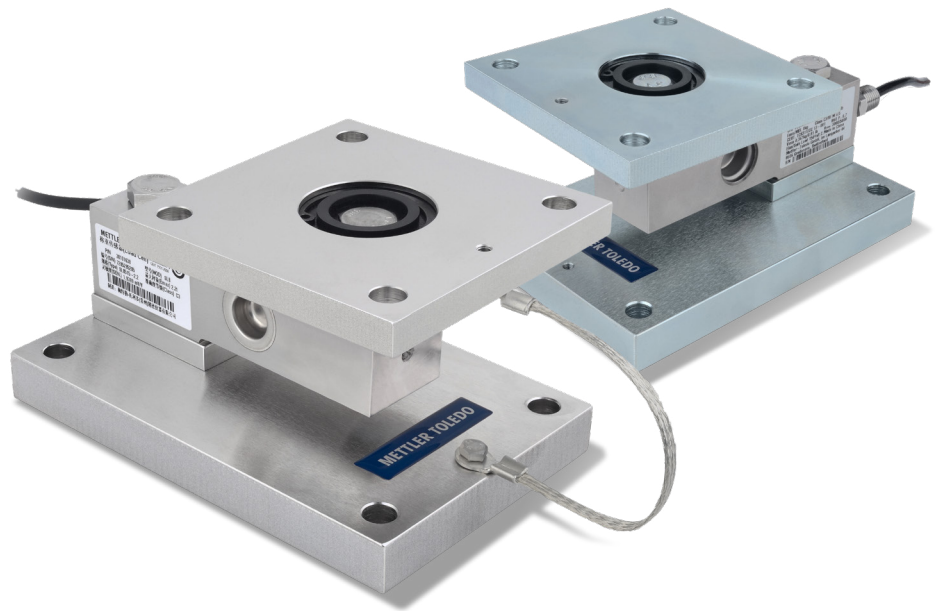


# SWB305 MultiMount™ Weigh Module



**METTLER TOLEDO**

## INTRODUCTION

This publication is provided solely as a guide for individuals who have received Technical Training in servicing the METTLER TOLEDO product.

Information about METTLER TOLEDO Technical Training can be obtained by writing, calling, or faxing:

### **METTLER TOLEDO**

1900 Polaris Parkway  
Columbus, Ohio 43240 USA  
Phone: (614) 438-4511  
Fax: (614) 438-4958  
[www.mt.com](http://www.mt.com)

© 2019 Mettler-Toledo, LLC

No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose without the express written permission of METTLER TOLEDO.

U.S. Government Restricted Rights: This documentation is furnished with Restricted Rights.

# 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.



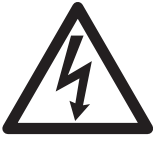







	<p style="text-align: center;"> <b>CAUTION</b></p>
	<p>PERMIT ONLY QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.</p>
	<p style="text-align: center;"> <b>CAUTION</b></p>
	<p>FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD, CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG.</p>
	<p style="text-align: center;"> <b>CAUTION</b></p>
	<p>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.</p>
	<p style="text-align: center;"> <b>CAUTION</b></p>
	<p>BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING 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.</p>

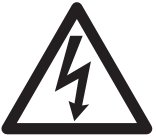











## Weighing System Design

<p style="text-align: center;"><b>NOTICE</b></p>
<p>THE SCALE AND ITS SUPPORT SYSTEM MUST BE DESIGNED BY A LOCALLY-QUALIFIED STRUCTURAL ENGINEER; THIS INCLUDES THE SELECTION OF WEIGH MODULES WHICH BECOME AN INTEGRAL PART OF THE SUPPORT STRUCTURE. THIS IS PARTICULARLY CRITICAL IF THE SCALE IS SUBJECT TO EXTRANEIOUS FORCES DUE, FOR EXAMPLE, TO WIND OR SEISMIC ACTIVITY. REFER TO THE WEIGH MODULE SYSTEMS HANDBOOK.</p>
<p style="text-align: center;"><b>NOTICE</b></p>
<p>DO NOT USE HERMETICALLY SEALED (WELDED) LOAD CELLS IN A VACUUM AS THEY MAY BE DAMAGED. CONTACT INDUSTRIAL SUPPORT FOR ASSISTANCE.</p>
<p style="text-align: center;"><b>NOTICE</b></p>
<p>EXTERNAL OR ON-BOARD VIBRATIONS CAN AFFECT SCALE PERFORMANCE. REFER TO THE WEIGH MODULE SYSTEMS HANDBOOK FOR MORE INFORMATION.</p>

<b>NOTICE</b>
IN SELECTING THE WEIGH MODULE RATED CAPACITY, CONSIDER ALL LOADS SUPPORTED BY THE WEIGH MODULES INCLUDING LIVE LOAD TO BE WEIGHED, THE DEAD DEAD LOAD OF THE SCALE AND THE WEIGHT OF SUPPORTED ANCILLARY EQUIPMENT (SUCH AS MIXERS) AND THAT OF HEATING/COOLING COILS AND FLUID. CONSIDER ALSO THE WEIGHT DISTRIBUTION IF NOT EVENLY DISTRIBUTED ON ALL WEIGH MODULES. REFER TO THE WEIGH MODULE SYSTEMS HANDBOOK.
<b>NOTICE</b>
LOAD CELLS AND WEIGH MODULES CAN BE DAMAGED IN WET, WASHDOWN AND CORROSIVE CONDITIONS. REFER TO THE WEIGH MODULES SYSTEMS HANDBOOK FOR MORE INFORMATION.
<b>NOTICE</b>
TEMPERATURE CHANGES CAN AFFECT SCALE ZERO POINT OR SENSITIVITY, CAUSE MECHANICAL BINDING OR DAMAGE TO THE LOAD CELLS. FOR MORE DETAILS REFER TO THE WEIGH MODULES SYSTEMS HANDBOOK.
<b>NOTICE</b>
IF A SCALE IS INSTALLED BETWEEN 2 ROOMS AT DIFFERENT PRESSURES (E.G., A THROUGH-FLOOR TANK INSTALLATION WITH A CLEAN ROOM ABOVE), THIS WILL AFFECT SCALE ACCURACY IF THE PRESSURE DIFFERENTIAL FLUCTUATES.
<b>NOTICE</b>
COMPRESSION WEIGH MODULES MUST BE INSTALLED BETWEEN TWO RIGID FRAMES OR SURFACES, REFER TO THE WEIGH MODULE SYSTEMS HANDBOOK FOR IMPORTANT INFORMATION ON THE DESIGN OF MOBILE SCALES. SCALE SENSITIVITY WILL BE AFFECTED IF THE SCALE LEVEL VARIES.


