

OPERATIONS AND MAINTENANCE MANUAL WINCH OPERATORS PANEL

BAKER ATLAS 5715XA PANEL F140529000 Kerr p/n AMS4A040

TABLE OF CONTENTS

SECTION	DESCRIPTION
1.0	GENERAL DESCRIPTION
2.0	DETAILED DESCRIPTION OF FEATURES
3.0	MENU OPERATING INSTRUCTIONS OPEN HOLE MODE
4.0	MENU OPERATING INSTRUCTIONS CASED HOLE MODE
5.0	SYSTEM OPERATING INSTRUCTIONS
6.0	DRAWINGS, SETUP PROCEDURES AND PARTS LISTS
7.0	INSTALLING NEW SOFTWARE
8.0	CABLE DRAWINGS
9.0	CE TEST CERTIFICATES

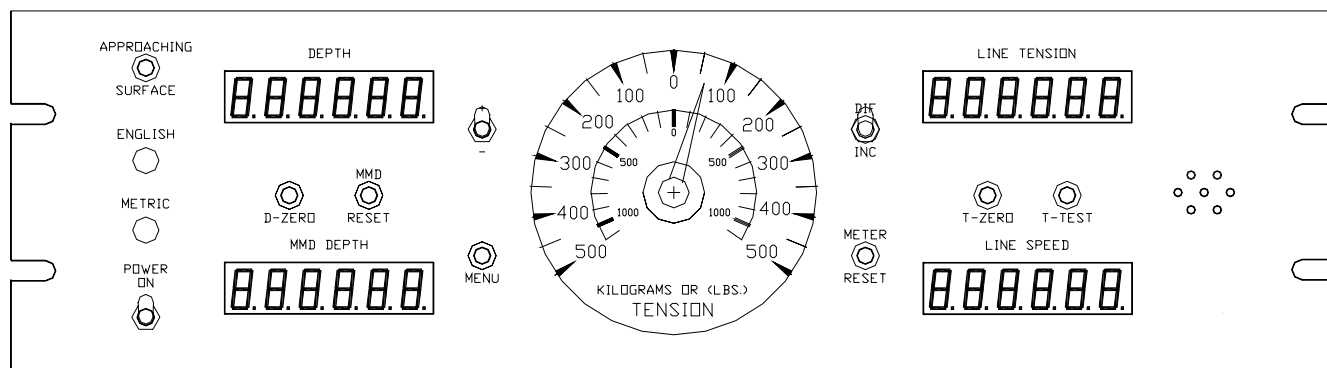
1.0 INTRODUCTION

1.1 GENERAL DESCRIPTION

This panel is designed to acquire and display depth, tension, and magnetic mark data from a wireline logging winch unit. The panel provides the operator a means to set and make adjustments to the data as necessary.

Depth is displayed from data provided from an encoder mounted on a measuring device. The encoder quadrature pulses are passed through to the acquisition system. The tension data is provided by a load pin and is also passed through to the acquisition system.

The panel can be set in either open hole logging or cased hole logging modes. This is done by installing jumper J3 on the main processor board for cased hole mode or removing the jumper for open hole mode.



1.2 FEATURES AND SPECIFICATIONS

- Digital displays for depth, line speed, tension and magnetic marks (or CCL offset)
- Analog incremental tension meter, 4 inch (108 mm) dia., 270 degree
- Differential or Incremental tension zero push button switch
- Excessive tension alarm setting allows operator to set tension alarm to a predetermined value. Contact closure is provided for winch shutdown
- Zero Depth button - sets depth to 0. Depressing button again resets depth to previous setting. Only works when line speed is zero
- Approaching surface alarm
- Depth adjust up or down switches. Only works when winch is stopped
- Load cell zero & calibrate controls. Only works when there is no load on cable
- Depth & tension saved in non-volatile memory at power loss
- Outputs for Magnetic Marks, Tension and Encoder to interface to an acquisition system.
- RS485 Interface for additional control and data outputs.
- Can be set to display either English or Metric units.

2.0 DETAILED DESCRIPTION OF FEATURES

2.1 FRONT PANEL

2.1.1 ANALOG TENSION METER

This meter displays either differential or incremental tension. This provides a more visual display of tension change.

2.1.2 INCREMENTAL/TOTAL TENSION SWITCH

This switch will change the analog meter from Incremental tension to Differential tension.

Incremental tension provides a high resolution tension scale. It must be periodically reset as tension increases or decreases to keep it from pegging out.

Differential tension provides a delta tension reading. The meter will slowly reset itself to 0 so the reset switch is not necessary.

2.1.3 METER RESET SWITCH

This switch will reset the meter to the 0 (center) position.

2.1.4 DEPTH DISPLAY

This meter provides a digital display of depth.

2.1.5 LINE TENSION DISPLAY

This meter provides a digital display of total line tension.

2.1.6 LINE SPEED DISPLAY

This meter provides a digital display of line speed.

2.1.7 MAGNETIC MARK DISPLAY

This meter provides a digital display of the depth where the last mark was detected. It is also used as a CCL offset display when the panel is configured for cased hole operations (MODE 3).

2.1.8 MAGNETIC MARK RESET

Pressing the MMD reset button clears the last mark setting. The next mark detected will be used to set the window for any subsequent marks.

2.1.9 ZERO DEPTH

Pressing this button will reset the depth to 0. Depressing the button again will reset the depth to the previous setting. The Zero Depth button will only work when the line speed is zero (i.e. winch not moving).

2.1.10 MENU

Pressing this button will activate the menu software. The software feature to be set will be displayed on the DEPTH display. The features can be toggled through by pressing the menu button until the desired feature is displayed.

2.1.11 + / - SWITCH

This switch is used for different functions. It is used to change the depth setting in either an up or down direction. The winch must be stopped before the depth can be set. In menu mode (see section 3.0) the switch is used to set menu parameters.

2.1.12 APPROACHING SURFACE LED AND ALARM

This LED is lit and an audible alarm is sounded when the depth is less than 100' (30 m). This is a warning to the hoist operator that they are approaching surface and should take care to get the equipment safely out of the well. When the LED is depressed, the alarm will stop but the LED will continue to blink. Once the depth reading is greater than 100' (30 m), both the alarm and the LED will turn off.

2.1.13 ENGLISH / METRIC UNITS

These LEDs will indicate if the panel is in English or metric mode. If the depth is set to English, the English LED will be lit. If the depth is set to Metric the Metric LED will be lit. The tension can be set to English (LBS) or Metric (KG) but it will not light the LED.

2.1.14 T-ZERO SWITCH

Use this switch to set the tension to 0 at the start of a logging run. This will zero out the tension circuit. The line should be slack through the head at this time.

2.1.15 T-TEST SWITCH

Press T-TEST and verify that the panel tension reads 20000 lbs (MODE 5) or 5000 lbs (MODE 3). Verify tension is being properly recorded on acquisition system.

2.2 REAR PANEL

2.2.1 12 – 24 VDC

This connector supplies dc power for the panel operation (9 VDC min, 30 VDC max). The panel can operate on either 12 or 24 vdc (12 vdc is U.S. truck standard voltage, 24vdc is European truck standard voltage). Pin A is positive, pin B is negative.

2.2.2 OVER TENSION CONTACT

This connector provides a connection to the overtension circuit relay. When an overtension condition is active, the two pins are connected together. In normal position the two pins are open. This feature can be used to interface to the winch unit control system to provide automatic hoist shutdown at an overtension condition.

2.2.3 SIGNAL INPUT

Encoder, tension, and magnetic mark signals and power are passed through this connector to/from the sensors on the measuring head.

2.2.4 SIGNAL OUTPUT

Encoder, tension, and magnetic mark signals, processed and some unprocessed are passed through this connector to the acquisition system.

2.2.3 RS485 SERIAL INTERFACE

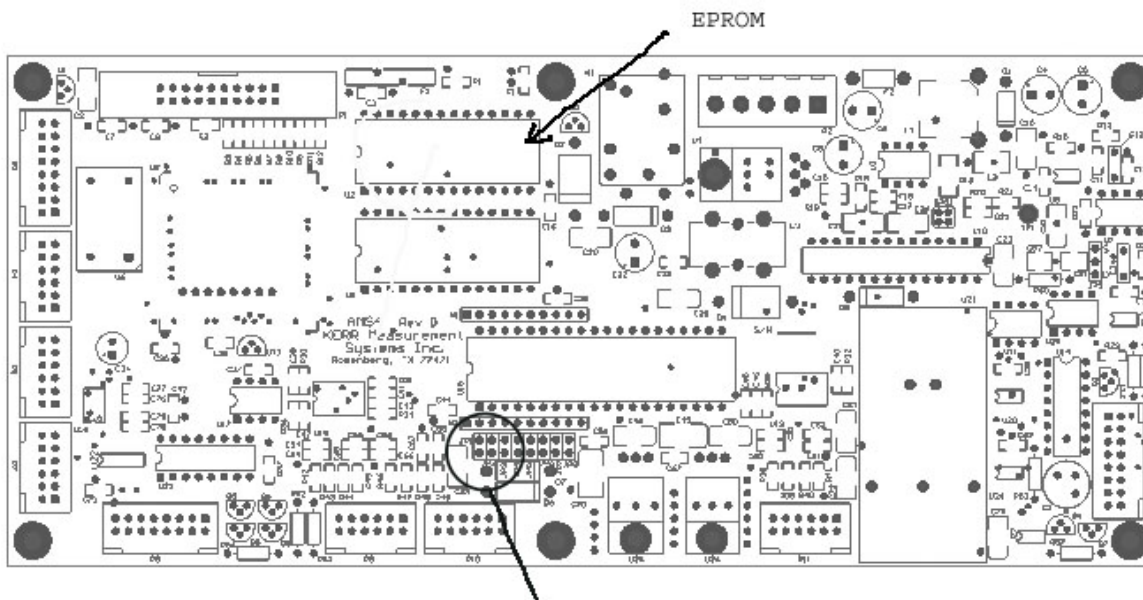
This connector provides an RS485 interface from the panel to the acquisition system. Connectors are provided for both RS485 in and out.

