

JAGXTREME

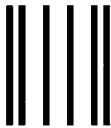
Industrial Terminal Installation Guide

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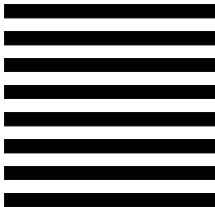
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 Worthington, Ohio 43085
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Model/Type: **Jaguar and JagXtreme**

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in combination with a weighing platform produced by Mettler-Toledo is in conformity with the following directives and standards.

Council directive on the harmonization of the laws of the Member states:	standards:
relating to non-automatic weighing instruments (90/384/EEC) amended by directive (93/68/EEC)	EN 45501
relating to electromagnetic compatibility (89/336/EEC) amended by directive (93/68/EEC; 92/31/EEC)	EN 55022-1
relating to electrical equipment designed for use within certain voltage limits (73/23/EEC amended by directive (93/68/EEC)	EN 60950

Worthington, Ohio USA, May, 2000

Mettler-Toledo, Inc.

Darrell Flocken, Manager - Weights & Measures
 Office of Weights and Measures

Original issue: July, 1995
 Revised: October, 1996 added compliance to Low Voltage Directive
 May, 2000 added JagXtreme

Mettler-Toledo Inc.
Columbus, Ohio

**Declaration of Conformance to SMA Standard
Production Meets Type**

(Year of Declaration 2002)



We the manufacturer of

Model	Certificate and Number	Issued by
JagXtreme	CoC 94-096	NCWM

declare in our responsibility the conformance of the above listed models and types to the mentioned certificates and the requirements of the SMA standard.

This declaration becomes valid when the SMA Compliance Logo, having our name or trademark is applied to the device or its accompanying documentation.

FCC Notice

This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

ORDERING INFORMATION

It is most important that the correct part number is used when ordering parts. Parts orders are machine processed, using only the part number and quantity as shown on the order. Orders are not edited to determine if the part number and description agree.

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All other brand or product names are trademarks or registered trademarks of their respective companies.

PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.



FOLLOW these instructions carefully.

SAVE this manual for future reference.

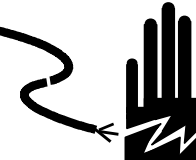

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.



ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.



CALL METTLER TOLEDO for parts, information, and service.



	 WARNING
	DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

	 CAUTION
	OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.


	 WARNING
	ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

	 WARNING
	FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD, CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG.



	 WARNING!
	THE JAGXTREME TERMINAL IS NOT INTRINSICALLY SAFE! DO NOT USE IN AREAS CLASSIFIED AS HAZARDOUS BY THE NATIONAL ELECTRIC CODE (NEC) BECAUSE OF COMBUSTIBLE OR EXPLOSIVE ATMOSPHERES.



	 WARNING!
	USE ONLY THE POWER CORD SUPPLIED OR AN EQUIVALENT TYPE. U.S. MODELS USE UL APPROVED TYPE SJT CORD; EC MODELS USE HARMONIZED APPROVED TYPE H05VV-F CORDS.


	 WARNING!
	<p>IMPROPER INSTALLATION OF THE POWER CABLE WILL RESULT IN PERSONAL INJURY AND/OR DAMAGE TO THE EQUIPMENT. THE HOT WIRE MUST BE APPLIED TO "L", NEUTRAL TO "N" AND GROUND TO \pm</p>



 CAUTION	
<p>FOR PANEL MOUNT INSTALLATIONS:</p> <ul style="list-style-type: none"> • INCLUDE A POWER DISCONNECT SWITCH IN AC POWER WIRING. • SWITCH MUST BE WITHIN 10 FEET (3 METERS) AND EASILY ACCESSIBLE TO OPERATOR. • SWITCH MUST BE CLEARLY IDENTIFIED AS DISCONNECT FOR TERMINAL POWER. • SWITCH AND/OR CIRCUIT BREAKER MUST COMPLY WITH APPROPRIATE ELECTRICAL CODES (FOR EC—IEC947). <p>FOR DESK/WALL INSTALLATIONS:</p> <ul style="list-style-type: none"> • POWER CORD PLUG MUST BE CLEARLY IDENTIFIED AS DISCONNECT FOR TERMINAL POWER. • POWER CORD MUST BE PLUGGED INTO OUTLET WITHIN 10 FEET (3 METERS) AND EASILY ACCESSIBLE TO OPERATOR. 	



	 WARNING!
	<p>IF AN ANALOG SCALE IS TO BE USED AND IT WILL BE LOCATED IN A HAZARDOUS (EXPLOSIVE) AREA, SPECIAL PRECAUTIONS MUST BE TAKEN. LOAD CELLS APPROVED FOR USE IN HAZARDOUS LOCATIONS MUST BE USED AND A LOAD CELL BARRIER AND/OR A LOW VOLTAGE ANALOG PCB MAY BE REQUIRED. CONTACT YOUR AUTHORIZED METTLER TOLEDO REPRESENTATIVE FOR DETAILS ON EACH SPECIFIC APPLICATION.</p>

	 CAUTION
	<p>TO AVOID DAMAGE TO THE PCB OR LOAD CELL, REMOVE POWER FROM THE JAGXTREME TERMINAL AND WAIT AT LEAST 30 SECONDS BEFORE CONNECTING OR DISCONNECTING ANY HARNESS.</p>

	 CAUTION
	<p>DO NOT ATTACH AN ANALOG LOAD CELL TO THE DIGITOL SCALE INPUT ON THE CONTROLLER PCB COM2. DO NOT ATTACH A DIGITOL SCALE TO THE ANALOG LOAD CELL INPUT ON THE OPTIONAL ANALOG A/D PCB. DOING SO MAY RESULT IN DAMAGE TO THE LOAD CELL OR PCB.</p>

	 WARNING
	<p>IN ORDER TO INSTALL THE DIVISION 2 APPROVED JAGXTREME PANEL-MOUNT OR HARSH TERMINAL UTILIZING THE FACTORY MUTUAL APPROVAL, METTLER TOLEDO CONTROL DRAWING 157043R MUST BE FOLLOWED WITHOUT EXCEPTION. IN ORDER TO INSTALL THE CATEGORY 3 JAGXTREME PANEL-MOUNT OR HARSH TERMINAL UTILIZING THE KEMA APPROVAL THE KEMA APPROVAL CERTIFICATE 02ATEX1023X AND ALL LOCAL REGULATIONS MUST BE FOLLOWED WITHOUT EXCEPTION. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE. REFER TO THE JAGXTREME DIVISION 2 AND ZONE 2/22 INSTALLATION GUIDE, 16088600A FOR ADDITIONAL INFORMATION.</p>

	 WARNING
	<p>EARLIER MODELS OF THE JAGXTREME TERMINAL THAT ARE NOT MARKED (FACTORY-LABELED) AS DIVISION 2 OR EUROPEAN CATEGORY 3 APPROVED MUST NOT BE INSTALLED IN A DIVISION 2 OR ZONE 2/22 ENVIRONMENT.</p>

	 WARNING
	<p>IF THE KEYBOARD, DISPLAY LENS OR ENCLOSURE IS DAMAGED ON A DIVISION 2 APPROVED OR CATEGORY 3 MARKED JAGXTREME PANEL-MOUNT OR HARSH TERMINAL THAT IS USED IN A DIVISION 2 OR ZONE 2/22 AREA, THE DEFECTIVE COMPONENT MUST BE REPAIRED IMMEDIATELY. REMOVE AC POWER IMMEDIATELY AND DO NOT REAPPLY AC POWER UNTIL THE DISPLAY LENS, KEYBOARD OR ENCLOSURE HAS BEEN REPAIRED OR REPLACED BY QUALIFIED SERVICE PERSONNEL. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.</p>

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For your notes

1

Introduction

Introduction

Note: The documentation CD-ROM contains a copy of this installation guide, as well as other documentation needed for installing, configuring, operating, and servicing the terminal. The CD-ROM also includes software utilities that can be used with the terminal. Refer to the technical manual for more information.

The following information is intended ONLY to help you install the JAGXTREME terminal and connect the external wiring. Please read the information thoroughly before beginning installation as separate instructions are provided for the various enclosure types: general purpose, panel-mount/panel-mount blind chassis, and harsh environment wall mount.

Any internal wiring, installation of options or programming should be performed only by qualified technicians. This information is found in the JAGXTREME Terminal Technical Manual provided on the Documentation CD-ROM included with the terminal.

