0990

Monorail Overhead Track Scale

Installation and Service Manual

14859600A
6/96

PROPRIETARY NOTICE

The information contained in this publication is derived in part from proprietary and patented data of Mettler Toledo. This publication shall not be copied in whole or in part without prior written approval of Mettler Toledo, nor shall it be used for any purpose other than that intended. This document is subject to change without notice.

STANDARD WARRANTY: 0990 Monorail Overhead Track Scale

Mettler Toledo warrants that the equipment covered by this warranty will be free from defects in workmanship and materials for a period of one year from date of installation or eighteen (18) months from date of shipment to the buyer, whichever comes first.

Should any such defects be found and reported during the first thirty (30) days after installation (if installation occurs during the warranty period), Mettler Toledo (herein referred to as the "Company"), will, at its option, refund the purchase price or correct such defects furnishing replacements parts and service free of charge to the buyer. For the remainder of the warranty term, the Company will furnish necessary replacement parts and on site technician's service free of charge, provided the Buyer agrees to pay reasonable technician's travel time, vehicle mileage, and associated travel expenses to and from the nearest authorized Company service location. The following are NOT covered under any of these warranties:

1) Initial installation and ongoing scale calibration.

2) Damage to scale components by gross abuse, fire, flooding, explosion, water, voltage surges, or civil disturbance.

3) Normal maintenance or consumable items.

This warranty covers only the 0990 Monorail Overhead Track Scale understructure. Refer to Mettler Toledo Standard Product Warranty for coverage of other scale system components including scale instrument, printer, and/or other accessories.

THE COMPANY EXPRESSLY WARRANTS THE EQUIPMENT MANUFACTURED BY IT AS SET FORTH HEREIN. THE COMPANY MAKES NO OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED (INCLUDING WITHOUT LIMITATION WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). IN ADDITION, THIS DOCUMENT SHALL CONSTITUTE THE SOLE AND EXCLUSIVE REMEDIES OF THE BUYER FOR ANY BREACH BY THE COMPANY OF ITS WARRANTIES HEREIN.

COMPANY LIABILITY UNDER THIS WARRANTY OR ANOTHER WARRANTY WHETHER EXPRESSED OR IMPLIED IN LAW OR FACT SHALL BE LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE MATERIAL AND WORKMANSHIP, AND IN NO EVENT SHALL IT BE LIABLE FOR CONSEQUENTIAL OR INDIRECT DAMAGES.

This warranty coverage is only applicable to the United States of America. Consult Mettler Toledo for Export Warranty Terms and Conditions.

APPLICATION GUIDES

The only warranty of Mettler Toledo is for the product it supplies under the Product Warranty Statement listed above. Weighing application guidelines pertain to Mettler Toledo products.

INTRODUCTION

This publication is provided as a guide for the trained technician for installing, calibrating, and servicing the 0990 Monorail Overhead Track Scale. Repair or adjustment by unauthorized persons voids the METTLER TOLEDO warranty.

For information regarding your METTLER TOLEDO distributor, Sales, and Service location, please contact:

METTLER TOLEDO
6600 Huntley Road
Columbus, Ohio 43229
(614) 841-7300

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.

METTLER TOLEDO RESERVES THE RIGHT TO MAKE REFINEMENTS OR CHANGES WITHOUT NOTICE.

WARNING!

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

PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.

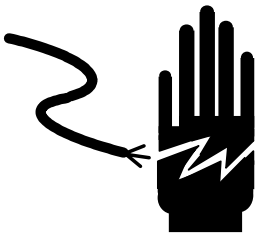
FOLLOW these instructions carefully.

SAVE this manual for future reference.

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

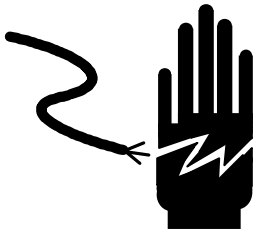
ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.



WARNING

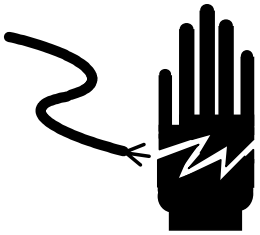
ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.



WARNING

FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD CONNECT TO PROPERLY GROUNDED OUTLET ONLY.

DO NOT REMOVE THE GROUND PRONG.



WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE REMOVING THE FUSE OR SERVICING.

CAUTION

BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTIONS ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT OR BODILY HARM.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

CONTENTS

1 General Description

The Mettler Toledo Model 0990 Monorail Overhead Track Scale provides accurate weighments when installed in new or existing meat processing lines. The Model 0990 is NTEP Certified to Class III 2500 divisions for static weighing applications, C.O.C. No. 95 -144.

