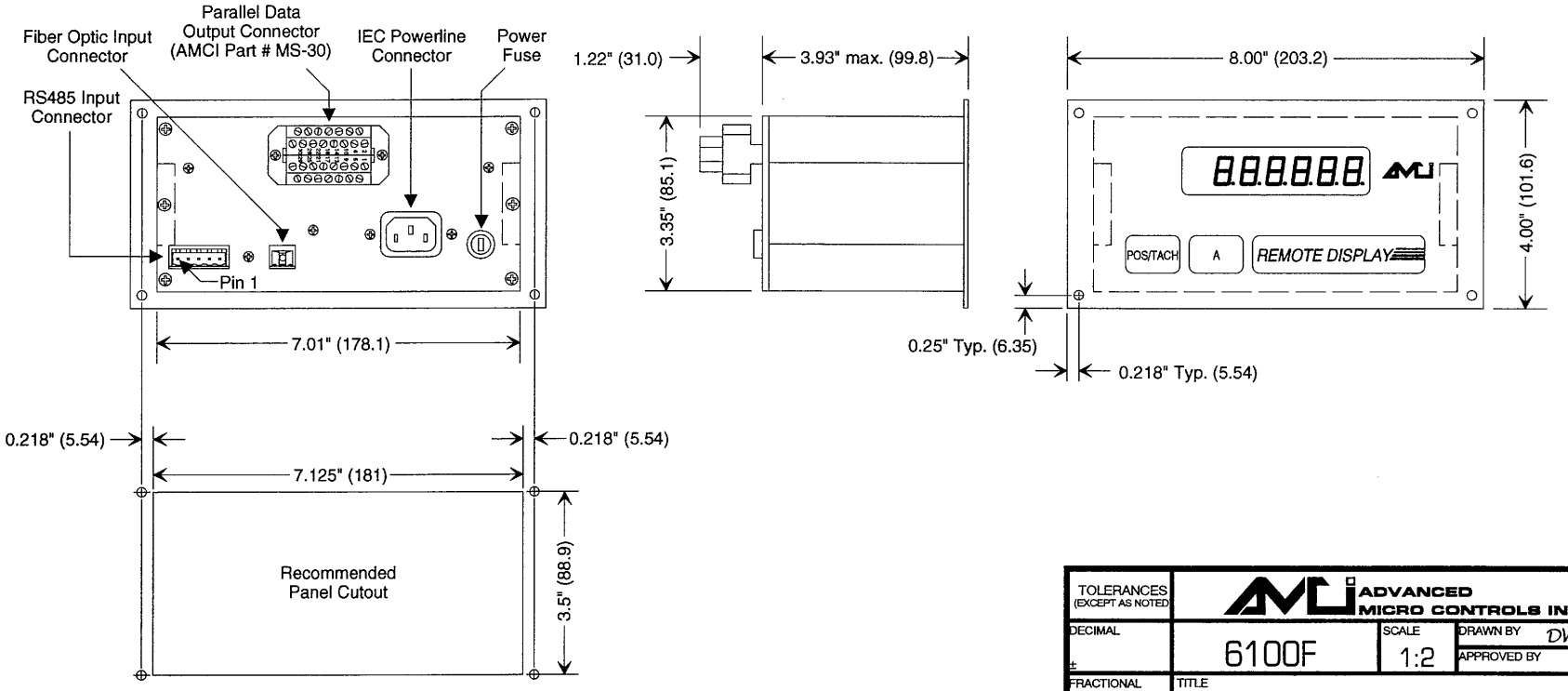
RS485 Input Connector Mates with:
Phoenix # MVSTBW 2.5/5-ST-5.08
AMCI # MS-5W

RS-485 Cable [AMCI # CDC-(x)] Wiring Diagram
See Print # A1083

Parallel Data Output Connector Pin-out
See Print # A1082.

Power Fuse: Littelfuse # 225.250
2AG 0.25 Amp

DATE	SYM	REVISION RECORD	AUTH	DR	CK
3/93	A	Added Connector Pin-outs	DWN		
3/93	B	Added Fuse Rating & CDC Print #			
		Changed RS-485 Pin-out.	DWN		
6/93	C	Changed Back Panel. See B11815	DWN		



TOLERANCES (EXCEPT AS NOTED)	ADVANCED MICRO CONTROLS INC.		
DECIMAL ±	6100F	SCALE 1:2	DRAWN BY DWN
			APPROVED BY
FRACTIONAL ±	TITLE Outline Drawing		
ANGULAR ±	DATE 2/3/93	DRAWING NUMBER B1183 REV. C	