2.3 JUMPER SETTINGS

A row of jumpers are located on the internal processor board to set the panel in different configurations.

- J1 on = DEPTH IN METERS
- J1 off = DEPTH IN FEET
- J2 on = TENSION IN KG
- J2 off = TENSION IN POUNDS
- J3 on = CASED HOLE MODE (AM3K + CASE OR HOIST)
- J3 off = OPEN HOLE MODE (AM5K + FOCUS)
- J4 off = Rev D or earlier PC board
- J4 on = Rev E PC board
- J5 on = FOCUS mode
- J5 off = AM5K standalone mode

J1 and J2 are only in affect when J5 is off



2.3.3 PROCESSOR REBOOT

In the event of a panel "lock up" or other malfunction, the processor in the panel can be rebooted by turning off the panel, depressing the T-ZERO and T-TEST buttons simultaneously then turn the power back on while the buttons are depressed.

When the panel is rebooted, all the menu settings will be returned to the factory default settings.

3.0 MENU COMMANDS – OPEN HOLE MODE

This panel has internal software which allows it to be set for various configurations. To change the settings, press the MENU button. The feature to be set will be displayed on the DEPTH display. Press the MENU button again until the feature you want to set is displayed.

In this mode (open hole) the panel is configured to work with the AM5K measuring head and the Baker Atlas FOCUS acquisition system.

Jumper J3 must be removed to put the system in this mode (refer to section 2.3).

The parameters for each feature will be displayed on the LINE TENSION display. Press the +/- switch to cycle through all the available parameters. When the value you want to select is displayed, press the MENU button. ACCEPT will then be displayed. Press + for yes, - for no.

Following is a listing of all the available settings.

3.1 CABLE SIZE

Functionality: Cable size selection automatically sets load pin angle setting for the selected cable size.

If other is selected, the LCA value needs to be entered. This value is based on the bend angle of the cable over the tension wheel. This value is empirically derived and must be furnished by the measuring head manufacturer (Kerr Measurement Systems Inc.). Contact Kerr with the line specifications.

Procedure: Use +/- switch to select cable size.

Indication: CABLE will be displayed on the DEPTH display and the selections will be displayed on the LINE TENSION display.

Cable Size Values available

7-32
9-32
5-16
3-8
7-16
15-32
SLAM

S-SLAM

Other

Default value is 7-16

If OTHER is selected, two additional options are available.
LCA and WHLCIR.

LCA (Load Cell Angle). This setting allows for the use of a sheave mounted load cell. The angle of the cable exiting the sheave should be entered. Typically for a load cell mounted above the top sheave the LCA would be 0. For a load cell mounted to the bottom sheave the LCA would be 90 (90 degrees). Default value is 0.

WHLCIR (Wheel Circumference). This value is set to the circumference of the measuring wheel to ensure the depth is measured correctly. Default value is 2.0 ft.

3.2 TEN ALARM

Functionality: When preset tension value is reached, alarm sounds and tension display flashes value

Procedure: Use +/- switch to set the tension alarm setting.

Indication: TALARM will be displayed on the DEPTH display and the value will be displayed on the TENSION display as it is being set.

Selection: Each cable size will have a corresponding Tension Alarm setting. Only the setting for the cable size selected (see menu option 1) can be adjusted.

Default Values

7-32	1500
9-32	2400
5-16	2400
3-8	2400
7-16	2400
15-32	2400
SLAM	2400
S-SLAM	2400

3.3 TENSION SHUTDOWN

Functionality: When value is reached, alarm sounds, tension display flashes value, and tension contact closure switch is closed. This can be used to provide a signal to automatically stop the winch.

Procedure: Use +/- switch to set tension shutdown setting

Indication: TSHTDN will be displayed on the DEPTH display and the value will be displayed on the TENSION display as it is being set.

Selection: Each cable size will have a corresponding Tension Alarm setting. Only the setting for the cable size selected can be adjusted.

Default Values

7-32	2000
9-32	3000
5-16	3500
3-8	3500
7-16	3500
15-32	3500
SLAM	3500
S-SLAM	3500

Note: The RESET or Approaching Surface button needs to be depressed before the winch shutdown relay will de-energize.

3.4 DELTA TENSION ALARM

Functionality: When the delta tension setting is reached the alarm sounds. In incremental mode, you must periodically press meter reset or this alarm will sound when the tension reaches the set value. In differential mode, the meter will reset itself and the alarm will only sound on a quick change of tension.

Procedure: Use +/- switch to set the Delta Tension setting.

Indication: DT-TEN will be displayed on the DEPTH display and the value being set will be displayed on the TENSION display as it is being adjusted.

3.5 DELTA TENSION SHUTDOWN

Functionality: When value is reached, alarm sounds, tension display flashes value, and tension contact closure switch is closed. This can be used to provide a signal to automatically stop the winch.

Procedure: Use +/- switch to set tension shutdown setting

Indication: DTSHDN will be displayed on the DEPTH display and the value will be displayed on the TENSION display as it is being set.

Note: This parameter is derived from the reading on the analog meter. If the DTSHDN value is set to 500 then whenever the tension reading on the meter is greater than 500 the winch shutdown relay will be activated.

Note: The RESET or Approaching Surface button needs to be depressed before the winch shutdown relay will de-energize.

3.6 DEPTH ADJUST (Shim)

Functionality: The shim amount selected will automatically be added or subtracted from the depth input.

Procedure: Use +/- switch to set the shim setting.

Indication: DP-ADJ will be displayed on the DEPTH display and the value will be displayed on the TENSION display as it is being set. The values are feet / thousand.

Default value is 0.

3.7 DEPTH ALARM

Functionality: When Alarm depth value is reached, the alarm will sound and LED will flash. Pressing the LED will turn off alarm but the light will continue to flash.

Procedure: Use +/- switch to set the depth alarm value.

Indication: DALARM will be displayed on the DEPTH display and the value will be displayed on the TENSION display as it is being set.

Default value is 100'

3.8 MMD

Functionality: The MMD window determines when the next mark can be detected. The cable must travel at least the distance of the value set before a mark can be detected. Marks can only be detected if they occur within this window. I.E. If the window is set for 95', the cable must travel 95' from the last mark before a new mark can be detected.

Procedure: Use +/- switch to change MMD window value.

Indication: MMD will be displayed on the DEPTH display and the window value will be displayed on the TENSION display as it is being set.

Pressing the MMD reset button clears the last mark setting.
Default value is 5'

3.9 MMD DETECT

Functionality: If STRONG is selected, only marks greater than 4 gauss will be detected. If ALL is detected, any mark stronger than .3 gauss will be detected.

Procedure: Use +/- switch to toggle MMD detect value from STRONG to ALL.

Indication: DETECT will be displayed on the DEPTH display and either STRONG or ALL will be displayed on the TENSION display.

3.10 ENCODER

Functionality: The value selected will automatically be used as the encoder input pulses per revolution (PPR) setting.

Procedure: Use +/- switch to set the ENCODER Pulse Per Revolution setting.

Indication: ENCODR will be displayed on the DEPTH display and the value will be displayed on the TENSION display.

Selection: 1200 (600 ppf or 1968 ppm)
780 (390 ppf or 1280 ppm)
512 (256 ppf or 1680 ppm)
Default value is 1200.

3.11 ENCODER DIRECTION

Functionality: The value selected will toggle the encoder direction between UP and Down.

Procedure: Use +/- switch to set the ENCODER direction setting.

Indication: ENCDIR will be displayed on the DEPTH display and either UP or DN value will be displayed on the TENSION display.

Default value is UP.

3.12 ENG – MET UNITS

Functionality: The depth and tension values will be displayed in the units selected.

Procedure: Use +/- switch to set the MEASUREMENT UNITS setting.

Indication: UNITS will be displayed on the DEPTH display. The selection can be toggled through any combination of English or Metric units. The selection will be displayed on the TENSION display. The ENGLISH (green) LED display will be lit when FT – LBS is selected and the METRIC (red) LED will be lit when in any of the other modes.