The 0990 Monorail is available in 1250 lb and 2500 lb capacities. The “live” weighing portion of the rail is available in two feet or four feet lengths.

The 0990 is available in mild steel or stainless steel with the option of analog or enhanced DigiTOL Junction Box.

2 Specifications

Power Supply Requirements

Load cell power supply is provided by a Mettler Toledo digital indicator.

Model/RAM Numbers

Model 0990 RAM Numbers			
RAM Number	**Description**	**Capacity**	**Shipping Weight**
09900011102	Monorail / 2 ft / MS / Analog / H44 THC / 30 ft / 1250 lb	1250 lb	170 lb
09900011103	Monorail / 2 ft / MS / Analog / H44 THC / 30 ft / 2500 lb	2500 lb	170 lb
09901011102	Monorail / 4 ft / MS / Analog / H44 THC / 30 ft / 1250 lb	1250 lb	200 lb
09901011103	Monorail / 4 ft / MS / Analog / H44 THC / 30 ft / 2500 lb	2500 lb	200 lb
09900021102	Monorail / 2 ft / MS / DigiTOL / H44 THC / 30 ft / 1250 lb	1250 lb	170 lb
09900021103	Monorail / 2 ft / MS / DigiTOL / H44 THC / 30 ft / 2500 lb	2500 lb	170 lb
09901021102	Monorail / 4 ft / MS / DigiTOL / H44 THC / 30 ft / 1250 lb	1250 lb	200 lb
09901021103	Monorail / 4 ft / MS / DigiTOL / H44 THC / 30 ft / 2500 lb	2500 lb	200 lb
09900111102	Monorail / 2 ft / SS / Analog / H44 THC / 30 ft / 1250 lb	1250 lb	170 lb
09900111103	Monorail / 2 ft / SS / Analog / H44 THC / 30 ft / 2500 lb	2500 lb	170 lb
09901111102	Monorail / 4 ft / SS / Analog / H44 THC / 30 ft / 1250 lb	1250 lb	200 lb
09901111103	Monorail / 4 ft / SS / Analog / H44 THC / 30 ft / 2500 lb	2500 lb	200 lb
09900121102	Monorail / 2 ft / SS / DigiTOL / H44 THC / 30 ft / 1250 lb	1250 lb	170 lb
09900121103	Monorail / 2 ft / SS / DigiTOL / H44 THC / 30 ft / 2500 lb	2500 lb	170 lb
09901121102	Monorail / 4 ft / SS / DigiTOL / H44 THC / 30 ft / 1250 lb	1250 lb	200 lb
09901121103	Monorail / 4 ft / SS / DigiTOL / H44 THC / 30 ft / 2500 lb	2500 lb	200 lb

MODEL 0990 CONFIGURATION TABLE						
0990	**X**	**X**	**X**	**X**	**X**	**XX**
Model	**Rail Length**	**Cell Material**	**Junction Box**	**Cell Type**	**Cell Cable Length**	**Cell Capacity**
0990	0 = 24 in. 1 = 48 in.	0 = Mild Steel 1 = Stainless Steel	0 = None 1 = Standard Analog 2 = Enhanced DigiTOL 3 = ID Net 4 = Large Analog 5 = Large Enhanced DigiTOL 6 = Large ID Net	0 = TLC H44 1 = THC H44 2 = Future 3 = Future	0 = 15 ft 1 = 30 ft	01 = Future 02 = 1250 lb 03 = 2500 lb 11 = Future 12 = Future 13 = Future

Load Cells (Model 757)

Stainless steel cantilever beam load cells are provided in all 0990 Monorail scales with integral 4-conductor, shielded, color coded cable. Individual load cell capacities used in the Model 0990 Monorail include:

Scale Rail Capacity	Capacity of Each Load Cell	Minimum Approved Graduation Size
1250 lb	1250 lb	0.5 lb
2500 lb	2500 lb	1.0 lb

- Model 757 load cells C.O.C. No. 96 - 006 Rated Output: 2 mV/V
- Output Resistance: 350 Ohm (±2)
- Input Resistance: 385 Ohm (min)
- Wiring Color Code: – Excitation—Black
  + Excitation—Green
  – Signal—Red
  + Signal—White
  Shield—Yellow
- Excitation Voltage: 15 VDC Maximum
- Accuracy: (Avoirdupois Capacities) NIST H-44/Class III/2500d
  (Metric Capacities) N/A
- Features: Hermetically Sealed Gauge Capacity
  1/4 in. - 18 NPT conduit fitting at rear cable entry
- Environment: The compensated operating temperature range is –10 to +40 ºC (14 to 104 ºF).