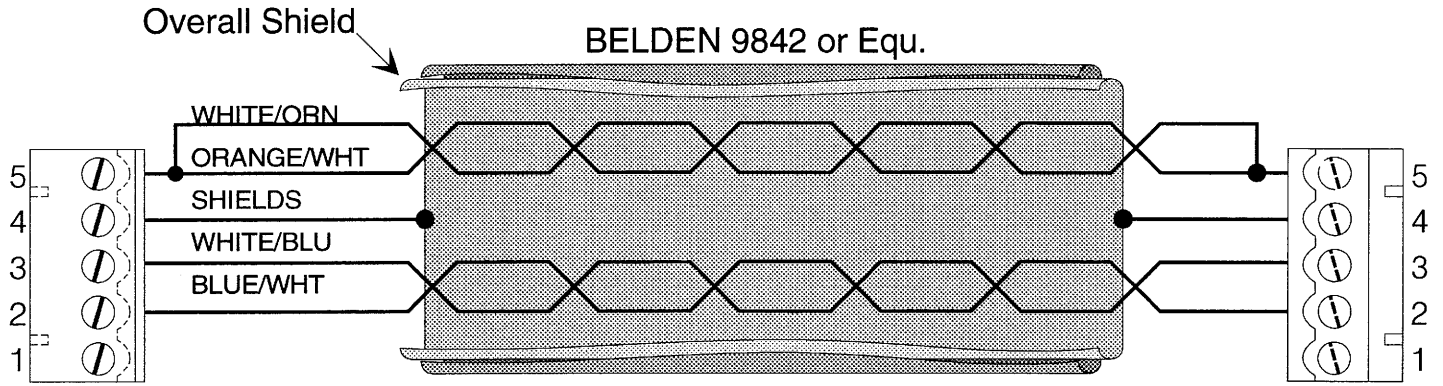
DATE	SYM	REVISION RECORD	AUTH	DR	CK
3/93	A	Added Connector Pinout	DWN		

Connector Pin-out

PIN 1	No Connection
PIN 2	- Tx / - Rx *
PIN 3	+ Tx / + Rx *
PIN 4	SHIELD
PIN 5	Vn **

* ±Tx Transmit Signals from Module
±Rx Recieve Signals to 6100F

** Vn is an Isolated power supply from the 6100F and is intended solely for the RS-485 Link.



MS-5W
Mates with Modules' RS-485 Input Connector

MS-5W
Mates with 6100F's RS-485 Input Connector

Color Equivalency Chart

Belden 9842	Carol C0842
WHITE/ORN	WHITE
ORANGE/WHT	BLK / WHT
WHITE/BLU	RED
BLUE/WHT	BLK / RED

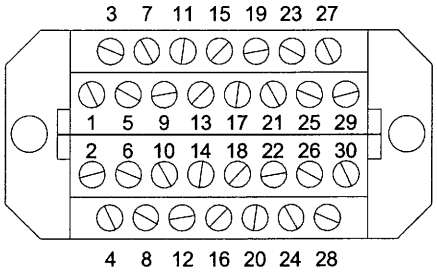
TOLERANCES (EXCEPT AS NOTED)	ADVANCED MICRO CONTROLS INC.		
DECIMAL ±	6100F	SCALE None	DRAWN BY DWN APPROVED BY
FRACTIONAL ±	TITLE CDC-(x) Cable Drawing		
ANGULAR ±	DATE 3/18/93	DRAWING NUMBER A1083 REV. A	

Position Data is output in BCD format.
All Outputs are ACTIVE LOW, all Inputs are ACTIVE HIGH.

PIN	DESCRIPTION	PIN	DESCRIPTION	PIN	DESCRIPTION
1	BIT 1	11	BIT 20	21	BIT 40,000
2	BIT 100	12	BIT 2000	22	BIT 200,000
3	BIT 2	13	BIT 40	23	BIT 80,000
4	BIT 200	14	BIT 4000	24	BIT 100,000 or SIGN*
5	BIT 4	15	BIT 80	25	OUTPUT COMMON
6	BIT 400	16	BIT 8,000	26	UPDATE INPUT LEVEL**
7	BIT 8	17	BIT 10,000	27	DATA VALID OUTPUT
8	BIT 800	18	BIT 800,000	28	INPUT COMMON
9	BIT 10	19	BIT 20,000	29	RESERVED INPUT
10	BIT 1000	20	BIT 400,000	30	UPDATE INPUT TRANSITION**

* AMCI LDT Interface Modules support ±99,999 Counts. When the Position data is negative, this bit is active.

** Transition and Level Inputs must not be used concurrently.

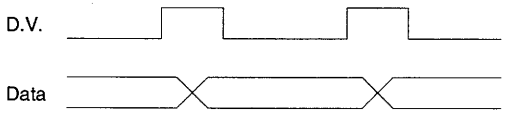


Parallel Data Output Connector

PCD Part # ELH152100 AMCI Part # MS-30

DATE	SYM	REVISION RECORD	AUTH	DR	CK

DATA VALID OUTPUT - Output is active when data is valid. Output is inactive during data update or fault conditions.



UPDATE INPUT: LEVEL - Outputs update every 1.6 mSec while this input is active. Outputs are stable within 50 µSec.

UPDATE INPUT: TRANSITION - Outputs update within 50 µSec after a transition on this input.

TOLERANCES (EXCEPT AS NOTED)	ADVANCED MICRO CONTROLS INC.		
DECIMAL ±	6100F	SCALE None	DRAWN BY DWN APPROVED BY
FRACTIONAL ±	TITLE: Parallel Data Output Connector Pin-Out		
ANGULAR ±	DATE 2/24/93	DRAWING NUMBER A1082	

ADVANCED
MICRO CONTROLS INC.
PLYMOUTH INDUSTRIAL PARK, TERRYVILLE, CT 06786
TEL. (203) 585-1254 FAX. (203) 584-1973