## Installation and Service

	 <b>CAUTION</b>
	CONFIRM WITH THE CUSTOMER THAT THE ENVIRONMENT IS SAFE FOR THE INSTALLATION OR SERVICE WORK TO BE PERFORMED. THIS IS PARTICULARLY IMPORTANT IN HAZARDOUS AREAS.
	 <b>CAUTION</b>
	INSTALLATION AND SERVICE SHOULD BE UNDERTAKEN ONLY BY SUITABLY QUALIFIED AND TRAINED PERSONNEL.
	 <b>CAUTION</b>
	PRIOR TO COMMENCING ANY WORK, REVIEW WITH THE CUSTOMER THE NATURE OF THE WORK TO BE PERFORMED AND COMPLY WITH THE CUSTOMER'S POLICIES AND PROCEDURES FOR WORKING IN THE VICINITY OF THE SCALE EQUIPMENT.
	 <b>CAUTION</b>
	CORDON OFF THE WORK AREA TO RESTRICT ACCESS. IF WORKING ON A MEZZANINE FLOOR OR ELEVATED PLATFORM, CORDON OFF THE AREA UNDERNEATH TO PREVENT INJURIES FROM FALLING OBJECTS.
	 <b>CAUTION</b>
	WEAR PROTECTIVE GEAR (E.G., GLOVES, HARD HAT, SAFETY SHOES) AS APPROPRIATE TO THE PRODUCT AND AS REQUIRED ON THE PARTICULAR WORK SITE.


	<p style="text-align: center;"> <b>CAUTION</b></p> <p>DISCONNECT ALL POWER FROM THIS UNIT BEFORE INSTALLING, CLEANING OR SERVICING, INCLUDING THE REMOVAL OF THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.</p>
	<p style="text-align: center;"> <b>CAUTION</b></p> <p>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.</p>
	<p style="text-align: center;"> <b>CAUTION</b></p> <p>IN CASE OF SCALE MOVEMENT OR OSCILLATION, STOP AND ISOLATE THE SCALE BEFORE CLEANING OR MAKING ANY ADJUSTMENTS TO THE WEIGH MODULES.</p>
	<p style="text-align: center;"> <b>CAUTION</b></p> <p>BE SURE TO BLOCK THE SCALE WHEN IT IS IN THE RAISED POSITION WHILE, FOR EXAMPLE, REPLACING A LOAD CELL. DO NOT RELY ON THE JACKING DEVICE ALONE. THE JACK AND BLOCK SHOULD STAND VERTICALLY AND SECURELY CONTACT THE FOUNDATION AND SCALE ABOVE. IF THE SCALE IS NOT SECURELY BLOCKED, IT COULD SHIFT POSITION RESULTING IN BODILY HARM OR PROPERTY DAMAGE. OBSERVE ALL APPROPRIATE SAFETY PROCEDURES RELATED TO LIFTING AND JACKING.</p>
	<p style="text-align: center;"> <b>CAUTION</b></p> <p>IF OPERATING IN A HAZARDOUS AREA, THE HAZARDOUS AREA MUST BE MADE SAFE PRIOR TO INSTALLATION, REPLACEMENT OR TROUBLESHOOTING. FAILURE TO COMPLY COULD RESULT IN PERSONAL INJURY, DEATH, AND/OR PROPERTY DAMAGE. THE FOLLOWING CONDITIONS SHOULD BE FULFILLED:</p> <ol style="list-style-type: none"> <li>1. THE AREA HAS BEEN RENDERED SAFE AND THE CUSTOMER'S SAFETY COORDINATOR HAS CONFIRMED THAT THERE IS NO DANGER. ENSURE THAT ALL INSTRUCTIONS RELATED TO SAFETY ISSUED BY THE CUSTOMER CAN BE COMPLIED WITH.</li> <li>2. THE CUSTOMER HAS ISSUED A PERMIT ("SPARK PERMIT" OR "FIRE PERMIT")</li> <li>3. THE NECESSARY TOOLS AND ANY REQUIRED PROTECTIVE CLOTHING ARE PROVIDED (DANGER OF THE BUILD-UP OF STATIC ELECTRICITY).</li> </ol>
	<p style="text-align: center;"> <b>CAUTION</b></p> <p>INSTALL EQUIPMENT IN A HAZARDOUS AREA ONLY IF THE FOLLOWING CONDITIONS ARE FULFILLED:</p> <ol style="list-style-type: none"> <li>1. THE EQUIPMENT HAS BEEN DEEMED SUITABLE FOR THE PARTICULAR HAZARDOUS AREA. AS APPROPRIATE, ENSURE THAT THE INTRINSICALLY SAFE CHARACTERISTIC VALUES AND DIVISION/ ZONE APPROVALS OF THE INDIVIDUAL COMPONENTS ARE IN ACCORD WITH ONE ANOTHER.</li> <li>2. THE EQUIPMENT CAN BE INSTALLED IN ACCORDANCE WITH ITS INSTALLATION INSTRUCTIONS</li> <li>3. THE EQUIPMENT CAN BE INSTALLED AND POWERED IN ACCORDANCE WITH REGULATIONS, STANDARDS AND STATUTORY REQUIREMENTS FOR ELECTRICAL AND MECHANICAL SYSTEMS IN HAZARDOUS AREAS FOR THE RESPECTIVE COUNTRY.</li> <li>4. INSTALL ALL COMPONENTS IN HAZARDOUS AREAS IN SUCH A WAY AS TO AVOID IMPACTS &amp; FALLING OBJECTS</li> <li>5. IN THE EU, MECHANICAL EQUIPMENT INSTALLED IN HAZARDOUS AREAS MUST COMPLY WITH EN ISO 80079-36, NON-ELECTRICAL EQUIPMENT FOR EXPLOSIVE ATMOSPHERES. CONSULT THE METTLER TOLEDO ATTESTATION OF CONFORMITY KEMA 211129000 FOR A LISTING OF SUITABLE EQUIPMENT.</li> </ol>