Selection:

FT - LBS
FT - KG
MT - LBS
MT - KG

Default value is FT – KG

3.13 MMD PLAYBACK

Functionality: The depth of the first 25 detected marks is stored in memory and can be played back.

Procedure: Use +/- switch to toggle through all of the marks that have been detected. This starts from the last mark detected. Pressing depth 0 will clear all the stored marks.

Indication: MMD DP will be displayed on the DEPTH display and the mark depth will be displayed on the TENSION display.

4.0 MENU COMMANDS – CASED HOLE MODE

In this mode (cased hole) the panel is configured to work with the AM3K measuring head and the Baker Atlas CASE and HOIST acquisition systems.

Jumper J3 must be installed to put the system in this mode (refer to section 2.3).

4.1 LOGGING SYSTEM TYPE

Functionality: This setting determines the encoder pulse rate that will be output to the acquisition system. The tension scale will also be determined by this setting.

Procedure: Use +/- switch to select Logging System type.

Indication: LOGSYS will be displayed on the DEPTH display. and either CASE or HOIST will be displayed on the TENSION display.

CASE:

Encoder output: 256 pulses per foot
Tension: 1.5vdc = 20,000 lbs

HOIST:

Encoder output: 600 pulses per foot
Tension: 5vdc = 10,000 lbs

Note: Use the 4-20ma output signal for tension to the HOIST system. Install a 250 ohm resistor across the 4-20ma output to get the 0 – 5vdc voltage drop required.

4.2 CABLE SIZE

Functionality: Cable size selection automatically sets load pin angle setting for the selected cable size. Wheel size is also automatically set for the selected cable size.

If other is selected, the LCA value needs to be entered. This value is based on the bend angle of the cable over the tension wheel. This value is empirically derived and must be furnished by the measuring head manufacturer (Kerr Measurement Systems Inc.). Contact Kerr with the line specifications.

Procedure: Use +/- switch to select cable size.

Indication: CABLE will be displayed on the DEPTH display and the selections will be displayed on the LINE TENSION display.

Cable Size Values available

7-32
9-32
5-16 (Default setting)
3-8
Other

4.3 TENSION ALARM

Functionality: When preset tension value is reached, alarm sounds and tension display flashes value

Procedure: Use +/- switch to set the tension alarm setting.

Indication: TALARM will be displayed on the DEPTH display and the value will be displayed on the TENSION display as it is being set.

Selection: Each cable size will have a corresponding Tension Alarm setting. Only the setting for the cable size selected (see menu option 2) can be adjusted.

Default Values

7-32	1500
9-32	2400
5-16	2400
3-8	2400

4.4 DELTA TENSION ALARM

Functionality: When the delta tension setting is reached the alarm sounds. In incremental mode, you must periodically press meter reset or this alarm will sound when the tension reaches the set value. In differential mode, the meter will reset itself and the alarm will only sound on a quick change of tension.

Procedure: Use +/- switch to set the Delta Tension setting.

Indication: DT-TEN will be displayed on the DEPTH display and the value being set will be displayed on the TENSION display as it is being adjusted.

4.5 TENSION SHUTDOWN

This value is added to the DTALRM or the TALRM settings to determine when the shutdown relay is activated.

Example:

If the TNALRM is set to 4000 and the TSHTDN is set to 500, the ALARM will sound when tension reaches 4000lbs and the OT contacts will close when tension reaches 4500lbs

If the Tension Alarm is set to 2000 and the Shutdown is set to 150 then the winch shutdown will occur at 2150 lbs.

Procedure: Use +/- switch to set tension shutdown setting

Indication: TSHTDN will be displayed on the DEPTH display and the value will be displayed on the TENSION display as it is being set.

Selection: Each cable size will have a corresponding Tension Alarm setting. Only the setting for the cable size selected can be adjusted.

Note: The RESET or Approaching Surface button needs to be depressed before the winch shutdown relay will de-energize.

4.6 DEPTH ALARM

Functionality: When Alarm depth value is reached, the alarm will sound and LED will flash. Pressing the LED will turn off alarm but the light will continue to flash.

Procedure: Use +/- switch to set the depth alarm value.

Indication: DALARM will be displayed on the DEPTH display and the value will be displayed on the TENSION display as it is being set.
Factory default value is 100'

4.7 CCL OFFSET

Functionality: The CCL depth will be displayed on the CCL DEPTH meter. This makes it easier to monitor CCL depth in addition to bottom of tool depth.

Procedure: Use +/- switch to set the CCL offset depth

Indication: CCL will be displayed on the DEPTH display and the value will be displayed on the TENSION display as it is being set.

4.8 DEPTH ADJUST (Shim)

Functionality: The shim amount selected will automatically be added or subtracted from the depth input.

Procedure: Use +/- switch to set the shim setting.

Indication: DP-ADJ will be displayed on the DEPTH display and the value will be displayed on the TENSION display as it is being set. The values are feet / thousand.
Factory default value is 0.

4.9 ENCODER

Functionality: The value selected will automatically be used as the encoder input pulses per revolution (PPR) setting.

Procedure: Use +/- switch to set the ENCODER Pulse Per Revolution setting.

Indication: ENCODR will be displayed on the DEPTH display and the value will be displayed on the TENSION display.

Selection: 1200 (600 ppf or 1968 ppm)
780 (390 ppf or 1280 ppm)
512 (256 ppf or 1680 ppm)

Default value is 1200.

4.10 ENCODER DIRECTION

Functionality: The value selected will toggle the encoder direction between UP and Down.

Procedure: Use +/- switch to set the ENCODER direction setting.

Indication: ENCDIR will be displayed on the DEPTH display and either UP or DN value will be displayed on the TENSION display.

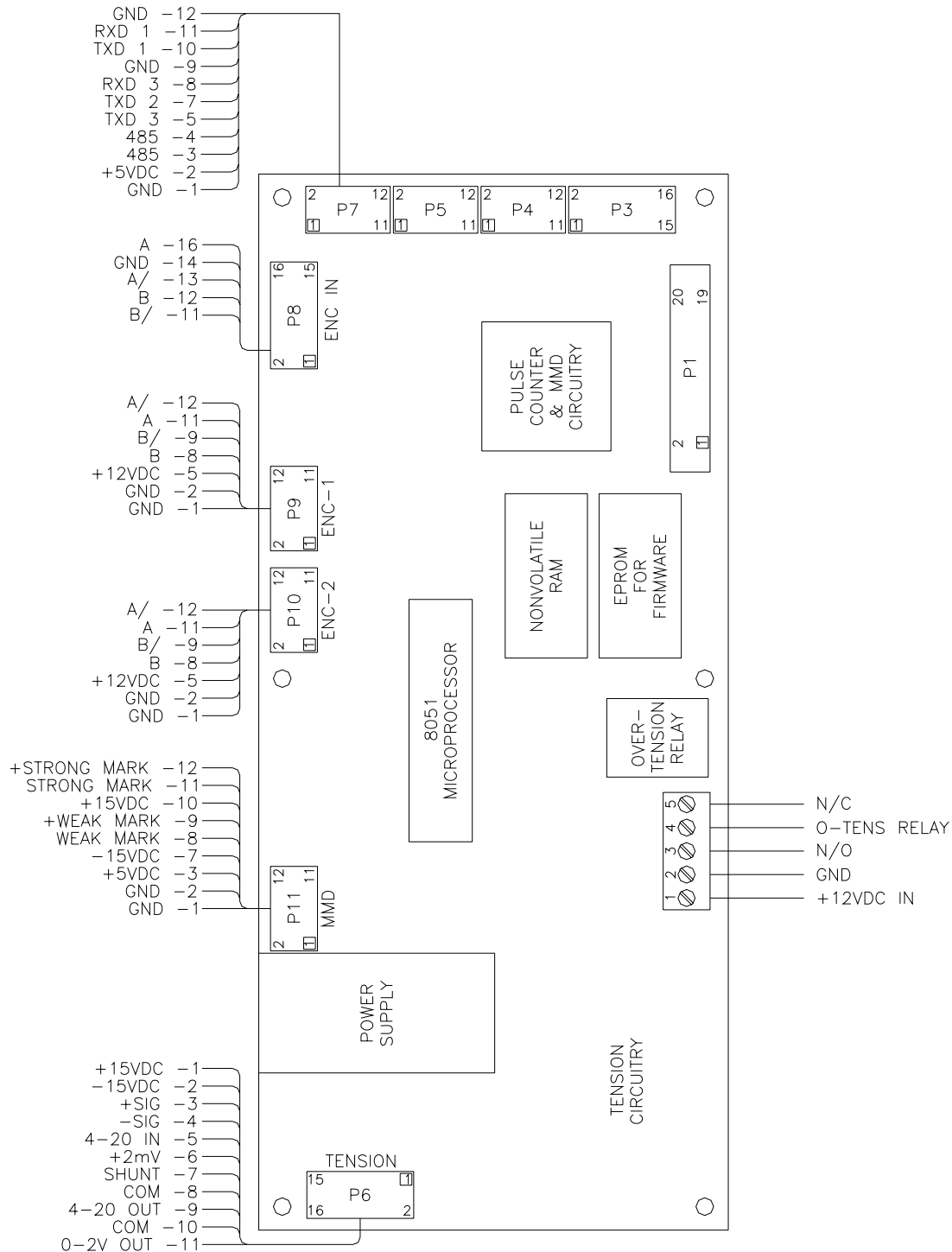
Default value is UP.