Unpacking and Inspection

1. If upon delivery the shipping container for the terminal appears damaged, check for internal damage and file a freight claim with the carrier if required.
2. If the container is undamaged, unpack the terminal from its protective package and inspect each component for damage.
3. Verify that you have the correct package contents. To install the terminal, you need the terminal, the screwdriver provided, and these instructions. You may also need common hand tools, such as flat and Phillips head screwdrivers for the general purpose unit and a drill and wrenches for use with the harsh environment unit. All other package contents should remain in the box.

Package contents for all JAGXTREME terminals include:

- JAGXTREME terminal
- Installation Guide
- Weights and Measures sealing screws
- Mating connectors for the I/O port
- Screwdriver
- Set of capacity labels
- JAGXTREME CD-ROM with documentation and utilities

Package contents for the panel-mount and blind chassis JAGXTREME terminal also include:

- Hardware kit (*)15411600A

Package contents for the harsh environment JAGXTREME terminal include:

- 2 stainless steel wall mount brackets
- 4 stainless steel bolts for attaching the wall mount brackets
- Hardware kit (*)15411500A

Package contents for the general purpose JAGXTREME terminal includes:

- Hardware kit (*)15411400A



For your notes

2

Specifications

Standards Compliance

UL and cUL Listing

The JAGXTREME terminal has been tested and complies with UL 1950 and CSA 22.2 No. 950-M89. The JAGXTREME terminal carries the UL and cUL labels.

Weights and Measures Approval

United States

The JAGXTREME terminal meets or exceeds requirements for Class III or III L devices. Certificate of Conformance No. 94-096A4 was issued under the National Type Evaluation Program of the National Conference on Weights and Measures.

Canada

The JAGXTREME terminal meets or exceeds requirements for a 10,000 division rating and approval AM-5041 has been issued by statutory authority of the Minister of Industry, Science and Technology of Canada.

Australia

The JAGXTREME terminal meets or exceeds the requirements for Class III and III L non-automatic weighing instruments as defined in the National Standards Commission, Document 100. The National Standards Commission has approved the JAGXTREME terminal for use with approved and compatible platforms.

Europe

The JAGXTREME terminal was submitted for approval to The Nederlands Meetinstituut (NMI) in the Netherlands. After evaluation, the JAGXTREME terminal was found to meet and/or exceed the requirements for a Class III weighing instrument. EC type approval certificate TC2618 (Revision 5) was issued by the NMI in accordance to Council Directive 90/384/EEC.

CE Conformity

The JAGXTREME terminal conforms to the following European Union regulations:

- 90/384/EU—Non-automatic Balances and Scales
- EN45501:1992—Adopted European Standard
- 89/336/EU—EMC Directive
- EN55022, A 01.04.87

Conducted and Radiated Emissions (RFI)

The JAGXTREME terminal meets or exceeds FCC Part 15 for conducted and radiated emissions requirements as a Class A digital device.

Radio Frequency Interference Susceptibility

The JAGXTREME terminal meets US, Canadian, and European requirements for RFI susceptibility as listed in the following table with a maximum of one display increment of change when calibrated for recommended builds.

Radio Interference Frequency	Field Strength
26-1000 MHz	3 volts/meter

AC Power Line Voltage Variation

The JAGXTREME terminal meets NIST H-44, Canadian Gazette Part 1, and OIML-SP7/SP2 line voltage variation specifications as listed in the following table.

AC Power Line Voltages						
Specification	AC Line Voltage			Line Frequency in Hz		
	Minimum	Nominal	Maximum	Minimum	Nominal	Maximum
NIST H-44	100	120	130	59.5	60	60.5
Canadian	108	120	132	58.8	60	61.2
OIML-SP7/SP2	102	120	132	58.8	60	61.2
	187	220	242	49.0	50	51
	204	264	264	49.0	50	51



Environmental Considerations

Temperature and Humidity

- Operating temperature: 14 to 113°F (-10 to 45°C) at 10% to 95% humidity, non-condensing.
- Storage temperature: -40 to 140°F (-40 to 60°C) at 10% to 95% humidity, non-condensing.

Environmental Protection

The JAGXTREME terminal is not intrinsically safe and must not be installed in areas classified as hazardous by the National Electric Code (NEC) unless appropriate hazardous area options provided by METTLER TOLEDO are used and the installation is performed by a qualified service technician.



	 WARNING!
	THE JAGXTREME TERMINAL IS NOT INTRINSICALLY SAFE! DO NOT USE IN AREAS CLASSIFIED AS HAZARDOUS BY THE NATIONAL ELECTRIC CODE (NEC) BECAUSE OF COMBUSTIBLE OR EXPLOSIVE ATMOSPHERES.

Power Considerations


- 85 to 264 VAC with a line frequency of 47 to 63 Hz.
- Power consumption -- 20 Watts maximum.
- Power termination -- single three-position removable terminal strip (panel-mount)
-- integral power cord (general purpose, harsh)
- The wire size range -- 12 to 16 AWG.



The integrity of the power ground for equipment is important for safety and for the dependable operation of the terminal and its associated scale bases. A poor ground can result in an unsafe condition if an electrical short develops in the equipment. A good ground connection is needed to assure extraneous electrical noise pulses are minimized. The power line for the terminal must not be shared with equipment such as motors, relays, or heaters that generate line noise. If adverse power conditions exist, a dedicated power circuit or power line conditioner may be required.

To confirm ground integrity, a commercial branch circuit analyzer is recommended. This instrument uses a high amperage pulse to check ground resistance. It measures the voltage from the neutral wire to the ground connection and will provide an assessment of the line loading. Instructions with the instrument give guidelines about limits that assure good connections.

	 WARNING!
	USE ONLY THE POWER CORD SUPPLIED OR AN EQUIVALENT TYPE. U.S. MODELS USE UL APPROVED TYPE SJT CORD; EC MODELS USE HARMONIZED APPROVED TYPE H05VV-F CORDS.

	 WARNING!
	IMPROPER INSTALLATION OF THE POWER CABLE WILL RESULT IN PERSONAL INJURY AND/OR DAMAGE TO THE EQUIPMENT. THE HOT WIRE MUST BE APPLIED TO "L", NEUTRAL TO "N" AND GROUND TO \perp

 CAUTION	
FOR PANEL MOUNT INSTALLATIONS:	
<ul style="list-style-type: none">• INCLUDE A POWER DISCONNECT SWITCH IN AC POWER WIRING.• SWITCH MUST BE WITHIN 10 FEET (3 METERS) AND EASILY ACCESSIBLE TO OPERATOR.• SWITCH MUST BE CLEARLY IDENTIFIED AS DISCONNECT FOR TERMINAL POWER.• SWITCH AND/OR CIRCUIT BREAKER MUST COMPLY WITH APPROPRIATE ELECTRICAL CODES (FOR EC—IEC947).	
FOR DESK/WALL INSTALLATIONS:	
<ul style="list-style-type: none">• POWER CORD PLUG MUST BE CLEARLY IDENTIFIED AS DISCONNECT FOR TERMINAL POWER.• POWER CORD MUST BE PLUGGED INTO OUTLET WITHIN 10 FEET (3 METERS) AND EASILY ACCESSIBLE TO OPERATOR.	

	 CAUTION
	DO NOT APPLY AC POWER TO THE JAGXTREME TERMINAL. POWER SHOULD NOT BE APPLIED UNTIL ALL INTERNAL WIRING HAS BEEN COMPLETED BY A QUALIFIED SERVICE TECHNICIAN.







3

Wiring

Connecting to the JAGXTREME Terminal

Connecting the Load Cell

Make the load cell connection to the Controller PCB (DigiTOL scales), the optional Analog A/D PCB (analog load cells), or the POWERCELL I/O PCB, following the instructions provided here.