<b>NOTICE</b>	
FAILURE TO INSTALL LOAD CELLS, WEIGH MODULES AND ASSOCIATED PARTS IN STRICT CONFORMITY WITH THIS DOCUMENT MAY RESULT IN MALFUNCTION OR WEIGHING INACCURACY, AND MAY PERMANENTLY DAMAGE THE EQUIPMENT.	
<b>NOTICE</b>	
TAKE CARE WHEN LOWERING THE SCALE ONTO THE WEIGH MODULE(S) NOT CREATE ANY SHOCK LOADS THAT COULD DAMAGE A WEIGH MODULE AND/OR ITS LOAD CELL.	
<b>NOTICE</b>	
DO NOT SHORTEN THE CABLE ON ANALOG LOAD CELLS AS THIS WILL AFFECT THE TEMPERATURE SENSITIVITY.	
<b>NOTICE</b>	
DO NOT PASS WELDING CURRENT THROUGH THE LOAD CELLS! WHEN WELDING ON A SCALE, POSITION THE GROUND CLAMP AS CLOSE AS POSSIBLE TO THE WELD SITE AND SUCH THAT THE WELDING CURRENT FLOWS DIRECTLY TO THE CLAMP WITHOUT PASSING THROUGH ANY LOAD CELL. SHIELD THE LOAD CELL CABLE FROM WELD SPATTER. NEVER WELD WITHIN 4 FEET (1.2 METERS) OF ANY LOAD CELL WITHOUT REMOVING THE LOAD CELL.	
<b>NOTICE</b>	
THE WEIGH MODULE'S TOP AND BOTTOM PLATES MUST BE SUPPORTED SUFFICIENTLY TO AVOID ANY DEFORMATION OF THESE PLATES UNDER LOAD. YOU CAN FULLY SUPPORT THE BASE PLATE BY GROUTING UNDER IT OR BY SHIMMING AT MULTIPLE LOCATIONS. IT IS PARTICULARLY IMPORTANT TO SUPPORT THE TOP AND BASE PLATES OPPOSITE THE POINT OF CONTACT WITH THE LOAD CELL AND/OR ITS RECEIVERS.	
<b>NOTICE</b>	
REMOVE ALL SHIPPING/INSTALLATION COMPONENTS SUCH AS SAFELOCKS BEFORE CALIBRATION AND WEIGHING FOR THE FIRST TIME. THIS DOES NOT APPLY IF A WEIGH MODULE KIT IS USED AS A DEADSTAND.	
<b>NOTICE</b>	
LIFT-OFF BOLTS, WHERE USED, MUST BE LOCKED IN POSITION AS DESCRIBED FOR THE LIFT-OFF FUNCTION TO OPERATE CORRECTLY. FAILURE TO DO SO MAY RESULT IN BODILY HARM OR DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT.	

## Use and Routine Maintenance

	<b>CAUTION</b>
	<p><b>IN HAZARDOUS AREAS:</b></p> <ol style="list-style-type: none"> <li>1. AVOID STATIC ELECTRICITY BUILD-UP ON NON-CONDUCTIVE PARTS AT ALL TIMES. IN PARTICULAR, AVOID ANY HIGHLY EFFICIENT CHARGE GENERATING MECHANISMS TO AVOID PROPAGATING BRUSH DISCHARGES.</li> <li>2. CLEAN NON-CONDUCTIVE PARTS (FOR EXAMPLE, PLASTIC AND PAINTED PARTS) WITH A DAMP CLOTH ONLY, TO AVOID ELECTROSTATIC CHARGING.</li> </ol>
<b>NOTICE</b>	
DO NOT OVERLOAD THE SCALE BY EXCEEDING SCALE CAPACITY.	
<b>NOTICE</b>	
EXERCISE CARE IN LOADING A SCALE TO AVOID SHOCK DAMAGE TO THE LOAD CELLS; THIS CAN OCCUR IF HEAVY SOLID OBJECTS ARE DROPPED OR LOWERED QUICKLY ONTO IT. REFER TO THE WEIGH MODULE SYSTEMS HANDBOOK.	
<b>NOTICE</b>	
IN CASE OF SCALE MOVEMENT OR OSCILLATION, STOP AND ISOLATE THE SCALE BEFORE CLEANING THE WEIGH MODULES.	

<b>NOTICE</b>
<b>BUILD-UP OF DEBRIS AROUND THE WEIGH MODULE, ESPECIALLY CAKING MATERIAL, CAN SERIOUSLY HAMPER SCALE PERFORMANCE. REMOVE DEBRIS REGULARLY.</b>
<b>NOTICE</b>
<b>ICE BUILD-UP AROUND THE WEIGH MODULE CAN SERIOUSLY HAMPER SCALE PERFORMANCE AND MAY DAMAGE THE LOAD CELL. AVOID STANDING WATER, ESPECIALLY IN AREAS WHERE IT CAN FREEZE.</b>
<b>NOTICE</b>
<b>SNOW, ICE, CONDENSATION OR DEBRIS BUILD-UP ON A SCALE WILL DIRECTLY IMPACT THE WEIGHT READING AND WEIGHING ACCURACY. REFER TO THE WEIGH MODULE SYSTEMS HANDBOOK.</b>
<b>NOTICE</b>
<b>CHANGES IN THE MASS OF FLUID IN HEATING/COOLING COILS OR JACKETS WILL DIRECTLY IMPACT THE WEIGHT READING AND WEIGHING ACCURACY. AVOID THE BUILD-UP OF CONDENSATE IN STEAM-HEATED JACKETS.</b>
<b>NOTICE</b>
<b>WIND AND DRAFTS ACTING ON THE UNDERSIDE, SIDE, OR TOP OF A SCALE CAN AFFECT WEIGHING ACCURACY.</b>

	<h2>Disposal of Electrical and Electronic Equipment</h2>
	<p>In conformance with the European Directive 2002/96 EC on Waste Electrical and Electronic Equipment (WEEE) this device may not be disposed of in domestic waste. This also applies to countries outside the EU, per their specific requirements.</p> <p>Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment.</p> <p>If you have any questions, please contact the responsible authority or the distributor from which you purchased this device.</p> <p>Should this device be passed on to other parties (for private or professional use), the content of this regulation must also be related.</p> <p>Thank you for your contribution to environmental protection.</p>