5.0 SYSTEM OPERATING INSTRUCTIONS

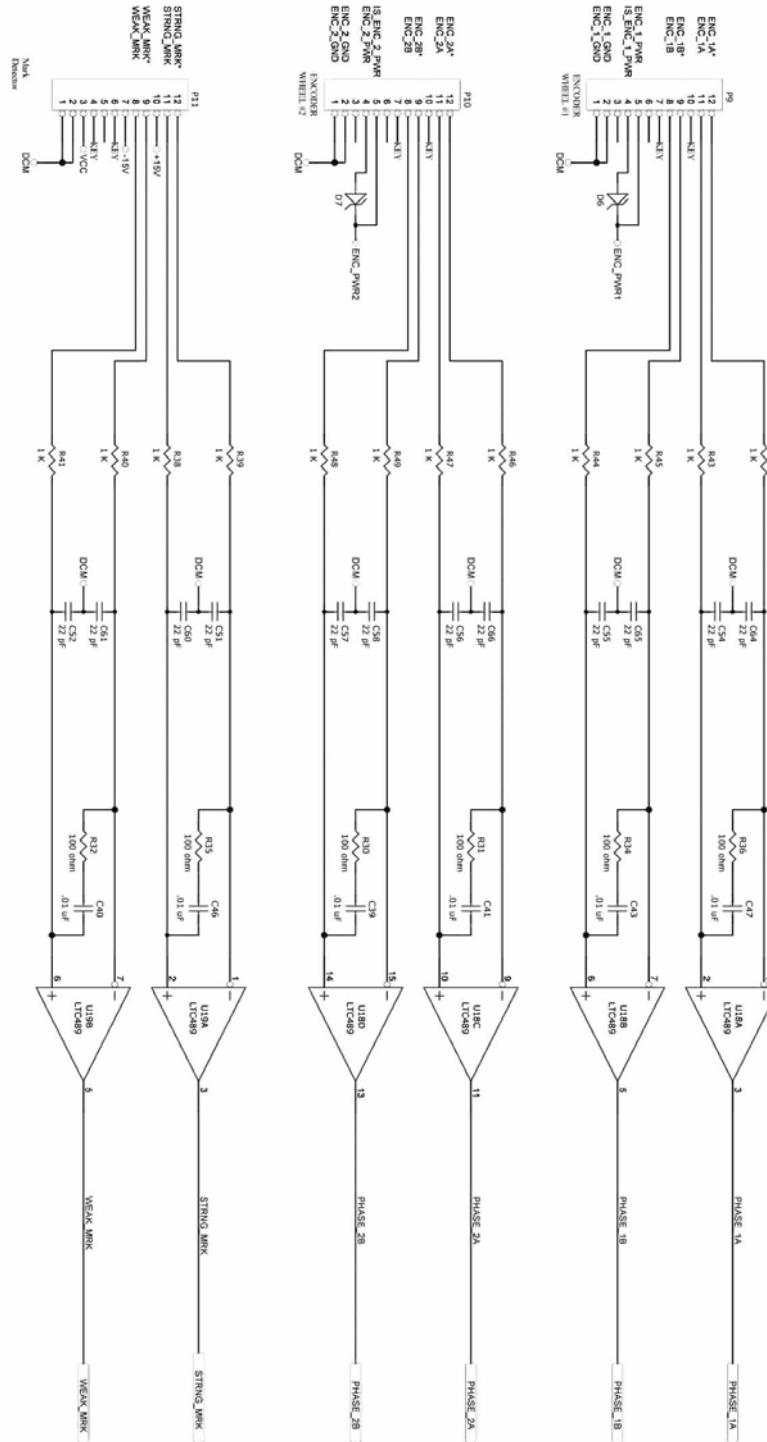
- 5.1 Power up panel and verify it is working properly.
- 5.2 Verify the panel is configured to match the system (head type, Acquisition System, encoder, etc.)
- 5.3 Set up acquisition system:
- 5.4 Press T-Zero and verify that panel tension reads 0. Verify tension is recorded on acquisition system.
- 5.5 Set line size to match cable size installed in head (refer to section 3).
- 5.6 Set Tension Alarm and the Tension Shutdown values.
- 5.7 Set depth adjust value.
- 5.8 Install cable in measuring head and lay it slack on the ground.
- 5.9 Press T-Zero to zero the tension value.
- 5.10 Press T-Test and verify that panel tension reads 5000 (mode 3) or 20000 (mode 5). Verify tension is being properly recorded on acquisition system.
- 5.11 Pull tool to depth 0 position. Press D-Zero and verify that panel depth reads 0. Set acquisition system depth to 0 at this time.