	<p style="text-align: center;"> WARNING!</p> <p>IF AN ANALOG SCALE IS TO BE USED AND IT WILL BE LOCATED IN A HAZARDOUS (EXPLOSIVE) AREA, SPECIAL PRECAUTIONS MUST BE TAKEN. LOAD CELLS APPROVED FOR USE IN HAZARDOUS LOCATIONS MUST BE USED AND A LOAD CELL BARRIER AND/OR A LOW VOLTAGE ANALOG PCB MAY BE REQUIRED. CONTACT YOUR AUTHORIZED METTLER TOLEDO REPRESENTATIVE FOR DETAILS ON EACH SPECIFIC APPLICATION.</p>
	<p style="text-align: center;"> CAUTION</p> <p>TO AVOID DAMAGE TO THE PCB OR LOAD CELL, REMOVE POWER FROM THE JAGXTREME TERMINAL AND WAIT AT LEAST 30 SECONDS BEFORE CONNECTING OR DISCONNECTING ANY HARNESS.</p>
	<p style="text-align: center;"> CAUTION</p> <p>DO NOT ATTACH AN ANALOG LOAD CELL TO THE DIGITOL SCALE INPUT ON THE CONTROLLER PCB COM2. DO NOT ATTACH A DIGITOL SCALE TO THE ANALOG LOAD CELL INPUT ON THE OPTIONAL ANALOG A/D PCB. DOING SO MAY RESULT IN DAMAGE TO THE LOAD CELL OR PCB.</p>

Analog Load Cell Connections

The maximum cable length for analog load cell connections to the terminal depends on the total scale resistance (TSR) of the scale base. To calculate TSR:

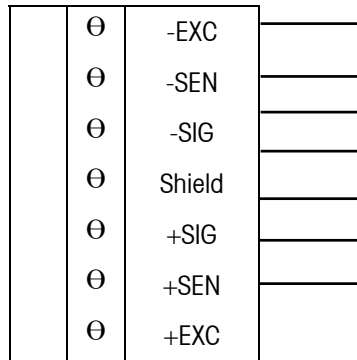
$$\text{TSR} = \frac{\text{Load Cell Input Resistance (Ohms)}}{\text{\#Load Cells}}$$

The chart below gives recommended cable lengths based on TSR and cable gauge.

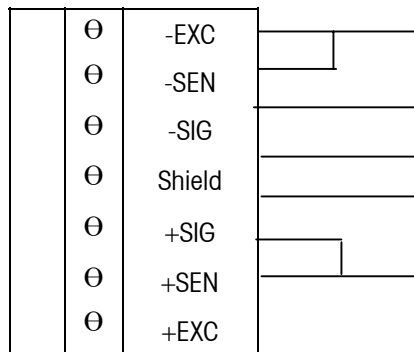
Recommended Maximum Cable Length			
TSR (Ohms)	24 Gauge* (feet/meters)	20 Gauge (feet/meters)	16 Gauge (feet/meters)
350	800/243.84	2000/609.6	4000/1219.2
87	200/60.96	600/182.88	1000/304.8
58	100/30.48	300/91.44	500/152.4
35	70/21.336	190/57.91	350/106.68

The following diagrams describe analog load cell terminal strip wiring for standard 6-wire cable and standard 4-wire cable.

Standard 6-wire Cable



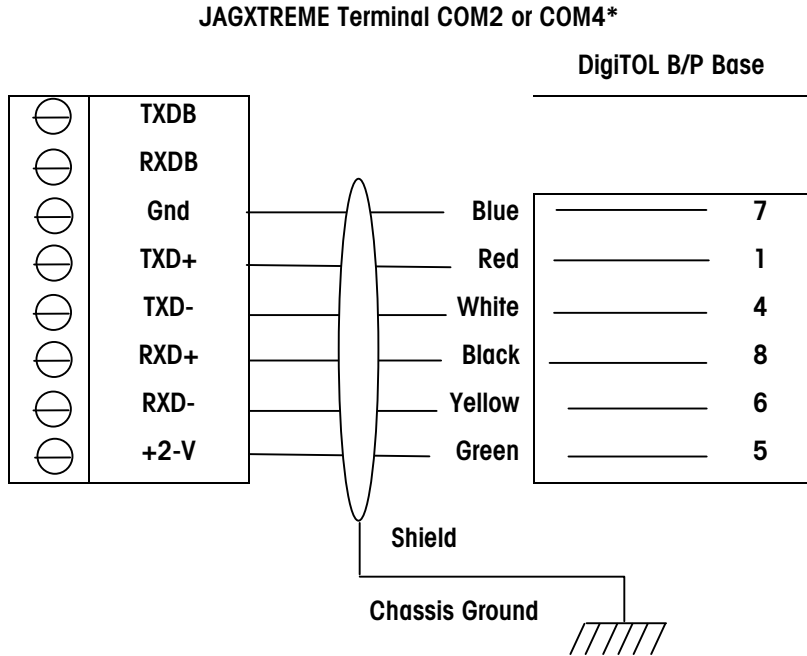
4-wire Cable



* If an increase in load results in a decrease in weight display, reverse the signal wires (+SIG and -SIG).

UltraRes and DigiTOL Load Cell Connections

The maximum recommended cable length for all DigiTOL bases is 50 feet (15 meters). The following diagram describes DigiTOL load cell terminal strip wiring.



*When interfacing a DigiTOL or UltraRes base to COM4 (available on the optional Multifunction PCB), W2 must be set for 20V.

Enhanced DigiTOL J-Box Connections

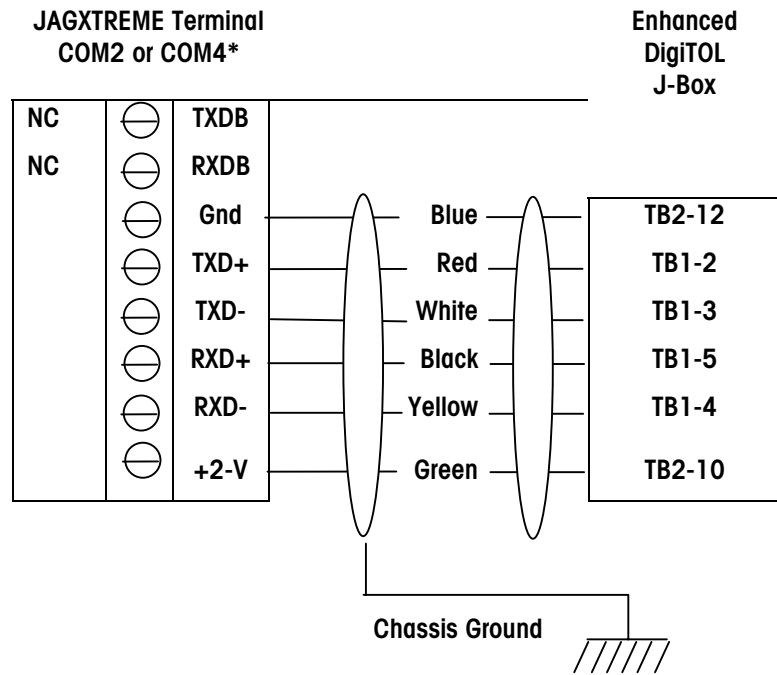
Use the following table to determine the cable gauge and recommended distance between the JAGXTREME terminal and the Enhanced DigiTOL J-Box.

Cable Gauge	Cable Distance	Part Number
6 cond. 24 AWG	Up to 150 feet (45.72 meters)	510624370 or 14264100A
*6 cond. 20 AWG	Up to 300 feet (91.44 meters)	510620370

*6 conductor 16 AWG cable can also be used. The maximum cable distance remains 300 feet (91.4 meters).

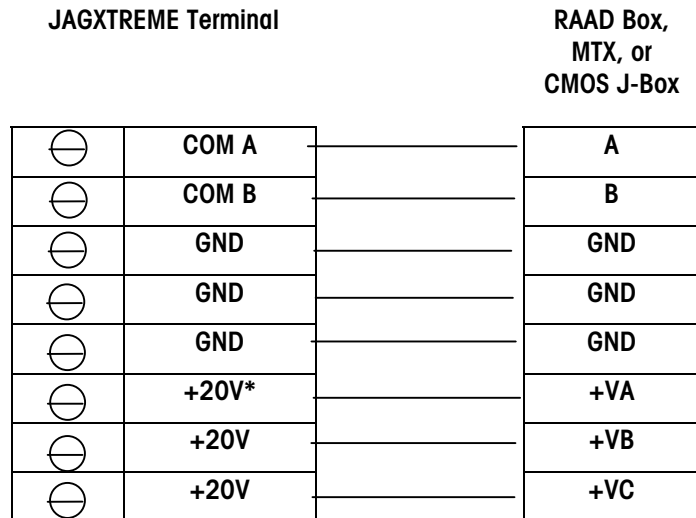
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The following diagrams describe DigiTOL terminal strip wiring.



POWERCELL Connections (Non-Hazardous Area POWERCELL Applications)

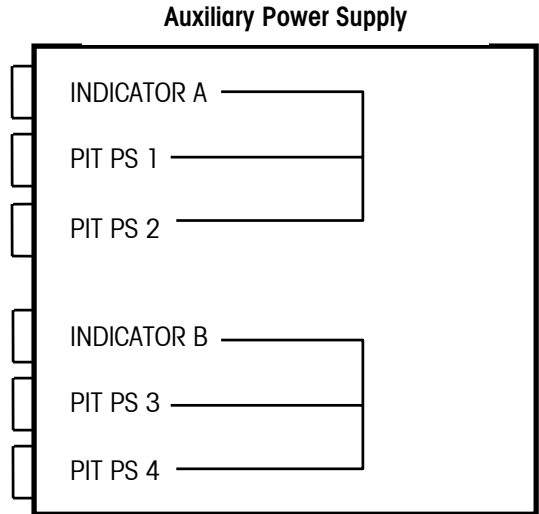
Recommended maximum cable distance is 900 feet (274.32 meters) for all non-hazardous applications regardless of the number of cells (16 or 20 gauge wire). The following shows the connection to a RAAD box, MTX, or CMOS J-Box.