# Contents



# Contents

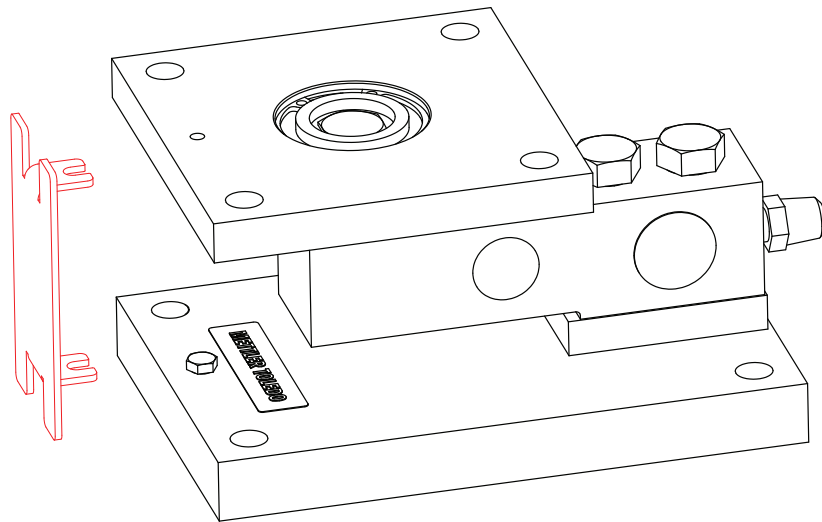
<b>1</b>	<b>Introduction .....</b>	<b>2</b>
1.1	General .....	2
1.2	Weigh Module Configurations .....	3
1.3	Specifications .....	4
1.4	Power Supply Requirements .....	6
1.5	Approvals .....	6
1.6	Dimensions .....	7
<b>2</b>	<b>Inspection and Site Selection .....</b>	<b>8</b>
2.1	Inspection .....	8
2.2	Site Selection .....	8
<b>3</b>	<b>Installation .....</b>	<b>9</b>
3.1	General Installation Guidelines .....	9
3.2	Weigh Module Orientation .....	10
3.3	Installation and Maintenance .....	11
3.4	Procedures .....	12
3.5	Wiring .....	18
3.6	Home-Run Cable Connection .....	23
<b>4</b>	<b>Calibration .....</b>	<b>24</b>
4.1	Shift Adjust .....	24
4.2	Calibration with Test Weights .....	26
4.3	Calibration with Test Weights and Material Substitution .....	26
4.4	Calibration with Material Transfer .....	26
4.5	Electronic Calibration .....	27
<b>5</b>	<b>Routine Care and Maintenance .....</b>	<b>28</b>
5.1	General .....	28
<b>6</b>	<b>Troubleshooting .....</b>	<b>29</b>
6.1	General .....	29
6.2	Isolate the Problem .....	30
6.3	Check Wiring .....	30
6.4	Check Load Cells .....	31
6.5	Check Mechanical Components .....	32
<b>7</b>	<b>Service Parts .....</b>	<b>33</b>
7.1	Weigh Modules .....	33
7.2	SWB305 Spare Parts Kits .....	34
7.3	Replacement Load Cells .....	35
<b>8</b>	<b>Reference Material .....</b>	<b>36</b>
8.1	Reference Drawings .....	36
8.2	Recommended Spare Parts .....	36



# 1 Introduction

## 1.1 General

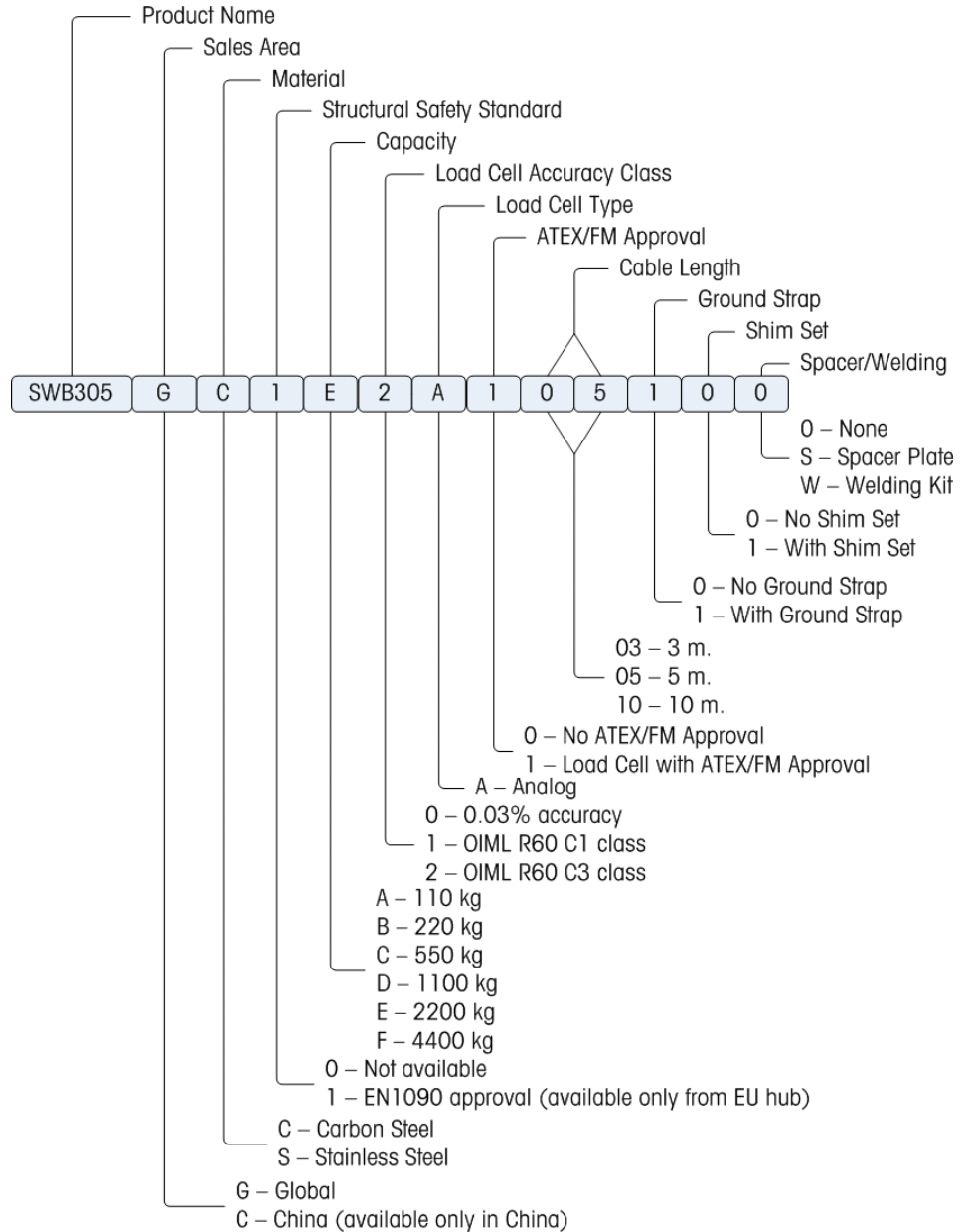
SWB305 MultiMount™ weigh modules are used to convert tanks, hoppers, and other structures into scales. Each weigh module consists of a load cell and the mounting hardware needed to attach it to a structure. The weigh modules are available in capacities of 110 to 4,400 kilograms (250 to 10,000 pounds).