Loading

Model 0990 Monorail may be loaded up to 100% of the overhead track scale rated capacity anywhere along the length of the live rail.

Live Rail Assembly

The Live Rail assembly consists of

- Live rail on which the trolley wheel rolls
- Backing bar to support the live rail
- Suspension parts which transfer the load to the load cells

Support Frame Assembly

The Support Frame assembly consists of the base weldment and approach / exit rail sections. The assembly supports the load cells and maintains the proper transfer of load on and off the live rail.

3 Inspection and Site Selection

Inspection

Upon delivery of the 0990 Monorail, visually inspect the scale components for any damage which may have occurred during shipment and handling. Inspect the following areas:

- Scale support frame for warpage
- Load cell and suspension components
- Load cell cables
- Load cell summing junction box
- Live rail and approach rails

If any damage is noted, contact your freight carrier immediately.

Site Selection

Many problems associated with overhead track scale weighing are caused by improper scale location. Before you install the scale, check the following conditions:

- Is the section of rail straight and level enough to maintain good weighing?
- Will the support at each end of the scale assembly maintain support throughout the entire weighing capacity of the scale?
- Will there be access to the scale for proper maintenance?
- Are there any heavy vibrations or wind currents present at or near the scale?
- Will the scale be subjected to excessive or unusual loading due to the location or type of equipment used?

If the site passes this inspection, proceed with the installation. If not, choose a new location.

4 Installation

Safety Considerations

- All welding is to be performed by a certified welder per AWS guidelines
- A safety support system (safety chain or wire rope) with capacity greater than or equal to the scale capacity is required

> **⚠ WARNING**
>
> **Failure to install and use a secondary safety support system could result in property damage and/or bodily injury.**

- Never place any load in excess of the rated capacity on the Monorail Scale

Assembly and Installation

The 0990 Monorail Scale is shipped as a kit of parts. Refer to the Mettler Toledo drawing for your specific scale. Use the following procedure to assemble the 0990 Monorail:

1. Attach the backing bar to the live rail using 1/2 - 13 UNC flathead socket screws torqued to 60 ft-lb.
2. Attach the approach rail support blocks using four 1/2 - 13 UNC socket head cap screws each. Torque to 100 ft-lb (mild steel units) or 75 ft-lb (stainless steel units).
3. Fasten the approach rails to the support blocks with three 1/2 - 13 UNC flathead socket screws each. Do not tighten at this time.

4. Mount the load cells to the base weldment using two 1/2 - 13 UNC socket head cap screws each. Torque to 100 ft-lb (mild steel units) or 75 ft-lb (stainless steel units).

> **⚠ WARNING**
>
> **Failure to torque mounting screws to specifications could result in property damage and/or bodily injury.**

5. Attach the live rail assembly to the load cells using the load support pin and hardware (see the assembly drawing). Check for clearance between approach/exit rails and live rail. Torque the load support pins to 200 ft lb.

Note: Sleeve bearings fit snugly into the live rail bore. Take care to insert them squarely into the rail.

6. Tighten the approach/exit rail screws to 60 ft lb.

7. Align the 0990 approach/exit rails with the existing monorail.

8. When the rails are aligned and level, attach the 0990 Monorail Scale to nearby superstructure using appropriately sized mounting struts.

Note: The approach and exit rails are field-replaceable. Welding the 0990 rail to the building superstructure or adjacent rail will complicate future replacement.