External power connector Pin 1 is +V and Pin 2 is ground.

POWERCELL Connections to DigiTOL Scales with NMOS POWERCELLS and Pit Power Supplies

For applications in which the POWERCELL PCB is connected to a DigiTOL scale with NMOS POWERCELLS, the JAGXTREME terminal must be wired with the auxiliary power supply (P/N 0917-0168 for 100/110/120 VAC operation, 0917-0169 for 220/240 VAC operation).

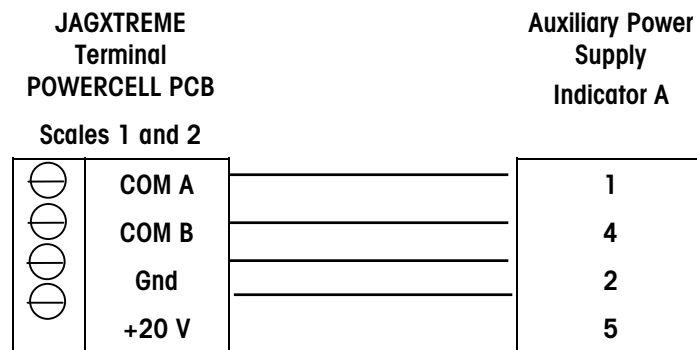


The purpose of the auxiliary power supply is to provide two identical circuits, each with a 24 VDC power supply output capable of driving up to two pit power supplies. Each pit power supply can drive a maximum of 12 load cells. As shown above, the INDICATOR A and B inputs are connected to the pit PS outputs. The two circuits are completely isolated. The only exception is the same 24 VDC power supply output being used for pit PS1 and 3. The second 24 VDC supply is shared between pit PS2 and 4.

If only one channel is needed, INDICATOR A must be used.

The W1 jumper is located on the printed circuit board in the auxiliary power supply. The W1 jumper enables and disables the circuit that senses voltage at the INDICATOR B input. If this circuit is enabled (W1 removed) and input voltage at pin 5 of both INDICATOR A and B is not present, the 24 VDC output at pit PS 1, 2, 3, and 4 will be turned OFF. If only the INDICATOR A input is being used, jumper W1 must be inserted shorting both pins.

Connect the JAGXTREME terminal to the auxiliary power supply as follows:



If a second JAGXTREME terminal exists, the interface cable between the second terminal and the auxiliary power supply would be wired the same. However, the interface cable would plug into the auxiliary power supply at INDICATOR B. The W1 jumper on the auxiliary power supply must not be shorting the two pins together.

Replacing an Existing 8146 or 8530 on a DigiTOL Scale having an Auxiliary Power Supply and Pit Power Supply(s)

Wire the JAGXTREME terminal POWERCELL PCB to the auxiliary power supply as shown previously. The home-run cables plugged into pit PS 1, 2, 3, or 4 can be left as is.

Replacing an Existing 8530 on a DigiTOL Scale with a Pit Power Supply and not having an Auxiliary Power Supply

An auxiliary power supply must be supplied. Wire the JAGXTREME terminal POWERCELL PCB to the auxiliary power supply as shown previously. Plug the home-run cable from the 8530 into pit PS 1.

Shield wire must be connected to chassis ground or "GND" terminal at the JAGXTREME terminal end for reliable operation.

You can purchase this adapter harness (0900-0284) or cut the base cables and wire directly to the terminals.

Replacing an Existing 8146 or 8530 on a DigiTOL Scale if a Second Scale Is Present

The POWERCELL PCB should be programmed for two scales (Scale 1 + Scale 2 = 24 load cells maximum). The home-run cable(s) should be plugged into pit PS 1 (and PIT PS 2 if a second home-run cable exists).

Replacing an Existing 8146 or 8530 on a DigiTOL Scale if a Third Scale Is Present

The first JAGXTREME terminal with a POWERCELL PCB should be wired as indicated previously. The second terminal with a POWERCELL PCB should be wired into INDICATOR B of the auxiliary power supply and the home-run cable going to the third scale should be plugged into pit PS 3 or 4.

Home-Run POWERCELL PCB Cable Maximum Length

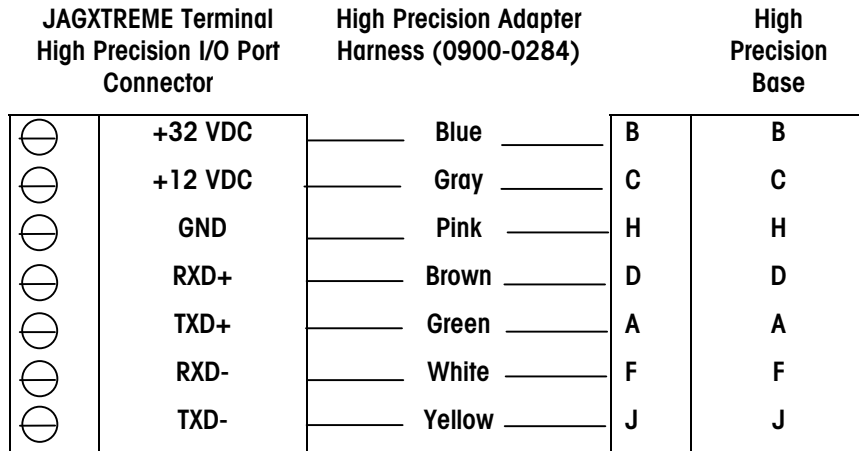
The maximum cable distance from the pit power supply to the JAGXTREME terminal POWERCELL PCB depends on the number of POWERCELLs, home-run cable gauge, and the AC power voltage level. Use the following table to determine the cable gauge and recommended cable distance:

Number of RAAD Boxes	Number of CMOS or MTX Cells	Home-Run Cable Distance	
		20 Gauge (Feet/Meters)	16 Gauge (Feet/Meters)
1	4	900/274	900/274
2	6	712/217	900/274
2	8	475/144	900/274
3	10	332/101	878/267
3	12	237/72	644/196

High Precision Base Cable Connections

The maximum recommended cable length for IDNET bases is 300 feet (90 meters.)

The following diagram describes IDNET cell terminal strip wiring.

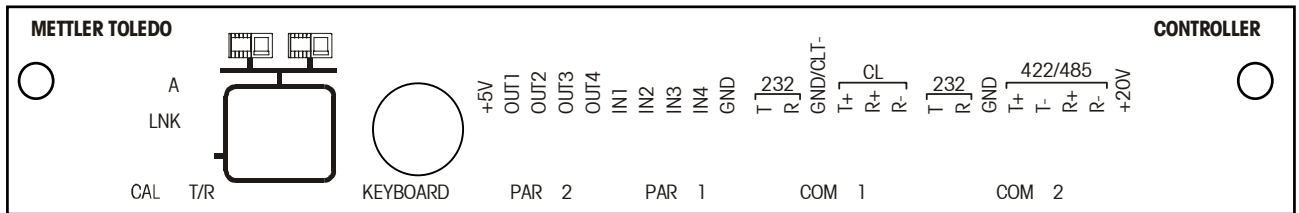


Serial Port Connections Controller PCB

Note: Keyboard wedges and other non-keyboard devices are not supported.

Refer to the following diagrams for proper cable connections to the JAGXTREME terminal's serial ports COM1 and COM2. COM1 and COM2 are located on the Controller board, which is positioned in the top slot.

The COM1 and COM2 terminal strips will accommodate wire sizes from 16 to 22 AWG. The terminal strips may be removed to facilitate wiring. Removal of the terminal strips permits easier viewing of the terminal designations printed on the board back plate.



For enclosures using the pass-through cable grips, you must pass the cable through the grip, grommet, and housing before wiring to the connector.

COM1 20 mA (Controller PCB Serial Port)

The following diagram and table describe COM1 pin-to-pin cable connections using a 20 mA loop. The maximum recommended cable length for 20 mA interfacing is 1000 feet (300 meters).