**Figure 1-1: Weigh Module Assembly**

## 1.2 Weigh Module Configurations

The SWB305 is a VC product, with top level item number 30431200. Configuration options are as follows:



**Figure 1-2: SWB305 Configurations**

## 1.3 Specifications

### 1.3.1. Weigh Module

Weigh Module	Unit of Measure	Specification					
Model No.		SWB305 MultiMount™					
Size		2					3
Rated Capacity	kg (lb, nominal)	110 (250)	220 (500)	550 (1250)	1100 (2500)	2200 (5000)	4400 (10000)
Max. Rated Forces <sup>1</sup>							
Max. Compressive Force, Rated	kN (lb)	1.1 (250)	2.2 (500)	5.4 (1250)	10.8 (2500)	21.6 (5000)	43.2 (10000)
Max. Horizontal Force, Rated	transverse	kN (lb)	1.1 (250)	2.2 (500)	4 (900)		11.4 (2500)
	longitudinal						
Max. Uplift Force, Rated	kN (lb)	1.1 (250)	2.2 (500)	5.4 (1250)	10.8 (2500)	11.3 (2500)	23.7 (5300)
Max. Yield Forces <sup>2,4</sup>							
Max. Compressive Force, Yield	kN (lb)	1.62 (375)	3.2 (750)	8.1 (1875)	16.2 (3750)	23.3 (5120)	64.8 (14342)
Max. Horizontal Force, Yield	transverse	kN (lb)	1.1 (250)	2.2 (500)	5.4 (1200)		15.8 (3500)
	longitudinal						
Max. Uplift Force, Yield	kN (lb)	1.62 (375)	3.2 (750)	8.1 (1875)	15.8 (3500)		33 (7400)
Max. Ultimate Forces <sup>3,4</sup>							
Max. Compressive Force, Ultimate	kN (lb)	3.3 (750)	6.6 (1000)	16.2 (3750)	32.4 (7500)	48 (11000)	124 (14000)
Max. Horizontal Force, Ultimate	transverse	kN (lb)	1.1 (250)	2.2 (500)	5.4 (1250)	10.8 (2500)	12 (3000)
	longitudinal						
Max. Uplift Force, Ultimate	kN (lb)	3.3 (750)	6.6 (1000)	16.2 (3750)	24 (5500)	24 (5500)	62 (14000)
Max. Top Plate Travel	transverse	± mm (in)	2 (0.08)				2.5 (0.1)
	longitudinal						
Weight (including load cell), nominal	kg (lb)	5.5 (12.1)				5.8 (12.8)	12.5 (27.6)
Material		Carbon steel / 304 stainless steel / gasket material NBR					
Finish		Zinc Plated / Electropolished					

1. The weigh module is rated for these forces in normal operation. A Factor of Safety has been applied by METTLER TOLEDO.
2. Warning: If loaded statically one time in excess of these forces, the weigh module may yield and need to be replaced. The Max. Yield Forces do not consider fatigue/cyclic loading and should be approached only in exceptional circumstances.
3. Warning: If loaded statically one time in excess of these forces, the weigh module may break with potential for serious injury and/or property damage.
4. Warning: Apply a Factor of Safety appropriate to the application.

### 1.3.2. Load Cell

Load Cell			Unit of Measure	Specification					
Default load cell item No.	C3/III M n:5 (CS)	SLB215		30328249					
	0.03%	SLB515		3010611					
	C3 / III M n:5 (CS)	SLB215			72258650	72258656	72258693	72258699	
	C3 / III M n:5 (SS)	SLB515			30101617	30101623	30101629	30101635	
	C1 / III M n:1.6 (CS)	SLB215			72258714				
	C1 / III M n:1.6 (SS)	SLB515			30101642				
Model No.				SLB215/SLB515					
Rated Capacity (R.C.)			kg (lb, nominal)	110 (250)	220 (500)	550 (1250)	1100 (2500)	2200 (5000)	4400 (10000)
Rated Output			mV/V @R.C. kg	0.970 ± 0.2%	1.940 ± 0.1%				
			mV/V @R.C. lb	1.000 ± 0.2%	2.000 ± 0.1%				
Combined Error <sup>1,2</sup>			% R.C.	≤ 0.03	≤ 0.0018			≤ 0.03	
Temperature Effect on	Min. Dead Load Output		% R.C./°C (..°F)	≤ 0.0032 (0.0018)	≤ 0.0013 (0.0007)			≤ 0.0002 (0.0001)	
	Sensitivity <sup>2</sup>		% A.L./°C (..°F)	≤ 0.001 (0.0006)	≤ 0.001 (0.0006)			≤ 0.0002 (0.0001)	
Temperature Range	Compensated		°C (°F)	-10 ~ +40 (+14 ~ +104)					
	Operating			-40 ~ +65 (-40 ~ +150)					
	Storage			-40 ~ +80 (-40 ~ +176)					
OIML/European Approval <sup>3</sup>	Class		g	C3				C1	
	nmax			3000				1000	
	Vmin			37	92	183	367	730	
NTEP Approval <sup>3</sup>	Class		lb	IIIM					
	nmax			5000				1600	
	Vmin			0.08	0.2	0.4	0.81	1.62	
ATEX Approval <sup>3</sup>	Rating		Carbon steel: II 2 G Ex ib IIC T4 Gb / II 2 D Ex ib IIIC T100°C Db 304 stainless steel: II 2 G Ex ia IIC T4 Gb / II 2 D Ex ib IIIC T100°C Db						
	Rating		II 3 G Ex ic IIC T4 Gc / II 3 G Ex nA IIC T4 Gc / II 3 D Ex tc IIIC T100°C Dc						
Factory Mutual Approval <sup>3</sup>	Rating, USA		IS / I, II, III / 1 / ABCDEFG / T4 Ta = -40°C to 50°C						
	Rating, Canada		NI / I / 2 / ABCD / T6 Ta = -40°C to +50°C ; S / II,III / 2 / FG / T6 Ta = -40°C to +50°C						
	Rating, Canada		304 stainless steel: IS / I,II,III / 1 / ABCDEFG / T4 Ta = -40°C to +50°C						
Excitation Voltage	Recommended		V AC/DC	5 - 15					
	Max			15					
Terminal Resistance	Excitation		Ω	382 ± 4					
	Output			350 ± 1					
Material	Spring Element		Nickel plated steel / Stainless Steel						
Protection	Type		Welded						
	IP Rating		IP67 (carbon steel); IP68, IP69K (stainless steel)						
	NEMA Rating		NEMA 6/6P						
Cable	Length		m (ft)	PU: 5 (16.4)				PU: 10 (33)	
	Diameter		mm (in)	5.2 (0.2)					

1. Error due to the combined effect of non-linearity and hysteresis.
2. Typical values only. The sum of errors due to Combined Error and Temperature Effect on Sensitivity comply with the requirements for OIML R60 and NIST HB44.
3. See certificate for complete information.

## 1.4 Power Supply Requirements

A METTLER TOLEDO digital scale terminal is used to power the analog load cells. Refer to the terminal's service manual for the terminal's power requirements.