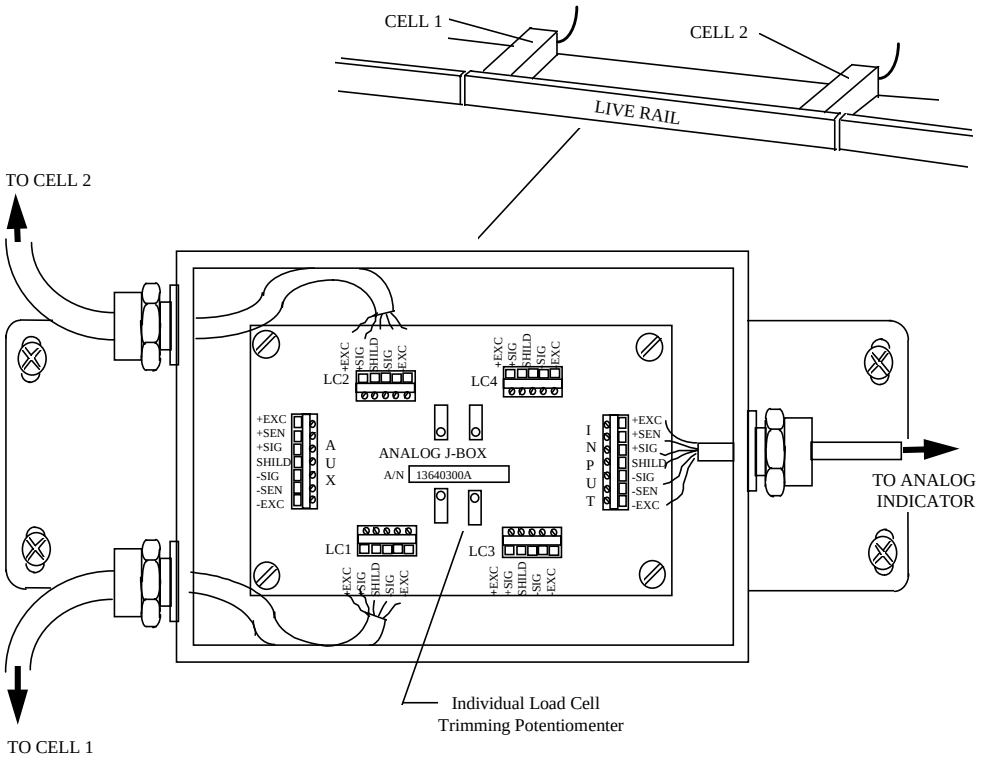
Modes of Operation

Analog Mode

Analog 0990 uses an analog junction box for summing the load cell outputs and provides for trimming of the cell outputs. Only analog compatible indicators will work with the Analog Junction Box.

Note: Use P/N 510624370 24 Ga. instrument cable for 50 ft. or less . Use P/N 510620370 20 Ga. instrument cable for distances longer than 50 ft.

Note: Turn all potentiometers fully clockwise prior to calibration



Note: Enhanced DigiTOL J-Box is **NOT** compatible with Model 8510 Panel Mount DigiTOL Indicator, 8572 and 8582 Counting Scales, or 8530 VS indicator.

Load Cell Wiring		Instrument Cable Wiring	
Function	**Color**	**Function**	**Color**
+ Excitation	Green	+ Excitation	White
		+ Sense	Yellow
+ Signal	White	+ Signal	Green
Shield	Yellow	Shield	Orange
– Signal	Red	– Signal	Black
		– Sense	Red
– Excitation	Black	– Excitation	Blue
		(Based on Mettler Toledo cable number 510624370)	

Figure 4-1 Analog Junction Box Details and Wiring Codes

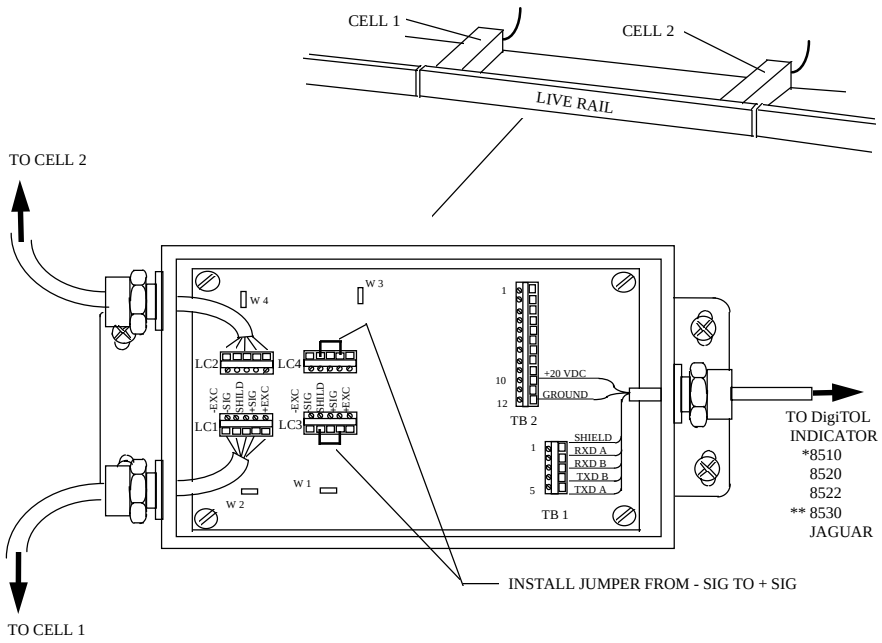
DLC Mode

ATTENTION!

DO NOT USE THE DigiTOL JUNCTION BOX IN LOCATIONS CLASSIFIED HAZARDOUS BY THE NATIONAL ELECTRICAL CODE (NEC) ARTICLE 500.