6.0 DRAWINGS AND PARTS LISTS

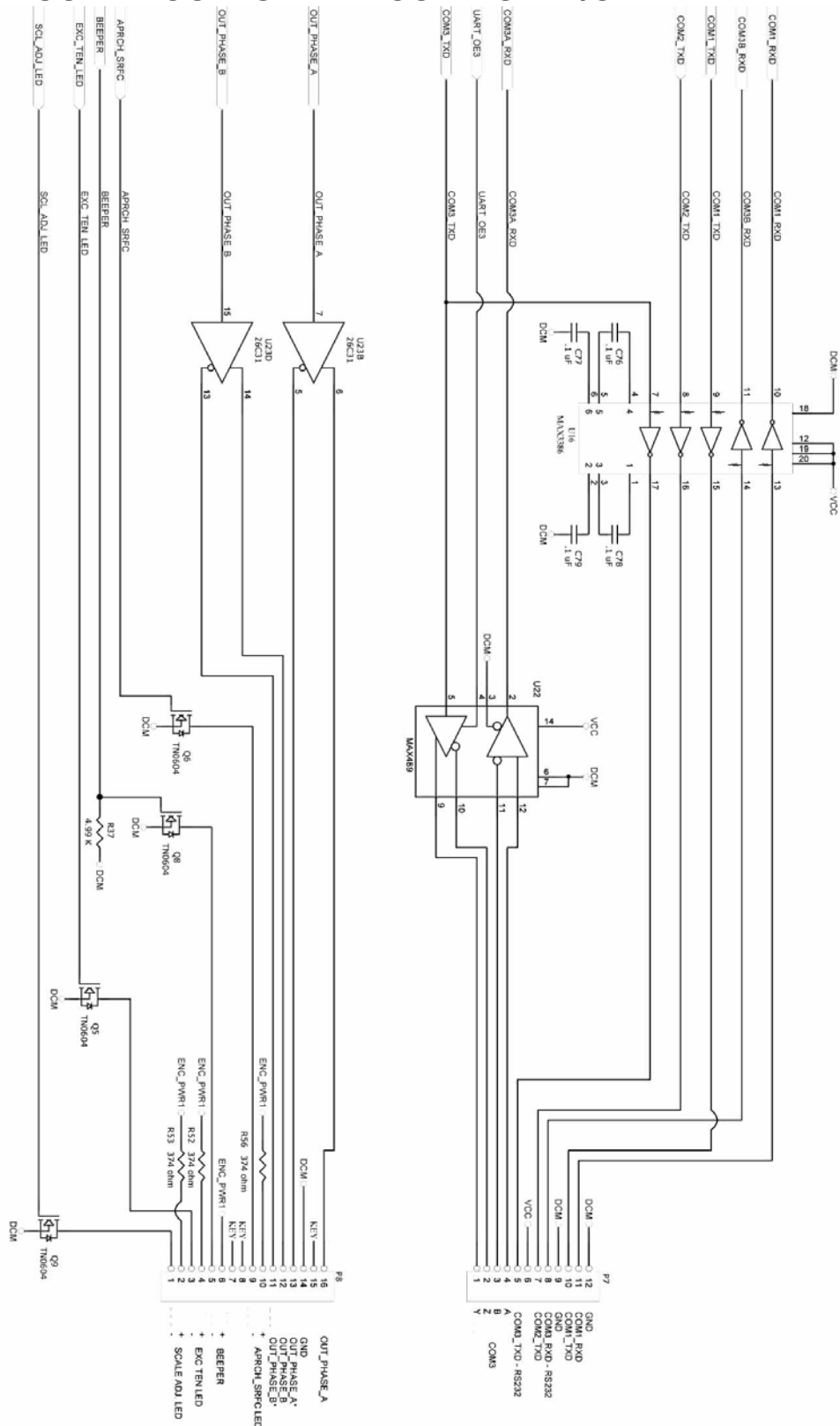
6.1 Main Processor Board



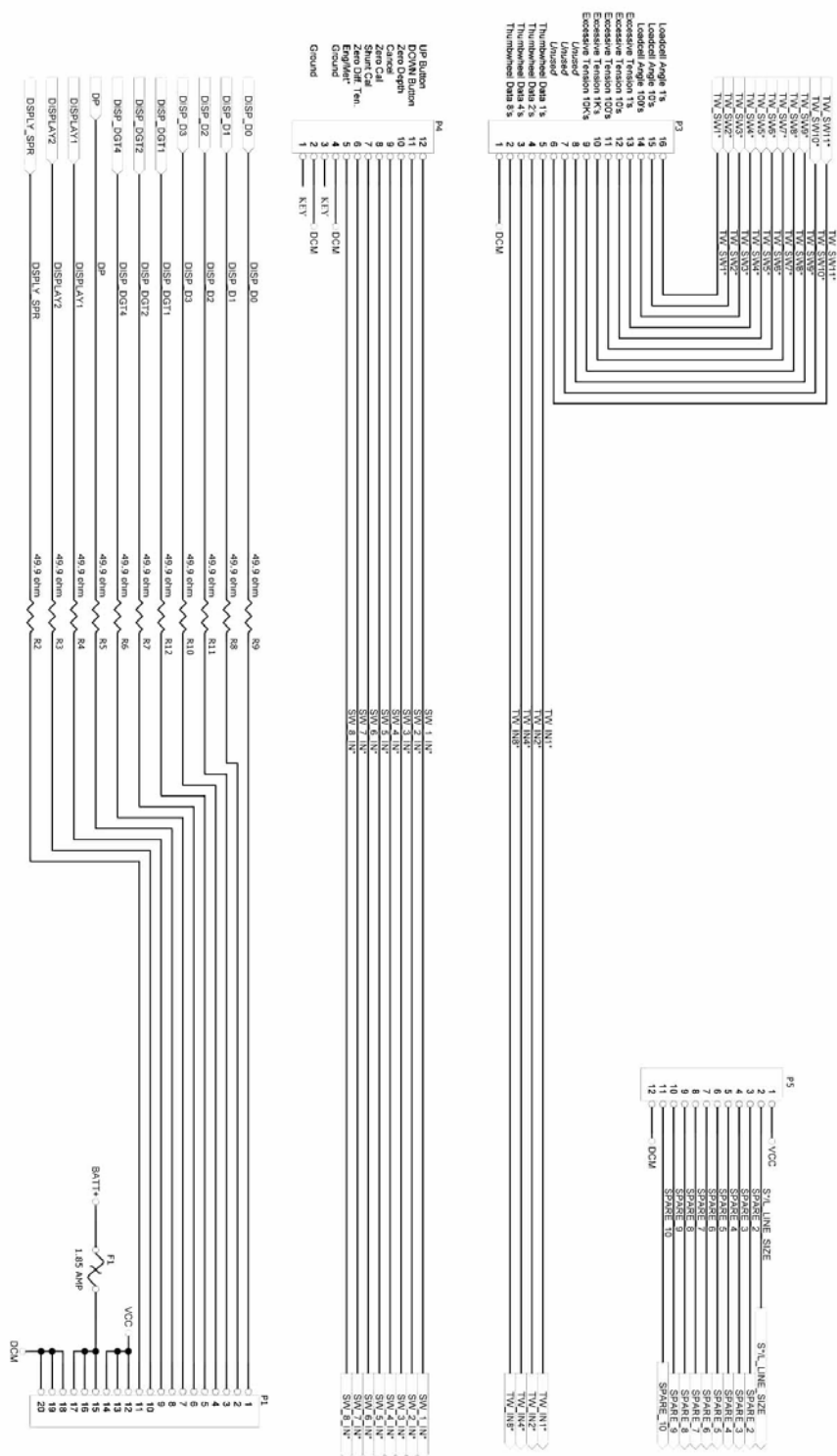
6.1.1 ENCODER AND MMD INPUTS



6.1.2 ENCODER OUTPUT AND COM PORT I/O



6.1.4 JUMPERS – BUTTONS



6.2 Wire List

AMS 4A040 WIRING LIST-- REV L

P2 - Screw Terminal Block

P2 -1	BATT +	RED	P1-7 (FUSE BRD)	SWITCHED POWER
P2 -2	BATT -	BLK - B	J1 B	
P2 -3	CONTACT CLOSURE N.O.	GRN - B	J6 A	Tension Contact Closure Back Panel
P2 -4	CONTACT CLOSURE N.C.	-----	-----	
P2 -5	CONTACT CLOSURE COM	BRN - A	J6 B	Tension Contact Closure Back Panel

P4 - USER SWITCHES (12 PIN)

P4 - 2	DCM BLK	BLK		One side of SW2, SW3, SW4, SW5, SW6, SW7, SW8, SW9, ENGLISH-, SW 10
P4 - 6	ZERO DIFF. TENSION	GRY	SW4 N.O.	
P4 - 7	TEN TEST		SW5 N.O.	
P4 - 8	ZERO CAL	BRN	SW6 N.O.	
P4 - 9	CANCEL DEPTH ALARM	BLU	SW10 N.O	
P4 - 10	ZERO DEPTH	VIO	SW9 N.O.	
P4-11	DEPTH ADJ DOWN	BLU	SW7 N.O. DN	Dn Contact of SW7
P4-12	DEPTH ADJ UP	ORA	SW7 N.O. UP	Up Contact of SW7

P5 - SPARE (12 PIN)

P5 - 1	+5V	RED	D1 4	DISPLAY POWER
P5 - 2	MENU	YEL	SW8	MENU SELECT
P5 - 3	DIFF / INC	GRN	SW 3	
P5 - 6	MMD RESET	VIO	SW 2	

P6 - ANALOG IN/OUT (16 PIN)

P6 - 1	LOAD PIN POWER +	RED	P1-10 FUS BRD	LOAD PIN +15V
P6 - 2	LOAD PIN POWER -	BLK	P1-9 FUS BRD	LOAD PIN -15V
P6 - 3	LOAD PIN SIG+	ORA	J2 10	LOAD PIN SIG+

P6 - 4	LOAD PIN SIG-	BLK	J2 22	LOAD PIN SIG-
P6 - 7	SHUNT CAL ENABLE	GRN	J2 9	SHUNT CAL
P6 - 8	ACM	BLK	J2 21	GROUND
P6 - 9	4to20OUT	BRN	J5-12	4 to 20 mA to system
P6 - 10	ACM	BLK	J5-21	TENSION OUT- TO SYSTEM
P6 - 11	0-2V OUT (TENSION)	GRAY	J5-9	TENSION OUT+ TO SYSTEM
P6 - 15	DIFF TENSION METER -	YEL	M1 -	
P6 - 16	DIFF TENSION METER +	BLU	M1 +	

P7 - COMMUNICATIONS (12 PIN)

P7 - 1	RS485 TX+	GRAY	J3-8 + J4-8	RS485 TX+ (2 WIRES)
P7-2	RS485 TX-	BLK	J3-9 + J4-9	RS485 TX- (2 WIRES)
P7 - 3	RS485RX-	GRN	J3-5 + J4-5	RS485 RX- (2 WIRES)
P7 - 4	RS485RX+	BLU	J3-4 + J4-4	RS485 RX+ (2 WIRES)
P7 - 7	COM2 TXD	ORG	D1-5, D2-5, D3-5, D4-5	DISPLAY DATA - FOUR WIRES CONNECTED TOGETHER
P7 - 9	GND	BLK	J3-3 + J4-3	RS485 GND (2 WIRES)
P7 - 12	GND	BLK	D1 1	DISPLAY GND

P8 - QUADRATURE OUT / INDICATORS (16 PIN)

P8 - 1	METRIC LED -	BRN		METRIC LED KATHODE (-)
P8 - 2	METRIC LED+ & 6.8VZKathode	ORN	METRIC LED+ & 6.8VZKat hode	METRIC LED ANODE & 6.8VZKathode 6.8VZAnode to ENGLISH LED +
P8 - 3	EXCESSIVE TENSION LED	GRAY	DS 1+	LED
P8 - 4	EXCESSIVE TENSION LED	WHITE	DS 1-	LED
P8 - 5	EXCESSIVE TENSION ALM -	GRN Beeper	ALM1 -	Beeper
P8 - 6	EXCESSIVE TENSION ALM +	YEL	ALM1 +	Beeper

P8 - 9	APPROACHING SURFACE LED -	VIO	SW 10	+1 (inline with silver plate)
P8 - 10	APPROACHING SURFACE LED +	BLU	SW 10	-1 (opposite silver plate)
P8 - 11	PHASE 1B*	YEL	J5 15	Quadrature Out - PHASE B*
P8 - 12	PHASE 1B	BLU	J5 3	Quadrature Out - PHASE B
P8 - 13	PHASE 1A*	RED	J5 14	Quadrature Out - PHASE A*
P8 - 16	PHASE 1A	ORA	J5-2	Quadrature Out - PHASE A

P9 - ENCODER 1 (12 PIN)