## 1.5 Approvals

### NOTICE

**THE 110 kg (250 lb) CAPACITY LOAD CELL IS NOT CERTIFIED BY NTEP OR OIML.**

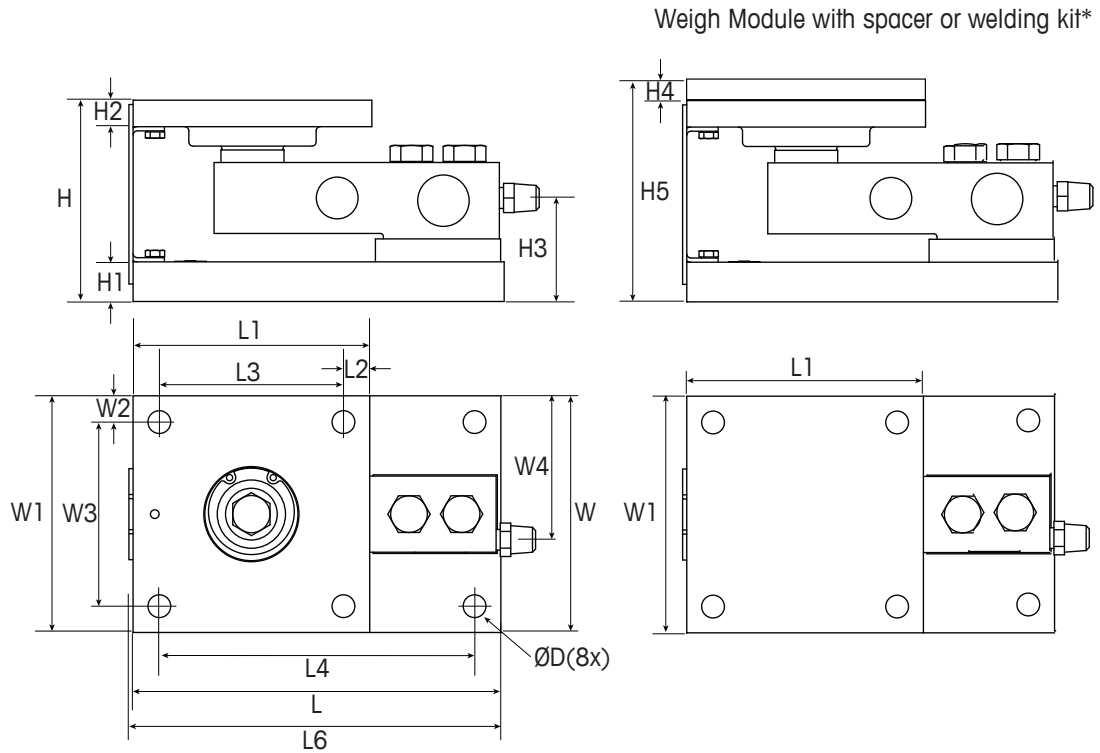
#### **NTEP Certification**

Model SLB215 and SLB515 load cells meet or exceed NIST Handbook-44 requirements for Class III 5,000 divisions (multiple cell). A Certificate of Conformance was issued under the National Type Evaluation Program (NTEP) of the National Conference of Weights and Measures.

#### **OIML Certification**

Model SLB215 and SLB515 load cells meet or exceed OIML requirements for R60 C3 3,000 divisions.

## 1.6 Dimensions



**Figure 1-3: Key to SWB305 Dimensions**

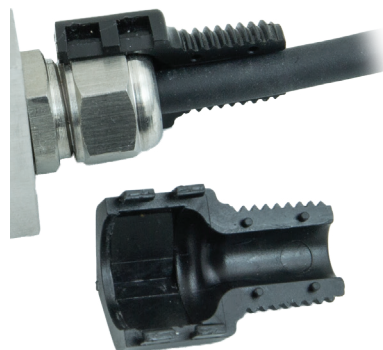
\* Mandatory for top welding installation

**Table 1-1: Weigh Module Dimensions**

Size	Capacity	D	H	H1	H2	H3	H4	H5	L	L1	L2	L3	L4	L5	L6	W	W1	W2	W3	W4
2	110 kg - 1.1 t (250 lb - 2.5 klb)	11.2 (0.44)	96.5 (3.8)	19.0 (0.75)	12.7 (0.50)	52.4 (2.06)	9.1 (0.36)	105.6 (4.16)	177.9 (7.00)	114.4 (4.50)	12.7 (0.50)	89.0 (3.50)	152.4 (6.00)	12.7 (0.50)	179.9 (7.08)	114.4 (4.50)	114.4 (4.50)	12.7 (0.50)	89.0 (3.50)	66.1 (2.60)
	49.6 (1.95)					69.9 (2.74)														
3	4.4t (10 klb)	17.5 (0.69)	125.2 (4.93)	22.0 (0.87)	18.0 (0.71)	61.7 (2.43)	11.4 (0.45)	136.6 (5.38)	235.0 (9.25)	152.4 (6.00)	25.4 (1.00)	101.6 (4.00)	184.2 (7.25)	25.4 (1.00)	237.0 (9.33)	152.4 (6.00)	152.4 (6.00)	25.4 (1.00)	101.6 (4.00)	91.7 (3.61)

NOTE: Dimensions are given in mm and (inches)

NOTE: Cable entry fitting has 1/4"-18 NPT thread (for SLB215 load cell only). Adaptor 30095581 (Figure 1-4) can be used to adapt SLB515 to conduit with a 1/4-18 NPT Thread



**Figure 1-4: Conduit Adapter**



## 2 Inspection and Site Selection

### 2.1 Inspection

When you receive your weigh modules, visually inspect the packing containers and weigh modules for freight damage. Inspect the following items:

- Load cell and suspension assemblies
- Load cell cables and junction box (if included)
- Overall assembly

If you find damage, contact your freight carrier immediately. Fill out the enclosed warranty card and return the weigh module to the address indicated.

### 2.2 Site Selection

Problems installing weigh modules are often caused by inappropriate site conditions. Before installing the weigh modules, make sure the site meets the following criteria:

- All support surfaces must be level and in the same plane within 3 mm (1/8 inch).
- At each weigh module location, the floor or structure must provide adequate support and equal deflection throughout the scale's weighing range.
- Throughout the scale's weighing range, the top plate should not deflect more than 0.5 degree with respect to the bottom plate.
- Proper drainage away from each of the weigh modules.
- No heavy vibrations or wind currents at or near the scale.
- Access around each weigh module for installation and service.
- Locations on the scale to add test weights for calibration.
- Access to the scale for moving test weights to the scale's loading locations.
- A position near the scale to mount the junction box (Do not mount the junction box on the live portion of the scale).
- No excessive or unusual loading caused by the site or type of equipment mounted to the weigh modules.
- Shared foundation: Does the vessel to be weighed have an exclusive, isolated support foundation? Does it share supports with other vessels? If the vessel shares a foundation, the scale's accuracy might be affected by the weight of other structures on the foundation.