The DigiTOL 0990 uses an Enhanced DigiTOL Junction Box for converting each load cell output into a digital signal. Only DigiTOL indicators will work with the Enhanced DigiTOL Junction Box. **In the DLC mode the indicator acts as the host for the DigiTOL junction box**, allowing the scale parameters to be adjusted via the indicator keypad. Cable connections can be seen in Figure 4-2.

Note: Jumpers W1, W2, W3, and W4 must be "IN" shorting pins (for 2 mV/V load cells).



DLC Mode			
Terminal No.	**Position**	**Function**	**Wire Color**
TB2	10	+20 VDC	Green
TB2	12	Ground	Blue
TB1	1	Shield	Orange
TB1	2	RXD A	Red
TB1	3	RXD B	White
TB1	4	TXD B	Yellow
TB1	5	TXD A	Black

Figure 4-2 DigiTOL Junction Box Wiring—DLC Mode

Smart Mode

When the DigiTOL 0990 is used with the 8505 weight display, **the junction box provides the "brains" for operation and becomes the host for the indicator.** Cable connections can be seen in Figure 4-3.

For detailed information regarding indicator capabilities and operating instructions consult the appropriate Mettler Toledo technical manual.

ATTENTION!

DO NOT USE THE DigiTOL JUNCTION BOX IN LOCATIONS CLASSIFIED AS HAZARDOUS BY THE NATIONAL ELECTRICAL CODE (NEC) ARTICLE 500.

Note: Jumpers W1, W2, W3, and W4 must be "IN" shorting pins (for 2 mV/V load cells).

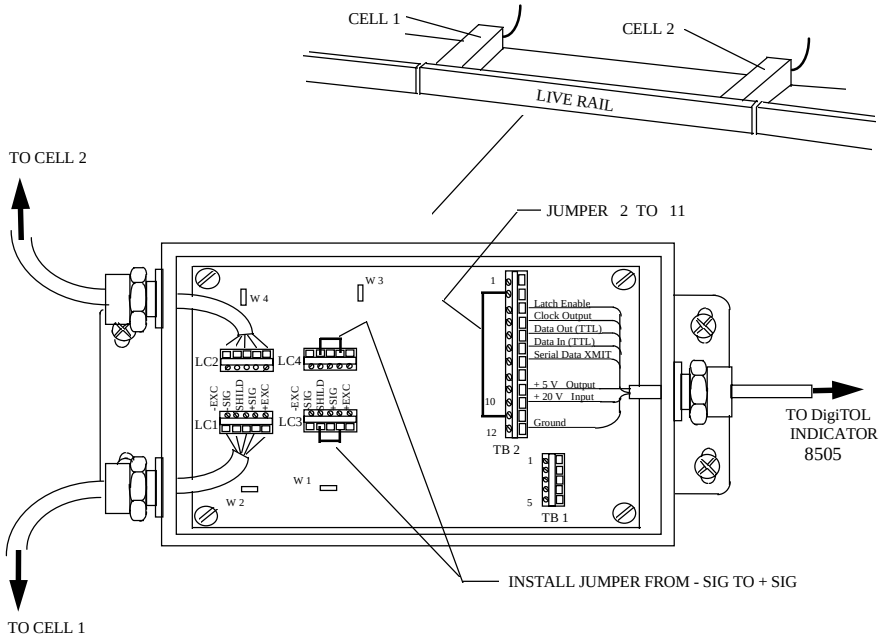


Figure 4-3 DigiTOL Junction Box—Smart Mode with Model 8505 DigiTOL Indicator

Smart Mode (TB 2)		
POSITION	**Function**	**Wire Color**
1	Not Used	
2	Jumper to 11	
3	Latch Enable	Orange
4	Clock Output	Blue
5	Data Out (TTL)	Brown
6	Data In (TTL)	Violet
7	Serial Data Transmit	Red
8	Not Used	
9	+5 VDC Output	Yellow
10	+20 VDC Input	Black
11	Jumper to 2	
12	Ground	Green