P9 - 1	DCM	BLK	J2 14	Encoder Ground
P9 - 2	DCM	BLK	J5-13	Encoder Ground
P9 - 5	ENCODER PWR - TO FUSE	YEL	NO CONNEC T	
P9 - 8	ENCODER 1B	BLU	J2 4	Encoder input
P9 - 9	ENCODER 1B *	GRN	J2 16	Encoder input
P9 - 11	ENCODER 1A	ORA	J2 3	Encoder input
P9 - 12	ENCODER 1A*	RED	J2 15	Encoder input

P10 - ENCODER 2 (12 PIN)

P10 - 1	DCM	BLK	J2 17	Encoder Ground
P10 - 5	ENCODER PWR - TO FUSE	YEL	NO CONNEC T	FUSE BOARD P1:6
P10 - 8	ENCODER 2B	BLU	J2 7	Encoder input
P10 - 9	ENCODER 2B *	GRN	J2 19	Encoder input
P10 - 11	ENCODER 2A	ORA	J2 6	Encoder input
P10 - 12	ENCODER 2A*	RED	J2 18	Encoder input

P11 +/- 15 VDC (12 PIN)

P11-1	DIG GND	BLK	J2-23	MMD POWER COMMON
P11-3	5V ENCODER PWR - TO FUSE BOARD	YEL	P1-2, P1-6 fuse board	FUSE BOARD P1-2 and P1-6 (2 wires)
P11 - 8	WEAK MARK+	WHT	J2 24, J5-22	WEAK MARK IN- (2 WIRES)
P11 - 9	WEAK MARK-	VIO	J2 12, J5-10	WEAK MARK IN + (2 WIRES)
P11-10	MMD POWER +	RED	P1-3 FUS BRD	MMD POWER +
P11-11	STRONG MARK +	BLU	J2-25	STRONG MARK IN -
P11-12	STRONG MARK -	GRAY	J2-13	STRONG MARK IN +

D1 DISPLAY - MMD DEPTH (10 PIN)

D1-2	GND	BLK	D2 1	GND OUT
D1-6	+5V OUT	RED	D2 4	POWER OUT

D2 DISPLAY - DEPTH (10 PIN)

D2-2	GND	BLK	D3 1	GND OUT
D2-6	+5V OUT	RED	D3 4	POWER OUT

D3 DISPLAY - LINE TENSION (10 PIN)

D3-2	GND	BLK	D4 1	GND OUT
D3-6	+5V OUT	RED	D3 4	POWER OUT

D4 DISPLAY - LINE SPEED
FUSE BOARD

P1-1	SW1 ON/OFF 12V BATT	RED	SW1-COM	
P1-4	ENCODER1 PWR FUSED		J2-2	
P1-5	MMD PWR (+15) FUSED	RED	J2-11	
P1-8	ENCODER2 PWR FUSED		J2-5	
P1-11	LOAD PIN -15		J2-20	
P1-12	LOAD PIN +15		J2-8	

J3 RS485 IN DB9-P (DB9-MALE)

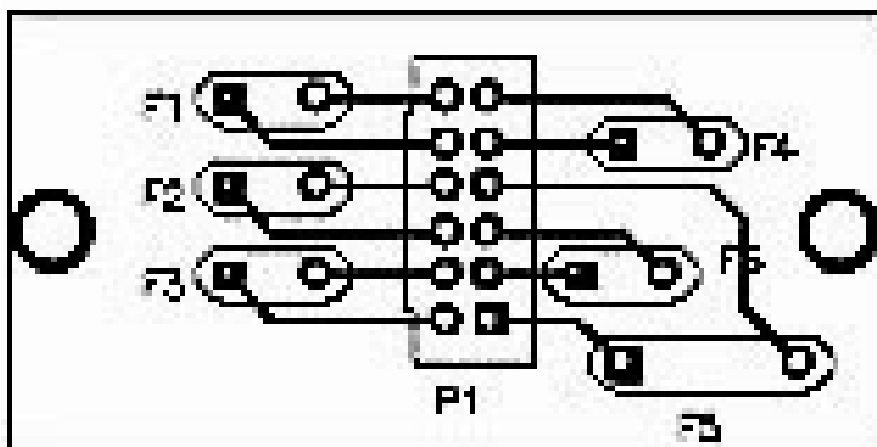
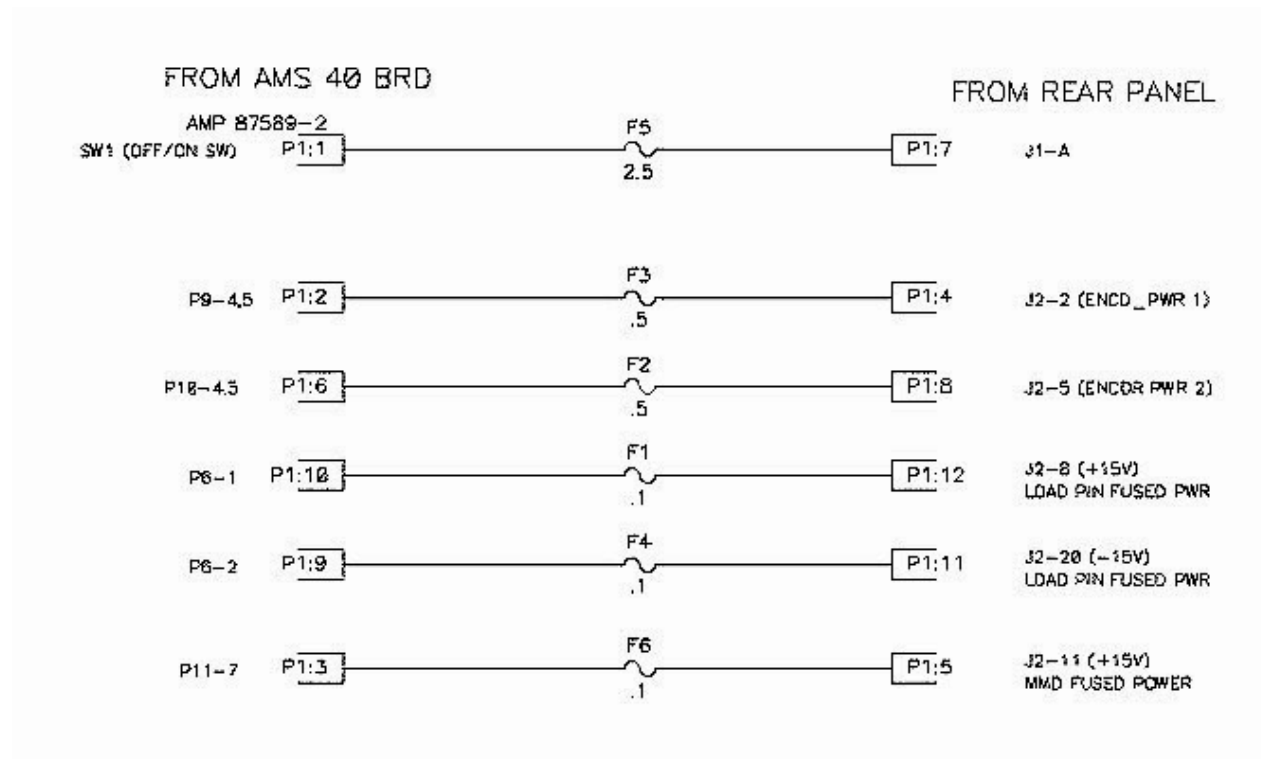
J3-1	CTS+	ORN	J4-1	
J3-2	CTS-	BRN	J4-2	
J3-6	RTS+	VIO	J4-6	
J3-7	RTS-	GRY	J4-7	

J4 RS485 OUT DB9-S (DB9-FEMALE)
J2 EXTERNAL SIGNALS IN
J5 OUTPUT TO SYSTEM

J1 12V POWER IN				
J1-A	12V POWER IN	RED	SW1 NO	12V POWER TO PANEL

6.3 FUSE BOARD AND POWER WIRING

Refer to 5.2 for wirelist



6.4 DIGITAL DISPLAY SETUP

The four digital displays can be set for address, baud rate, and brightness.

The button nearest the connector selects the parameter (address, baud rate, brightness).

The center button increments the parameter up

The end button increments the parameter down.

After the parameter is set, press the parameter button again to store it.