If the site meets the criteria listed here, proceed with the installation. Otherwise, make necessary adjustments before installing the weigh modules.

## 3 Installation

### 3.1 General Installation Guidelines

Each application has its own unique requirements and should be planned by a qualified structural engineer. This manual is meant to serve only as a general guide for installation.

#### **Use the Right Number of Weigh Modules**

A typical system uses either three or four weigh modules. The exact number is usually determined by the structure that they will support. Each weigh module in a system should support the same amount of weight (within 20%). When you use more than four weigh modules in a system, it is more difficult to distribute the structure's weight evenly among the support points. However, the maximum number of weigh modules in a system is limited only by the scale terminal's ability to power all the load cells.

#### **Provide Adequate Structural Support**

Tank legs or structural support lugs should be rigid enough to prevent the support points from deflecting under load.

#### **Connect Piping Properly**

Piping connected to a tank can affect weighing accuracy by exerting unwanted forces on the scale. Keep piping connections to a minimum and make sure they are flexible enough to allow the tank to deflect freely as weight is added.

#### **Protect Load Cells from Damage**

- Load cells can be damaged if too much weight is placed on them.
- Do not pass welding current through the load cells.

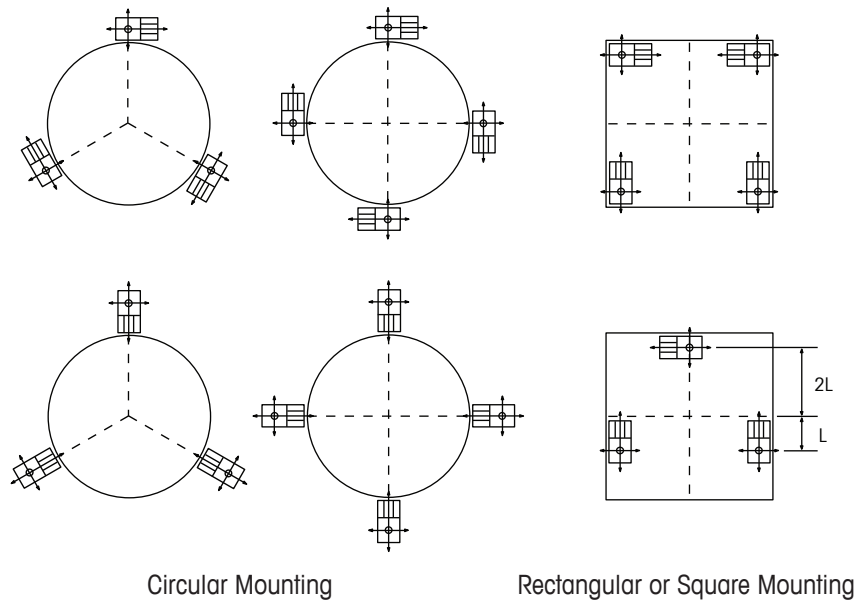
#### **Do Not Cut Load Cell Cables**

Cutting a cable will affect compensation and void the warranty.

## 3.2 Weigh Module Orientation

Before installing the weigh modules, decide how they will be arranged. Space the weigh modules evenly so that each one supports approximately the same amount of weight.

In most applications, three or four weigh modules are used to support the scale structure. Figures 3-1 and 3-2 show recommended mounting arrangements.



**Figure 3-1: Plan View of Mounting Arrangements**

### 3.3 Installation and Maintenance



Several methods of installation can be used to install the SWB305. These are outlined below. The installation procedure will depend on the specific requirements of an application. One of the first things to consider is the foundation on which the scale will be placed. This is usually a concrete floor or steel beams. Whichever you are using, you will need to make sure that the foundation is level and strong enough to remain rigid under the weight of the scale when loaded to gross capacity.

#### 3.3.1 Tools Required

The following tools are required to perform these procedures:

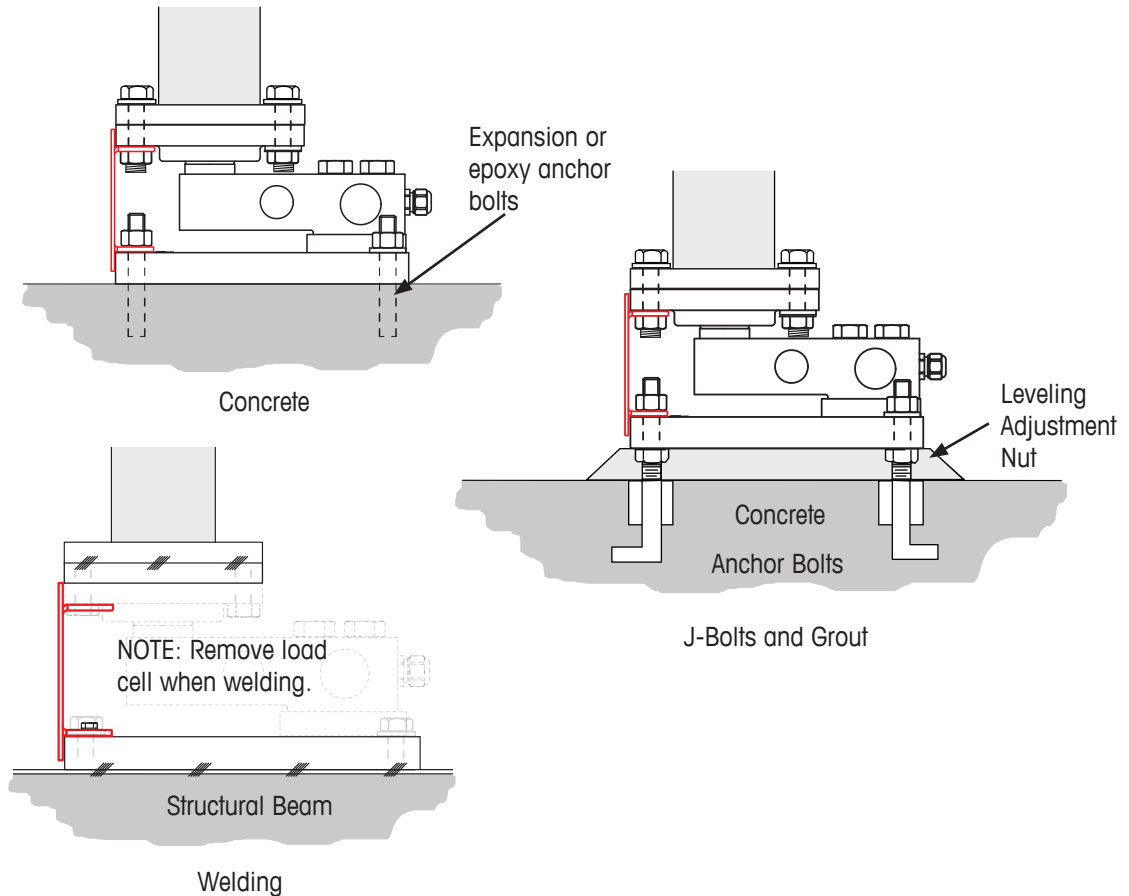
- Internal Snap Ring Pliers
- 8mm Open End Wrench
- Socket Wrench
- 16mm Socket
- 18mm Socket
- 30mm Socket
- Torque Wrench
- Loctite Anti-Seize Food Grade - 1167237
- Semi-Permanent Loctite 243