JAGXTREME Terminal COM1

⊖	TXDA	
⊖	RXDA	
⊖	Gnd	Signal Ground (Active Current Loop Transmit -)
⊖	CLTX+	Active Current Loop Transmit +
⊖	CLRX+	Current Loop Receive +
⊖	CLRX-	Current Loop Receive -

JAGXTREME Terminal COM1	8860	8623	8614 8616 8619	8618 9323 9325
TXDA	—	—	—	—
RXDA	—	—	—	—
GND	18	10	12	9
CLTX+	16	8	11	8
CLRX+	—	—	—	—
CLRX-	—	—	—	—

COM1 RS-232 (Controller PCB Serial Port)

The following diagram and table describe COM1 pin-to-pin cable connections using an RS-232 cable. Maximum recommended cable length is 50 feet (15 meters).

JAGXTREME Terminal COM 1

⊖	TXD	RS-232 Transmit
⊖	RXD	RS-232 Receive
⊖	GND	Signal Ground
⊖	CLTX+	
⊖	CLRX+	
⊖	CLRX-	

Pin Connection for METTLER TOLEDO Devices Using COM1 RS-232					
JAGXTREME Terminal COM1	8863	8846 8867	8806 8807 8808 8845 8856 8857 8860 8861 8865	9323-TB2 9325-TB2 8624	8618
TXDA	3	2	3	2	InputCom
RXDA	2	3	2	—	—
GND	5	7	7	3	RS232 Input
CLTX+			—	—	—
CLRX+			—	—	—
CLRX-			—	—	—

COM2/COM4 RS-232 (Controller PCB Serial Port)

The following describes COM2 pin-to-pin cable connections using an RS-232 cable and the connections to COM4 when an optional Multifunction I/O PCB is installed. The maximum recommended cable length for RS-232 is 50 feet (15 meters). Maximum recommended total distance for RS-422 and RS-485 is 2000 feet (600 meters).

JAGXTREME Terminal COM2/COM4

The COM4+20 V terminal voltage output is determined by the W2 jumper on the Multifunction I/O PCB.

⊖	TXD	RS-232 Transmit
⊖	RXD	RS-232 Receive
⊖	GND	Signal Ground
⊖	TXD+	RS-422/485 Transmit +
⊖	TXD-	RS-422/485 Transmit -
⊖	RXD+	RS-422/485 Receive +
⊖	RXD-	RS-422/485 Receive -
⊖	+20 V	+20 VDC Supply

Pin Connection for METTLER TOLEDO Devices Using COM2 RS-232/RS-485							
JAGXTREME Terminal COM2	8806	8807	8808	8846	8863	8617-TB2 9323-TB2 9325-TB2	8618
	8844	8845	8857	8867			
	8861	8865					
TXDB		3		2	3	2	—
RXDB		—		3	2	—	—
GND		7		7	5	3	—
TXD+		—				—	RS-485B
TXD-		—				—	RS-485A
RXD+		—				—	—
RXD-		—				—	—
+20 V		—				—	—

Discrete Wiring

For more information see the section entitled Inputs in Appendix 2 at the back of this manual.

For more information see the section entitled Outputs in Appendix 2 at the back of this manual.

The Controller PCB contains four discrete input and four discrete output connections.

PAR 1 Input Connections

The input connections must be referenced to ground. A switch or relay contact may be used to make this connection. The remote device should hold the input at logic ground for at least 100 ms. Scale functions are performed when the input is held to ground (leading edge triggered). The maximum recommended cable length between the remote device and the JAGXTREME terminal is 10 feet (3 meters).

Each of the four PAR 1 inputs can be configured for different remote inputs including input from the keypad for remote print, unit switching, alternate scale selection, or template selection. Polarity (switch to ground or open a ground connection to initiate remote input) can also be selected.

PAR 1 Terminal

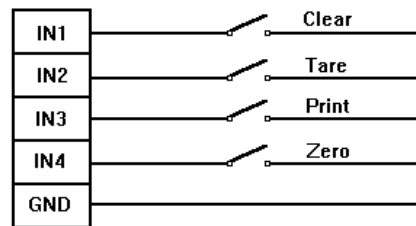
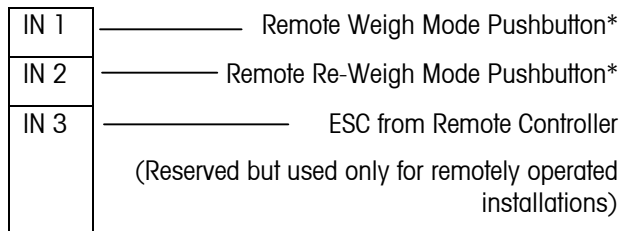


Figure 2-g: Input Wiring Example

When the JagMAX software is used, the terminal reserves inputs one and two for use with the optional traffic light controller. The terminal reserves input three for an optional pushbutton to return the terminal to local control. (Used only remotely operated installations.)



*See optional traffic light controller wiring diagram.

Figure 1-r: Input Wiring Example

PAR 2 Output Connections

Each of the four PAR 2 outputs can be configured to announce Setpoints 1 through 12 coincidence. The 12 setpoint outputs can be configured to request either Feed or Fast Feed, or announce setpoint tolerance status. The standard number of outputs is 4. Eight additional outputs are available if a multifunction PCB is installed.

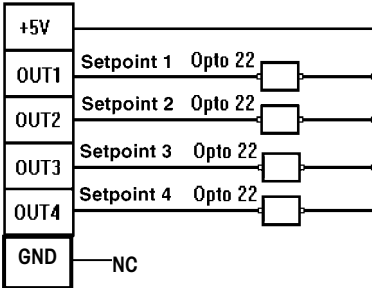
PAR 2 outputs can be configured to announce "current scale status" conditions such as:

- Net or Gross Mode
- Motion
- Under Zero
- Gross Zero
- Over Capacity

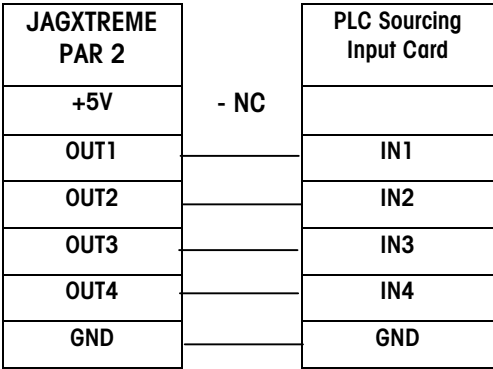
Outputs are negative-true, open collector type.

PAR 2 outputs can be referenced to the 5 volt supply available on the PAR2 connector or can sink up to 35 mA of current and have a maximum voltage of 30 volts DC from an external source. The maximum cable length between the remote device and JAGXTREME terminal is 10 feet (3 meters).

PAR 2 Terminal



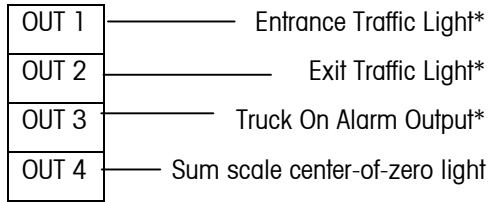
Output Wiring Example



PLC Input Wiring Example

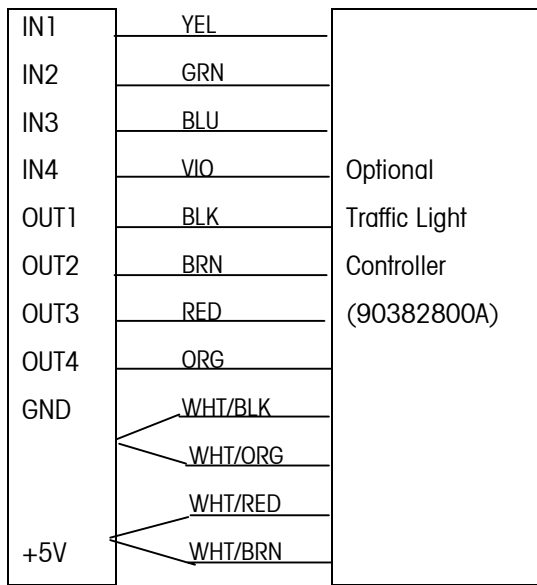
Optional JagMAX Software

When using the optional JagMAX software, the terminal reserves the first three outputs for use with the optional traffic light controller, and the fourth is reserved to indicate the center of zero for the summation scale for Canadian applications.



*See optional traffic light controller wiring diagram.