Junction Box Wiring

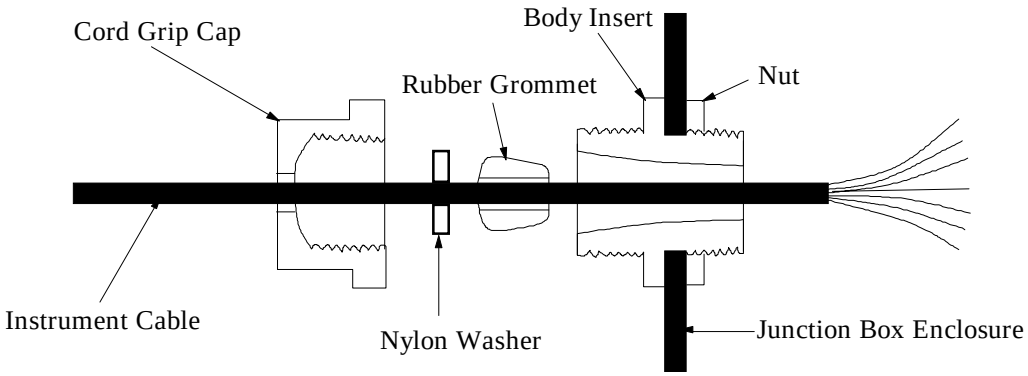


Figure 4-4 Cord Connector Details

1. Wire the instrument cable to the terminal marked "INPUT."
2. Place desiccant bag inside junction box.
3. Reinstall junction box lid. Make sure that the rubber gasket is clean and correctly located. Tighten all screws and check that all cord grip caps are tight.

5 Calibration

The scale should be calibrated using test weights which are traceable to the National Institute of Standards Technology. Proceed with the calibration according to the appropriate indicator manual.

Analog J-Box

A weight equal to the largest load that can be anticipated to be weighed within the application (minimum of 50% capacity) should be applied to the scale using hangers/trolleys of the type which are used to convey product across the scale. Before proceeding with calibration, remove the cover from the junction box and turn the load cell trim potentiometers fully clockwise.

1. Apply power to the indicator and calibrate the scale.
2. Span the scale by placing the weight in the center of the live rail.
3. After initial calibration is complete, place the test weight alternately at each end of the live rail. Note each reading.
4. Place the weight over the end which records the highest reading and turn the corresponding trim potentiometer counterclockwise until the reading agrees with the other end.
5. Repeat steps 3 and 4 until the readings at both ends of the live rail are equal.
6. Recheck the calibration. If the span is off, adjust the span using the procedure outlined in your particular indicator manual.
7. Place a desiccant bag in the junction box and reinstall the cover.

Enhanced DigiTOL Junction Box

Calibration with the Enhanced DigiTOL Junction Box follows the Analog J-Box procedure with the exception of the load cell trimming/shift adjust. There are no trim potentiometers in the DigiTOL J-Box. Differences in load cell output are corrected by software in the junction box itself (Smart Mode/8505) or by the attached DigiTOL Indicator (DLC) mode.

Another feature of the Enhanced DigiTOL J-Box is the ability to look at the output from each individual load cell. After calibration is complete, record the span, zero, and shift constants and the output value at zero from each load cell for future reference.

Follow the setup and calibration procedures for the specific DigiTOL Indicator used for your installation.

6 Routine Care and Maintenance

General

Once the scale is installed, it is recommended that the assembly be periodically inspected and calibrated by an authorized Mettler Toledo representative. If the scale is used for legal-for-trade purposes, consult the local Weights and Measures authorities for minimum inspection requirements. Contact your local Mettler Toledo service representative for information on periodic inspection and calibration services.

Site Inspection

Ensure that the scale remains in good condition. Check for alterations in the surrounding rail support, excessive vibrations, and possible overloading conditions.

Scale Inspection

During periodic inspections of the scale assembly, check for:

- Unusual wear points, paths, or marks on the live or approach rails.
- Secure attachment between the monorail scale and the superstructure.
- Properly sealed junction box lid and tight cable connections.
- Moisture or foreign material present around or inside the junction box assembly.
- Clearance between the live rail and the approach rails.
- Debris or material build-up under or around the rail which could inhibit freedom of movement.

- Properly torqued mounting bolts and load support pins. Torque specifications are given in Chapter 4.

WARNING

Failure to maintain mounting bolt and/ or load support pin torque to specifications could result in property damage and/or bodily injury.

- Signs of unusual wear on the load cells, live and approach rails, and suspension parts (bearing ring, etc.)
- Repeatability and shift of the scale

7 Troubleshooting

General

If operational difficulties are encountered, obtain as much information about the problem as possible. Is the problem constant or intermittent? Malfunctions can be caused by mechanical or electrical influences, so be patient and use sound logic when troubleshooting. When troubleshooting a 0990 Monorail Scale, examine the physical location of the scale, checking for the presence of the following:

- Water
- Corrosive materials
- Binding of the live rail
- High vibrations
- High air currents
- Physical damage to the live rail or approach rails

Also check the instrument cable for damage and all connections for any loose/incorrect wiring.

⚠ CAUTION

Before connecting or disconnecting any internal electronic components or interconnecting wires between electronic equipment, always remove power and wait at least 30 seconds. Failure to observe these precautions could result in bodily harm or damage to or destruction of the equipment.