The addresses should be set as follows:

Line Tension = 1

Line Speed = 2

Depth = 3

MMD = 4

Set Baud Rate to 9600

Set Brightness to 15

6.5 BACK PANEL CONNECTOR PINOUT

J1 A	12 - 24 VDC IN	
J1 B	12 - 24 VDC GROUND	
J2-2	ENCODER1 PWR FUSED	ENCODER1 PWR FUSED
J2 3	ENCODER 1A	ENCODER INPUT
J2-5	ENCODER2 PWR FUSED	ENCODER2 PWR FUSED
J2 4	ENCODER 1B	ENCODER INPUT
J2 6	ENCODER 2A	ENCODER INPUT
J2 7	ENCODER 2B	ENCODER INPUT
J2-8	LOAD PIN +15	LOAD PIN +15
J2-9	SHUNT CAL	
J2-10	LOAD PIN SIGNAL +	
J2-11	MMD PWR (+15) FUSED	MMD PWR (+15) FUSED
J2 12	MARK- IN	WEAK MARK IN + (2 WIRES)
J2-13	STRONG MARK -	STRONG MARK IN +
J2 14	ENCODER GROUND (DCM)	ENCODER GROUND
J2 15	ENCODER 1A*	ENCODER INPUT
J2 16	ENCODER 1B *	ENCODER INPUT
J2 17	ENCODER GROUND (DCM)	ENCODER GROUND
J2 18	ENCODER 2A*	ENCODER INPUT
J2 19	ENCODER 2B *	ENCODER INPUT
J2-20	LOAD PIN -15	LOAD PIN -15
J2-21	LOAD PIN GROUND (ACM)	
J2-22	LOAD PIN SIGNAL -	
J2-23	MMD POWER GROUND (DCM)	MMD POWER COMMON
J2 24	MARK+ IN	WEAK MARK IN- (2 WIRES)

J2-25	STRONG MARK +	STRONG MARK IN -
J3-1	CTS+ IN	
J3-2	CTS- IN	
J3-4	RS485RX+	RS485 RX+ (2 WIRES)
J3-5	RS485RX-	RS485 RX- (2 WIRES)
J3-6	RTS+ IN	
J3-7	RTS- IN	
J3-8	RS485 TX+	RS485 TX+ (2 WIRES)
J3-9	RS485 TX-	RS485 TX- (2 WIRES)
J4-1	CTS+ OUT	
J4-2	CTS- OUT	
J4-3	GND	RS485 GND (2 WIRES)
J4-4	RS485RX+	RS485 RX+ (2 WIRES)
J4-5	RS485RX-	RS485 RX- (2 WIRES)
J4-6	RTS+ OUT	
J4-7	RTS- OUT	
J4-8	RS485 TX+	RS485 TX+ (2 WIRES)
J4-9	RS485 TX-	RS485 TX- (2 WIRES)
J5-2	PHASE 1A	QUADRATURE OUT - PHASE A
J5 3	PHASE 1B	QUADRATURE OUT - PHASE B
J5-8	4 to 20 MA OUT	4 TO 20 MA TO SYSTEM
J5-9	0-2V OUT (TENSION)	TENSION OUT+ TO SYSTEM
J5-10	MARK- OUT	WEAK MARK IN + (2 WIRES)
J5-13	ENCODER GROUND (DCM)	ENCODER GROUND
J5 14	PHASE 1A*	QUADRATURE OUT - PHASE A*
J5 15	PHASE 1B*	QUADRATURE OUT - PHASE B*
J5-21	TENSION OUT COMMON (ACM)	TENSION OUT- TO SYSTEM
J5-22	MARK+ OUT	WEAK MARK IN- (2 WIRES)
J6 A	TENSION CONTACT RELAY COMMON	
J6 B	TENSION CONTACT RELAY N.O.	

6.6 SPARE PARTS LIST

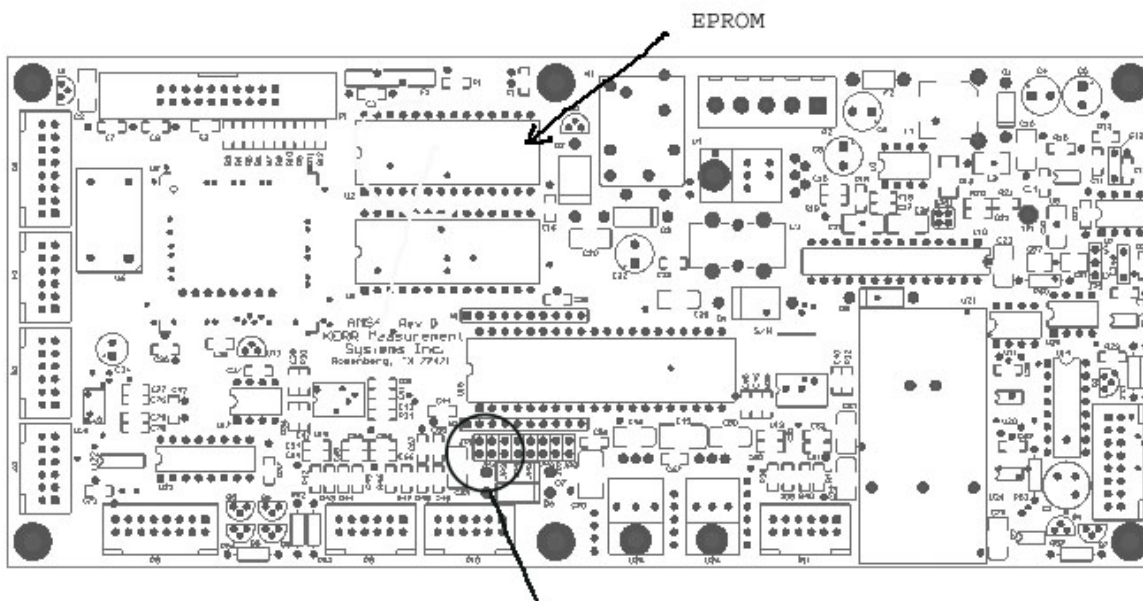
Part No.	Description	Qty	Reference	
1	AMS4P133	PC BOARD AMS40 REV E W/2xRS232 1x485	1	MOTHER BOARD
2	AMS4P110	METER ANALOG DIFF TENSION (+/- 1000 LBS)	1	M1
4	AMS4P120	DISPLAY LED .5" SERIAL 2"X3.5"	4	D2, D3
6	ACMU1P06	LED RED DIALIGHT 5V	1	APPROACHING SURF
7	ACMU1P11	SONALERT #SC628D MALLORY	1	ALARM
9	AMS4P020	SWITCH MTL-106D ALCO LOCKING	2	POWER ON/OFF
10	AMS4P018	SWITCH MPA-106F ALCO PUSH MOM	5	MENU, T-ZERO, T-TEST, D-ZERO, METER RESET
11	AMS4P044	SWITCH TOGGLE DPDT MOM OFF MOM	1	+ / -
12	AMS4P021	SWITCH CAPS ALCO C-22 BLACK	3	T-ZERO, D-ZERO, METER RESET
13	AMS7P017	SWITCH CAP ALCO C-22 RED	1	D-ZERO, MENU
28	ACMU3P01	CONN MS3102E-14S-9P RECEPT	1	POWER IN
29	ACMU3P02	CONN MS3102E-14S-9S RECEPT	1	OVER TENSION OUT
30	AMS4P163	CONNECTOR DE-9P	1	RS485 IN
30	AMS4P164	CONNECTOR DE-9S	1	RS485 OUT
40	AMS4P041	SWITCH PUSHBUTTON LIGHTED SPST	1	APPROACHING SURF
41	AMS4P042	LENS RED C&K SWITCH	1	RED LENS
42	AMS4P043	LED RED FOR C&K PUSHBUTTON SW	1	RED LED

7.0 INSTALLING NEW SOFTWARE

7.1 SOFTWARE MODIFICATION BY REPLACING THE EPROM

The software that controls this panel is stored in an EPROM Integrated Circuit located at U2 (see drawing on next page). To upgrade the software to a new version, simply remove the eeprom I.C. and install a new eeprom I.C. (be careful not to bend the legs during installation).

After new software is installed, make sure and "reboot" the panel by turning off the panel, depressing the T-ZERO and T-TEST buttons simultaneously then turn the power back on while the buttons are depressed.



7.2 SOFTWARE MODIFICATION USING THE SERIAL PORT

7.2.1 PREREQUISITES:

1. The real-time data acquisition board must have a socket for the MicroController and a CPU piggy-back PCB installed in that socket with a DS98C450 MicroController installed.
2. A computer with a serial port, and installed Hyperterminal program.
3. The new revision real-time data acquisition HEX file program.



7.2.2 PROCEDURE:

1. Transfer the new revision HEX file to the computers (C:\) root directory.
2. Turn power on to the Hoistman's panel.
3. Connect your PC to the serial port at the rear of the panel.
4. Open a Hyperterminal session. Use the following settings:

Serial Port: COM1
Baud Rate: 57600
Data Bits: 8
Parity: None
Stop Bits: 1
Flow Control: None

5. Set the switches on the CPU PCB to PROGRAM mode as follows:

- 1 - AWAY FROM CPU
- 2 - AWAY FROM CPU
- 3 - TOWARD CPU

6. Open the Hyperterminal connection and then press the keyboard ENTER key. The MicroController ROM Loader will respond with a banner and then a '>' prompt.