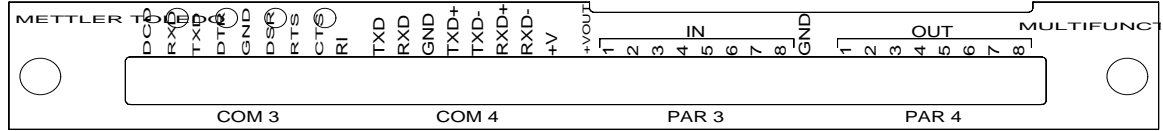
Figure 1-s



Traffic Light Controller Wiring Diagram

Optional Multifunction I/O PCB Serial and Discrete Connections

This section gives proper cable connections to COM 3, COM 4, PAR 3, AND PAR 4 which are located on the optional Multifunction I/O PCB.



COM3 Interconnect Wiring

COM3 supplies all inputs and outputs to allow full handshaking and modem interfacing. The COM3 port is only available with the optional Multifunction PCB. When interfacing COM3 to devices other than those listed for COM2 RS-232, refer to the documentation for the particular device for handshaking needs and suggested wiring. The following general interconnect options are offered for the 9 and 25 pin connectors.

COM3 With Full Handshaking

	COM3	DB25	DB9	DCE
⊖	DCD	—	—	
⊖	RXD	2	2**	**This connection is only required for devices that input data to the terminal, such as devices that send ASCII "C, T, P, Z, or U".
⊖	TXD	3	3	
⊖	DTR	6	6	
⊖	GND	7	5	
⊖	DSR	20	4	
⊖	RTS	5	8	
⊖	CTS	4	7	
⊖	RI	—	—	

COM4 Interconnect Wiring

The wiring instructions for the COM2 serial port apply to COM4 on the Multifunction PCB. Refer to the section presented earlier entitled COM2/COM4 RS-232 (Controller PCB Serial Port) to interface COM4 to DigiTOL scales and printers.

PAR 3 Discrete Input Port

Each of the eight PAR 3 inputs can be configured for different remote inputs including input from the JAGXTREME keypad (Tare, Clear, Zero, Select, Escape, and Enter). PAR 3 inputs can also be configured for remote print, unit switching, alternate scale selection, or template selection. Polarity (switch to ground or open a ground connection to initiate remote input) can also be selected.

The wiring instructions for the PAR 1 discrete inputs apply to PAR 3 on the Multifunction PCB. Refer to the section entitled PAR 1 Input Connections for wiring details.

PAR 4 Discrete Output Port

Each of the eight PAR 4 outputs can be configured to announce Setpoints 1 through 12 coincidence. The 12 setpoint outputs can be configured to request either Feed or Fast Feed, or to announce setpoint tolerance status. PAR 4 outputs can also be configured to announce "current scale status" conditions such as:

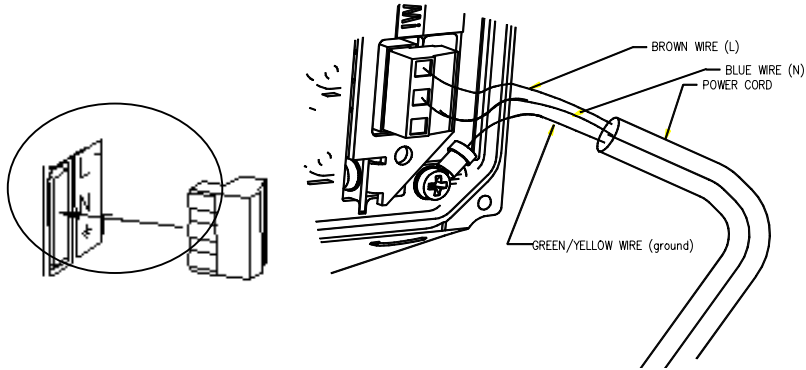
- Net or Gross Mode
- Gross Zero
- Motion
- Over Capacity
- Under Zero

The +VOUT terminal supplies a jumper selectable voltage of +5, +12, or +20 VDC.

The wiring instructions for the PAR 2 discrete outputs apply to PAR 4 on the Multifunction PCB. Please refer to the section entitled PAR 2 Output Connections for wiring details.

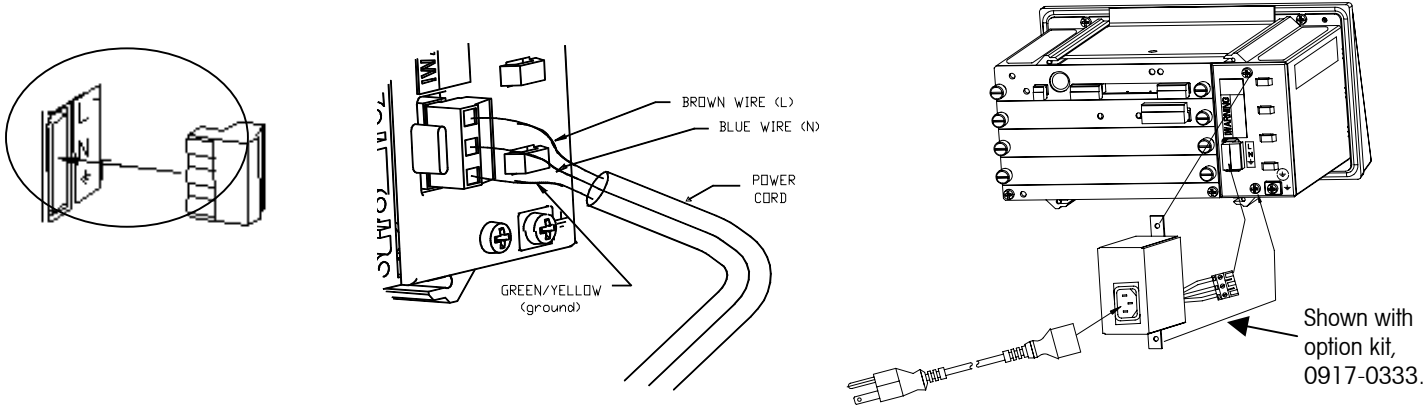
Connecting the Power Cable

A power cord is provided with the general purpose and harsh environment JAGXTREME terminals. Connection to the panel-mount JAGXTREME terminal must be made at installation. The AC power connection must be wired as follows for harsh and general-purpose models:



Note: Some regions and/or power cords may use different color codes than shown.

Power Connection for Harsh and General Purpose Terminal



Power Connections for Panel-Mount Terminal and Blind Panel-Mount Terminal

The terminal strip will accommodate wire sizes from 12 to 16 AWG. The wire size used must meet all local and national electrical codes. On panel-mount models, you must secure the wiring with a cable tie as a strain relief. Cable ties are supplied loose. If the power terminal strip is removed from the terminal, reinsert it until it is completely seated in the jack at the rear of the enclosure.

An auxiliary chassis ground screw is located at the lower right corner of the power supply cabinet. This ground connection is provided for surge voltage protection applications and for chassis ground. On panel-mount models (JXPx) you must connect a safety ground to this screw.



For your notes

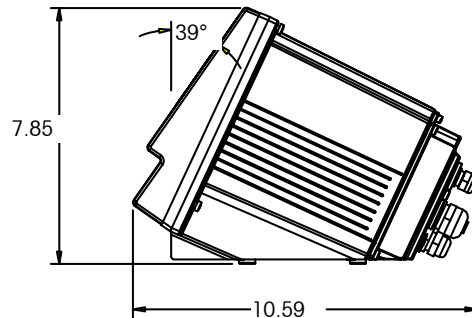
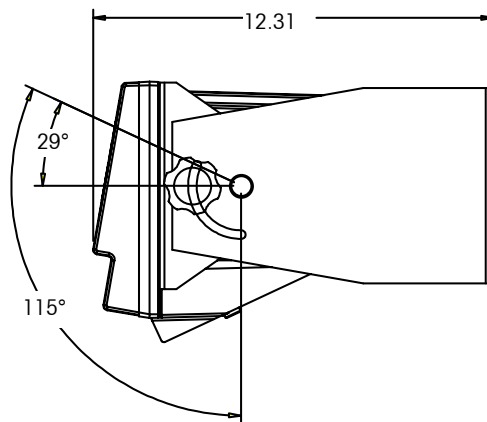
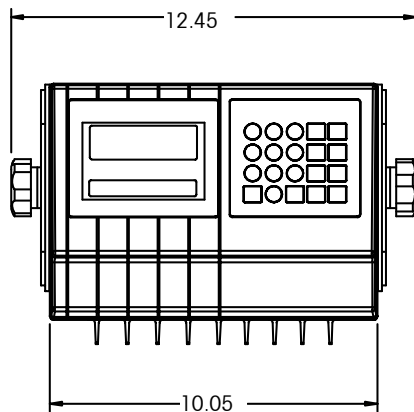
4

Hardware Installation

Installing the General Purpose Model

Dimensions:

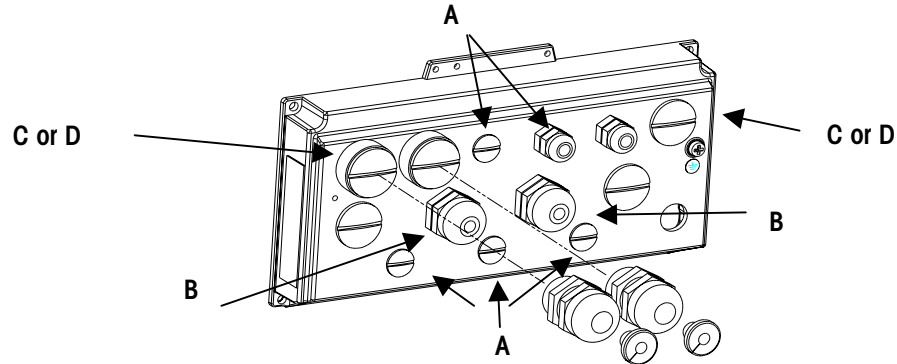
- 12.45 in. (250 mm) wide x 7.86 in. (200 mm) high
- 10.6 in (270 mm) deep



1. Place the terminal at the operating site. Refer to the illustrations on this page and the next when following the directions provided here.
2. Remove the four screws securing the rear access cover to the main housing using a Phillips head screwdriver.
3. With the rear access cover removed, you can now make connections to the unit. (Refer to the illustration and table that follow for suggested wire connections.)
4. Pass the cables that enter the enclosure through an appropriately sized cable grip before connecting the wires.

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5. Tighten the cable grip to provide a water-tight seal around the cable after re-securing the back cover. This allows any internal cable slack to be received through the cable grip.
6. Connect a PS/2 type keyboard, if desired, using an optional external keyboard connector kit.
7. You can now make the electrical connections.



Reference Letter	Suggested Cable
A	Serial I/O Cables (Except DigiTOL) PLC I/F Cabling
B	Analog Load Cell Cabling DigiTOL Load Cell Cabling
C	Ethernet RJ-45 Category 5
D	QWERTY PS/2

General Purpose Model Wiring Connections and Cable

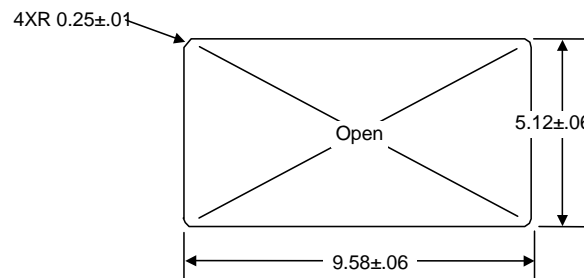
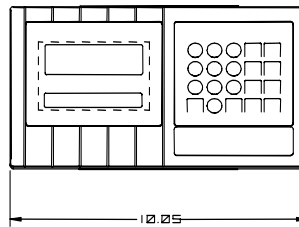
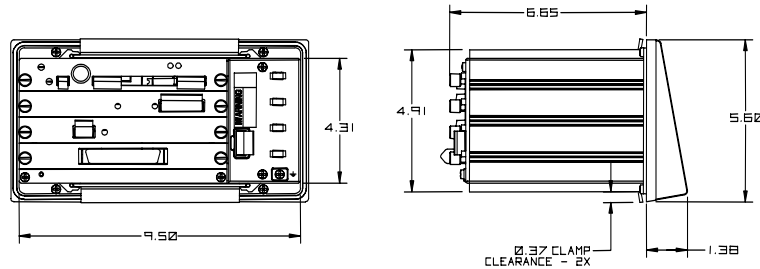
To make keyboard and/or Ethernet connections to the general-purpose model, follow these steps:

1. Remove the plugs from the back of the JAGXTREME terminal.
2. Remove the cap from the grip bushing assembly (supplied in the shipping kit that accompanies the harsh environment and general purpose JAGXTREME terminals).
3. Route the cable end through the cap of the grip bushing.
4. Route the cable end through the grip bushing.
5. Assemble the bushing to the appropriate hole in the access cover.
6. Plug in the cable to the appropriate port (Ethernet or keyboard) on the JAGXTREME terminal.
7. Reassemble the access cover to the JAGXTREME terminal.
8. Tighten the grip bushing cap to the grip bushing.

Installing the Panel-Mount Model

Dimensions (Panel Mount):

- 10.05 in. (255 mm) x 5.6 in. (140 mm) at the front of the terminal
- 9.5 in. (240 mm) x 4.91 in. (125 mm) at the rear
- 8.03 in. (210 mm) deep



1. Refer to the illustrations provided.
2. Cut an opening 9.58 in. (243.3 mm) × 5.12 in. (130 mm) to accommodate the terminal. The tolerance for the panel cutout is ±0.06 in. (0.15 mm).
3. Using the Allen wrench included, remove the four retaining set screws (A) located at the rear of the enclosure in the top and bottom mounting plate grooves.
4. Remove both mounting plates (B).
5. Insert the terminal through the panel opening from the front until it is flush against the panel. Confirm that the terminal is installed right side up.
6. Slide the top and bottom mounting plates back in the grooves. Push them flush against the panel from the back. The flared end of the plate should contact the back of the panel.
7. Holding the unit in place, replace the four set screws and tighten until the unit is secured and the front panel gasket is compressed.
8. Inspect the front of the terminal for a good seal to the front of the enclosure.
9. You can now make the electrical connections. (Ethernet and keyboard connections can be made directly to the Controller PCB.)

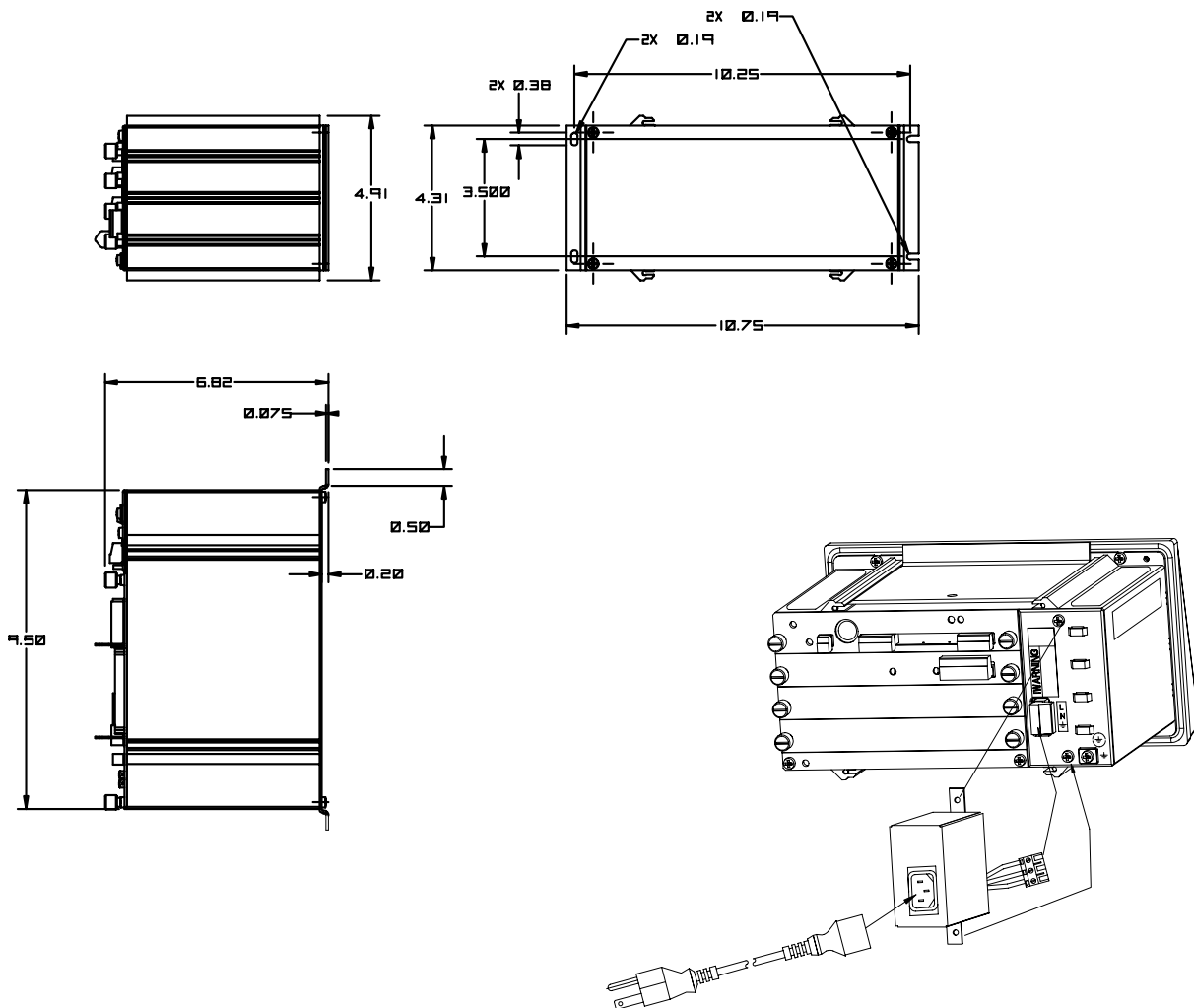
Installing the Blind Panel-Mount Unit

Panel-Mount Enclosure—Blind Chassis (PB)

The front of the panel-mount enclosure has a blank plate to cover the electronics and to provide a method of mounting. There is no keyboard or display on the front of the unit. This allows the terminal's use as a "blind" terminal (installed behind a panel,) sharing another JAGXTREME terminal's keyboard and display via the Ethernet connection. The terminal enclosure has a NEMA 1 or IP30 rating with a "blind" front panel.