Isolate the Problem

First, determine if the problem is in the monorail scale assembly or the digital indicator. After removing power from the system, disconnect the digital indicator from the 0990 Monorail Scale assembly and connect an analog load cell simulator to the indicator (analog simulator available from Mettler Toledo). Reapply power. If the problem is still present, consult the digital indicator manual for further troubleshooting assistance.

Note: For DigiTOL scales: The analog simulator can only be connected to the load cell terminal of the junction box PCB to determine if the problem is a bad load cell.

If the problem is NOT present with the load cell simulator attached to the indicator, remove power, disconnect the simulator and reconnect the 0990 Monorail Scale assembly. If the problem reoccurs, further scale assembly troubleshooting is required.

Check Wiring

Remove power from the system. Remove the cover from the junction box and check the interior for moisture or any foreign material.

Ensure that all wiring connections are tight and that no insulation material is touching the terminal contacts. Check all cable connections for correct wiring. The wiring color codes for Analog, DLC, and Smart modes are given in Chapter 4 of this manual.

Check all cable connectors on the junction box. Tighten any connectors found to be loose.

Check Load Cells

Check each load cell for proper bridge resistances.

Measuring Points	Resistance
Any lead to shield or ground	Infinity
+Exc (Green) to - Exc (Black)	385 Ohm minimum
+Sig (White) to - Sig (Red)	348 to 352 Ohms

If bridge resistances are within specification, perform a “shorted signal” symmetry check. Short the signal leads together and place one multimeter lead on the shorted signals and one lead on the +Excitation wire. Note the resistance value indicated. Next, remove the lead from the +Excitation wire and place it on the -Excitation wire. Both resistance values should be equal within 1 Ohm.

If the cells pass the above test, reapply power to the scale platform. Confirm that proper excitation voltage is reaching the load cells by placing multimeter leads on the excitation positions of each load cell terminal. Excitation voltage can vary from 5 VDC to 15 VDC depending upon the application and digital indicator used.

If proper excitation voltage is reaching the load cells, check the output signal from each cell. If one cell has a particularly high or low dead-load output it is suspect. The maximum output possible from any cell is 30 mV at 15 VDC excitation and loaded to gross capacity.

Note: Remove signal leads from terminals to measure output.

If any cell has an unusual signal, remove all load from that cell by removing the live rail. With the power still on, measure the output from the suspect load cell. The “zero balance” output should be $\pm$ 1.0% of the full scale output. For example, if the excitation voltage is 15 VDC then the full scale output is 30 mV. Therefore, the zero balance should be within $\pm$ 0.3 mV. If the load cell is out of specification, replace it.

If a load cell fails any of the above tests, replace it.

Check Mechanical Components

Due to the simplicity of the 0990 Overhead Track Scale, there are few mechanical components to troubleshoot. Ensure that the live rail has freedom of movement and that the live rail is not resting against the approach rails. If the live rail is contacting the approach rails with no motion in the live rail,

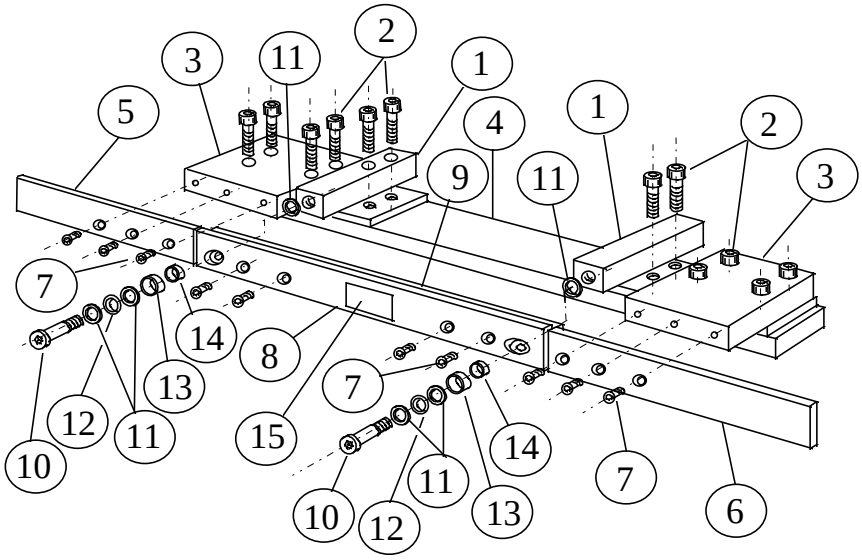
- Check for unusual wear or damage at the ends of the live rail.
- Check the live rail suspension parts for unusual wear or damage.
- Check that the load cells are in the right position. If not, loosen the mounting bolts, move the cells to the correct position, then tighten the mounting bolts.
- Check the approach rail fasteners for proper torque.