7. Type an uppercase 'K' and the ROM Loader will Klean-erase the Flash.

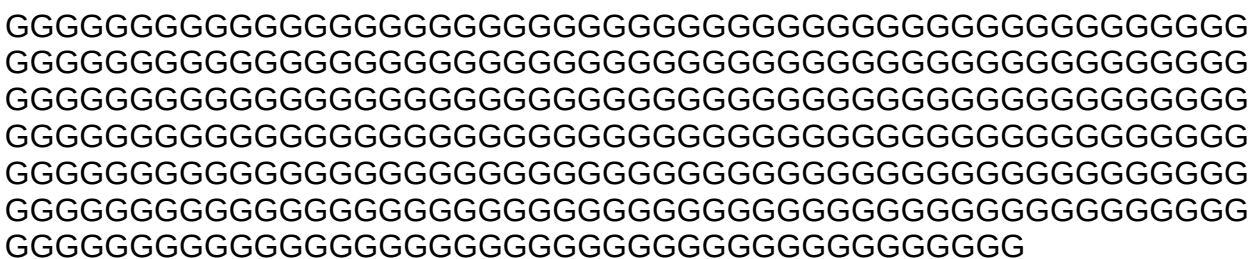
8. Type an uppercase 'L' and the ROM Loader will wait to Load a HEX file.

9. Pull down the Hyperterminal TRANSFER menu and choose: Send Text File. The file browser will open, so ensure that the file filter is set to:

Files of type - All files (*.*) and then go to the C:\ root directory and choose the new revision HEX file to transfer.

10. The ROM Loader will begin programming the Flash and will report a GOOD status for the duration of the programming procedure as follows:

[illegible]

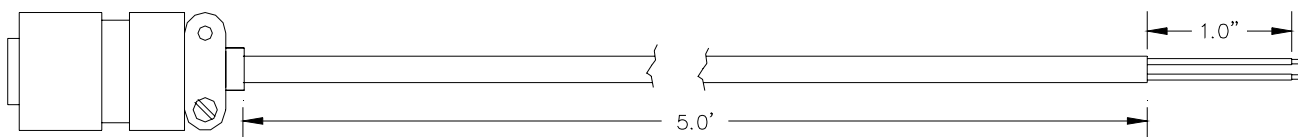


- 1 - TOWARD CPU
- 2 - TOWARD CPU
- 3 - AWAY FROM CPU

- 1 - TOWARD CPU
- 2 - TOWARD CPU
- 3 - TOWARD CPU

8.0 CABLE DIAGRAMS

8.1 AMS7A022 CABLE ASSEMBLY – DC POWER IN

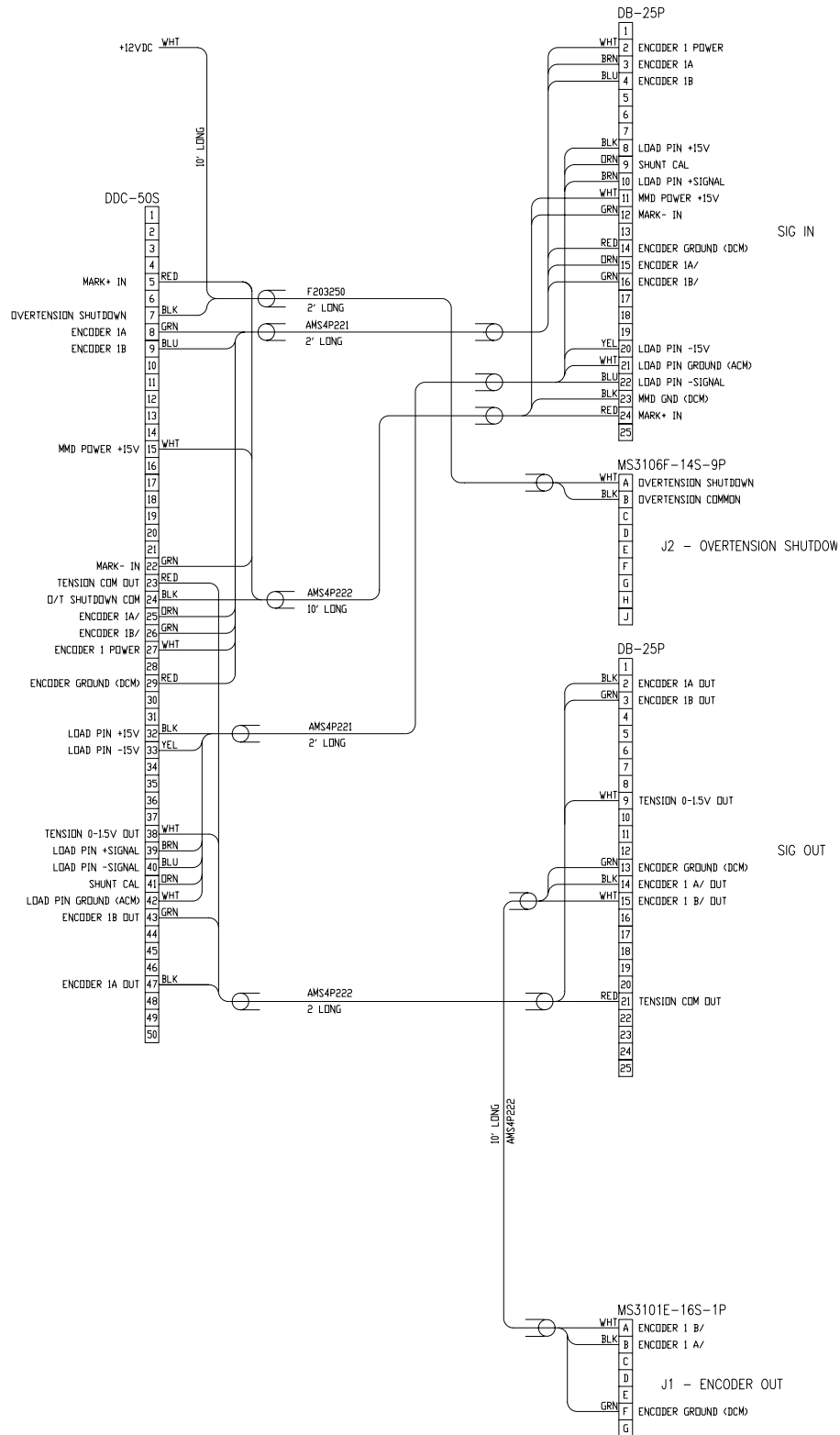


A – WHITE
 B – BLACK

A = +
 B = -

Kerr p/n	Description	Qty
AMS7P061	CABLE 16-2 SJ CORD BELDEN 8472	5 FT
AMS7P044	CONN MS3106E-14S-9S	1 EA
AMS7P063	BUSHING #9779-513-6 AMPHENOL	1 EA

8.2 LOGGING UNIT INTERFACE CABLE HARNESS AMS4A187



9.0 CE TEST CERTIFICATE



Test Certificate

In accordance with
European Directive 89/336/EEC as Amended by European Directive 93/68/EEC
"EMC Directive"

Date: 17th September 2002

Certificate Number: Epsilon 02TEST1170

ECS Project Number: ETS0548

ECS Report Number: RETS0548/A/1

Manufacturer: Kerr Measuring Systems Inc
6415 Reading Road
Rosenberg
Texas
USA
TX 77471

Epsilon hereby declares that the products:

AMS4A040 and AMS4A041 Winch Operators Panels

Are in Compliance with the requirements of the listed directives.

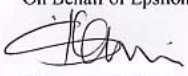
Equipment Specification: The full product specifications are listed in report number RETS0548/A/1.

The following Harmonised European Standards have been applied:

EN 61326: 1997 + Amendments A1: 1998, (Electrical equipment for measurement, control and laboratory use EMC Directive) EN 61000-4-2: 1995, EN 61000-4-3: 1998, EN 61000-4-4: 1995, EN 61000-4-5: 1995, EN 61000-4-6: 1996.

This Certificate May Only Be Used In Its Entirety and Without Change

On Behalf of Epsilon Certification Service.


Stephen L D'Henin
Certification Manager
Epsilon Certification Service

Annex I is a part of this declaration.

Epsilon Compliance
Drury Lane, Drury, Buckley, Flintshire, UK.
Tel: +44(0)1244 541551, Fax: +44(0)1244 543888, USA toll free: 1-888-467-1861,
email: info@epsilon-ltd.com, Website: www.epsilon-ltd.com.

Page 1 of 2





Epsilon



Test Certificate Annex I

(In accordance with European Directive 89/336/EEC as Amended by European Directive 93/68/EEC "EMC Directive")

Date: 17th September 2002

Certificate Number: Epsilon 02TEST1170

ECS Project Number: ETS0548

ECS Report Number: RETS0548/A/1

The equipment has been assessed and type tested against the relevant harmonised European Standard and has been found to be compliant provided that the following conditions are complied with by the end user:

- The electrical supply to the apparatus shall be within the manufacturer's specified limits (12-24VDC +/- 10%).
- The apparatus when installed in industrial locations shall be supplied from a power supply that offers suitable protection from voltage surges. This requirement is not required for use within a controlled EM environment has determined by EN 61326 or when the application for which the apparatus is being utilised does not require such protection.

Epsilon Compliance
 Drury Lane, Drury, Buckley, Flintshire, UK.
 Tel: +44(0)1244 541551, Fax: +44(0)1244 543888, USA toll free: 1-888-467-1861,
 email: info@epsilon-ltd.com, Website: www.epsilon-ltd.com.

Page 2 of 2