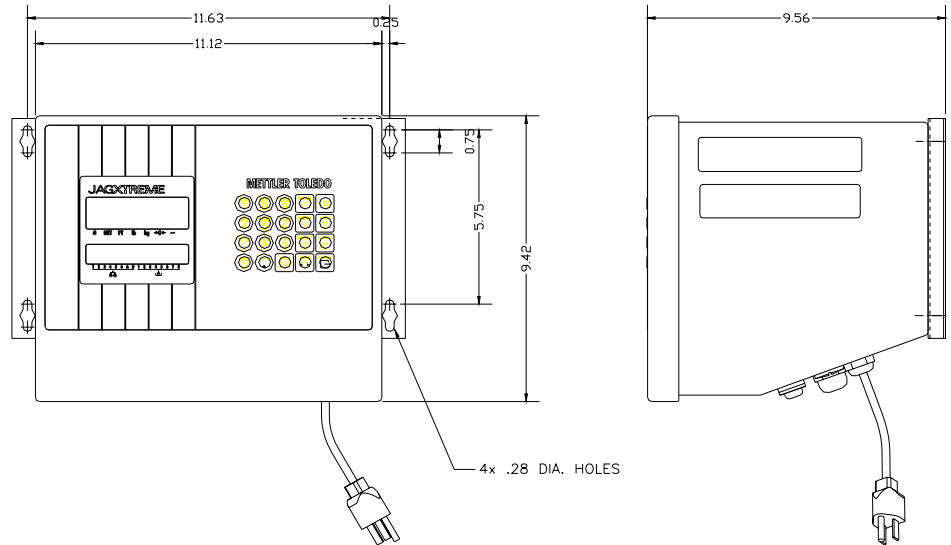
The blind chassis mount model measures:

- 10.75 in. (270 mm) × 4.31 in. (109 mm) at the base
- 10.25 in. (260 mm) × 3.91 in. (100 mm) c-c mounting
- 9.5 in. (241 mm) × 5.00 in. (130 mm) chassis



Installing the Harsh Environment Enclosure

Dimensions: 9.42 x 11.12 x 9.56" (239.3 x 282.4 x 242.8 mm)

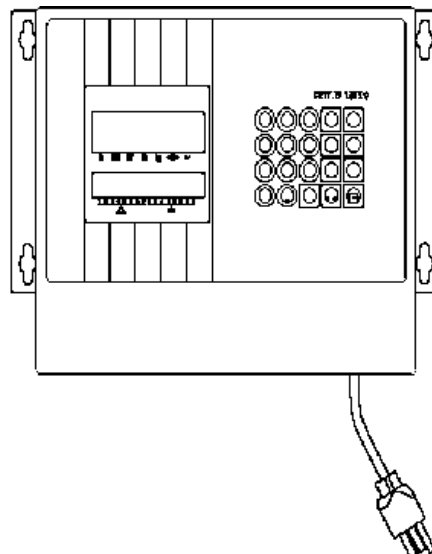


*Refers only to JAGXTREME harsh environment enclosures manufactured after July 15, 2001.

Mounting the Harsh Environment Terminal

1. Locate the two mounting brackets that came in the JAGXTREME terminal package.
2. Mount the brackets using the four stainless steel screws supplied with the unit. Refer to figure below and note the correct positioning of the brackets. The slotted holes must protrude beyond the enclosure and the bracket tabs must point toward the front as shown.

* Shown with wall mount brackets (included with enclosure) installed.

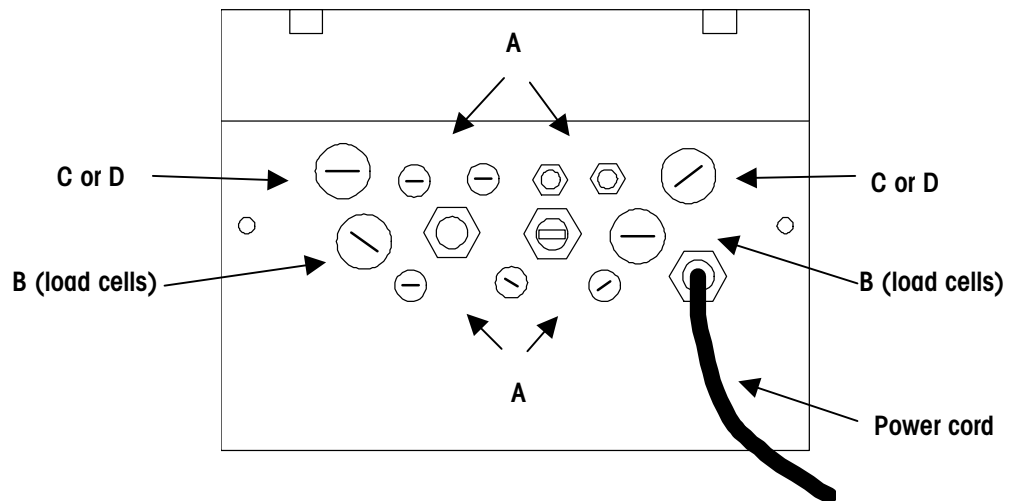


METTLER TOLEDO JAGXTREME Terminal Installation Guide

3. Tighten the brackets to the back of the enclosure (torque 25 inch pounds or 2.83 N•m).
4. Using the dimensions on the previous page, prepare the mounting surface to accept the enclosure. The mounting surface and brackets must be able to support 45 lb (20 kg).
5. Place the enclosure on the mounting surface and secure with appropriate fasteners. You can now make the electrical connections.

Opening the Harsh Environment Terminal

1. Disconnect power.
2. Locate the two slots on the bottom lip of the front of the harsh environment enclosure.
3. Gently insert the blade of a slotted screwdriver into one of the slots and press inward (toward the enclosure). This releases a pressure tab that allows the access panel of the enclosure to open slightly.
4. Repeat steps 2 and 3 for the other slot.
5. Remove the access panel away from the enclosure. The access panel is connected to the Controller PCB by a cable and cannot be removed without disconnecting the cable. You should be able to access the unit with the front panel connected.
6. With the access cover removed, you are now ready to make connections to the unit. The illustration and table that follow describe the recommended wiring connections.



Reference Letter	Suggested Cable
A	Serial I/O Cables (Except DigiTOL) PLC I/F Cabling
B	Analog Load Cell Cabling DigiTOL Load Cell Cabling
C	Ethernet Cabling RJ-45 Category 5
D	QWERTY Keyboard PS/2

Ethernet Connection

The JAGXTREME terminal can be connected to LAN, WAN, automation or enterprise systems using ETHERNET, a standard network hardware platform.

The ETHERNET connection on the rear of the JAGXTREME terminal Controller PCB is designed for an RJ45 connector. METTLER TOLEDO recommends using Category 5 cable, which provides unshielded, four twisted pair cable.

Depending upon the equipment to which the JAGXTREME terminal will be connected, either a "crossover" or standard cable is required.

- When connecting directly between a PC and a JAGXTREME terminal (point to point connection), a crossover cable is used.
- To connect the JAGXTREME terminal to other equipment through a hub, a standard cable is normally used as the hub provides the crossover connections. Refer to the specifications of the hub used to determine if a crossover cable is required.

Additional Information

The JAGXTREME terminal can now be configured via the front panel or web server interface. This procedure should be performed only by qualified technicians following the instructions provided in the JAGXTREME Terminal Technical Manual. Once setup is complete, the unit can be sealed if required.



For your notes



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