Load Cell Replacement Procedure

1. Ensure that the live rail and approach rails are empty.
2. Remove the live rail, taking care to retain all suspension components.
3. Disconnect the load cell cable at the junction box terminal strip. Loosen the box connector and pull the load cell cable out of the box.
4. Remove the load cell mounting screws and defective load cell.
5. Place the new load cell into position and secure with mounting screws. Retorque the load cell mounting screws to 100 ft-lb (mild steel) or 75 ft-lb (stainless steel).
6. Terminate the replacement load cell cable in the junction box. Be sure to retighten the box connector around the load cell cable.
7. Reattach the live rail to the load cells. Make sure clearance exists between the live rail and approach rails. Retorque the live rail load support pin to 200 ft-lb.
8. Recheck the calibration and shift adjustment with a certified test weight. Make any adjustments as required. If an Enhanced DigiTOL J-Box is used, record the load cell zero load output and constants before leaving the site.

⚠ WARNING
Failure to torque mounting screws to specifications could result in property damage and/or bodily injury.

8 Service Parts



Overhead Track Scale Assembly			
Ref. Number	**Part Number**	**Description**	**Qty**
1	TB600489-2	1,250 lb Load Cell (30 ft cable)	2
1	TB600490-2	2,500 lb Load Cell (30 ft cable)	2
2	MZ0901010333	1/2 - 13 Socket Head Cap Screw x 1.75 in. Lg	12
	MZ0901010308	1/2 - 13 Socket Head Cap Screw S.S. x 1.75 in. Lg	12
3	TN400056-10	Support Block (Mild Steel)	2
	TN400057-10	Support Block (Stainless Steel)	2
4	TA400048-10	Base Weldment Mild Steel (2 ft rail)	1
	TA400041-10	Base Weldment Stainless Steel (2 ft rail)	1
	TA00058-10	Base Weldment Mild Steel (4 ft rail)	1
	TA00053-10	Base Weldment Stainless Steel (4 ft rail)	1
5	TN400046-10	Departure Rail Mild Steel x 2 ft Lg	1
	TN400039-10	Departure Rail Stainless Steel x 2 ft Lg	1
6	TN400045-10	Approach Rail Mild Steel x 2 ft Lg	1
	TN400038-10	Approach Rail Stainless Steel x 2 ft Lg	1
7	MZ0901010464	1/2 - 13 Flat Head Socket Screw x 1 in. Lg 2 ft live rail required	11

Overhead Track Scale Assembly			
Ref. Number	**Part Number**	**Description**	**Qty**
		4 ft live rail required	15
8	TA400047-10	Live Rail Mild Steel (2 ft)	1
	TA400040-10	Live Rail Stainless Steel (2 ft)	1
	TA400055-10	Live Rail Mild Steel (4 ft)	1
	TA400042-10	Live Rail Stainless Steel (4 ft)	1
9	TA400043-10	Backing Bar Mild Steel (2 ft rail)	1
	TA400036-10	Backing Bar Stainless Steel (2 ft rail)	1
	TA400054-10	Backing Bar Mild Steel (4 ft rail)	1
	TA400035-10	Backing Bar Stainless Steel (4 ft rail)	1
10	TN400034	Load Support Pin	2
11	TN400052	Neoprene Spacer	6
12	TN400050	Load Pin Ring Bearing	2
13	TN400049	Sleeve Bearing	2
14	TN400051	Sleeve Bushing	2
15	TN800595	Capacity Sticker	2

Junction Box			
Ref. No.	**Part Number**	**Description**	**Qty**
1	TB100391	Analog Junction Box Assembly Consists of: * 13640300A Analog PCB TA 800218 Desiccant Bag	1
	TB100515-3	DigiTOL Junction Box Assembly Consists of: * 13839900A DigiTOL PCB TA800218 Desiccant Bag	

* May have a letter prefix

9 Reference Material

Reference Drawings

Scale	Layout/Assembly Drawing
0990 Mild Steel	TB400060
0990 Stainless Steel	TB400059

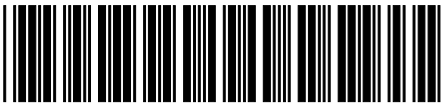
Recommended Spare Parts

Qty	Description
1	Load cell (capacity of cell required is per scale capacity)
1	Junction box circuit board (type of board is per model of scale)
1	Junction box desiccant bag

METTLER TOLEDO
Scales & Systems
6600 Huntley Road
Columbus, Ohio 43229-1012

P/N: 14859600A

(6/96)



14859600A