### 3.3.2 Preparation

	 <b>WARNING</b>
	<b>BE SURE TO BLOCK THE SCALE WHEN IT IS IN THE RAISED POSITION. IF THE SCALE IS NOT SECURELY BLOCKED, IT COULD SHIFT POSITION, RESULTING IN BODILY HARM OR PROPERTY DAMAGE.</b>
<b>NOTICE</b>	
<b>IN CASE OF SCALE MOVEMENT OR OSCILLATION, STOP AND ISOLATE THE SCALE BEFORE CLEANING OR MAKING ANY ADJUSTMENTS TO THE WEIGH MODULES.</b>	

**Table 3-1: Bearing Support and Mounting Bolt Requirements**

Size	Capacity lb (kg)	Base Plate Bearing Psi (K Pascal)	Top Plate Bolts (Metric)	Base Plate Bolts (Metric)	Carbon Steel Bolt Grade	Stainless Steel Bolt Grade
2	250-5,000 (110-2,200)	159 (1,094)	3/8-16 UNC (M10 x 1.5)	3/8-16 UNC (M10 x 1.5)	US: Grade 5 Metric: Grade 8.8	US: F593 Metric: A2-70
3	10,000 (4,400)	180 (1,242)	5/8-11 UNC (M16 x 2)	5/8-11 UNC (M16 x 2)		

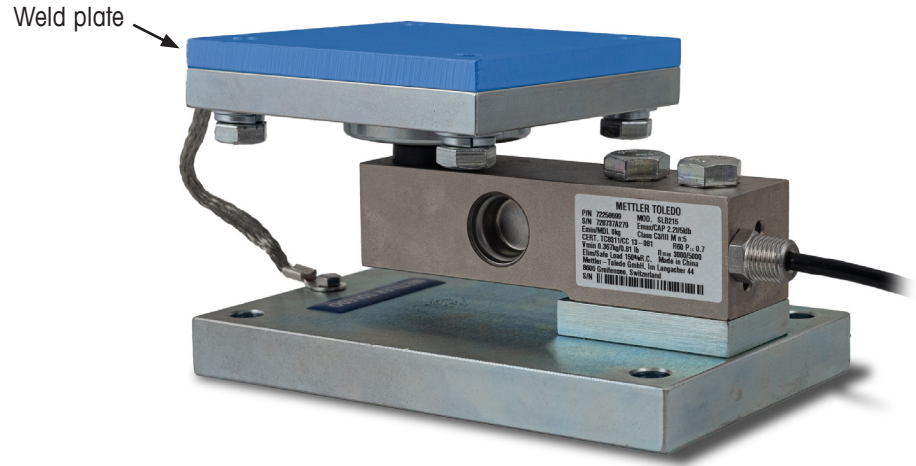


**Figure 3-2: Installation Alternatives**

## 3.4 Procedures

### 3.4.1 Top Plate and Base Plate Installation

The top plate must never be welded in place, as it must be accessible for service. If a welded connection is necessary, an optional welding plate can be used.



**Figure 3-3: Weld Plate**

The module and load cell should be removed while the weld plate and base plate are being welded into place. Always ground the welder as close as possible to the weld. Weld sizes are as follows:

#### Size 2 and 3

- Fillet: 9 mm (3/8")
- 25 mm (1") long, 75 mm (3") centers, 50 mm (2") between welds

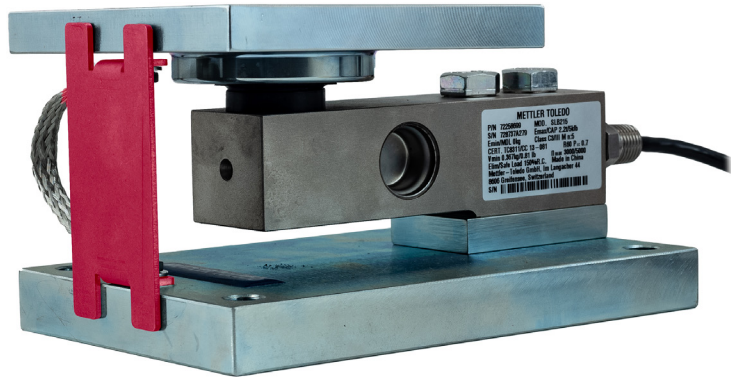
### 3.4.2 Bolting

The top and base plates can also be bolted in place. Refer to Table 3-1, above, for bolt sizes and grades.

The top plate should be level to within 0.5 degrees. Shim the top plate and base plate as necessary to provide continuous support and bring the top plate into level. Optional shims are also available in 0.5 mm and 1 mm thickness (see **Spacer Plate Installation**, below) to bring all modules into the same plane within 3 mm (1/8").

### 3.4.3 Alignment Plate Removal

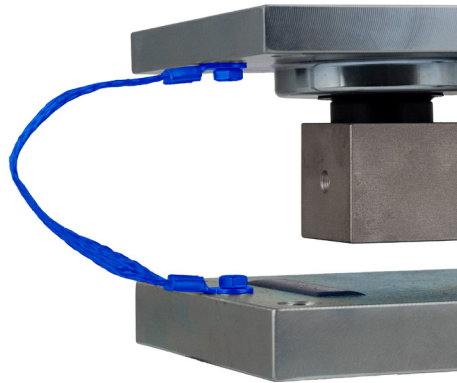
The SWB305 comes with an alignment plate mounted (indicated in red, below), to aid installation. The plate is designed for alignment only, and is not designed to take any load or to be used to support any structure. The alignment plate is held in place by (2) M5 screws. Once installation is complete, remove both screws with an open ended 8 mm wrench. The screws can be used to attach the optional ground strap.



**Figure 3-4: Alignment Plate**

### 3.4.4 Ground Strap Installation

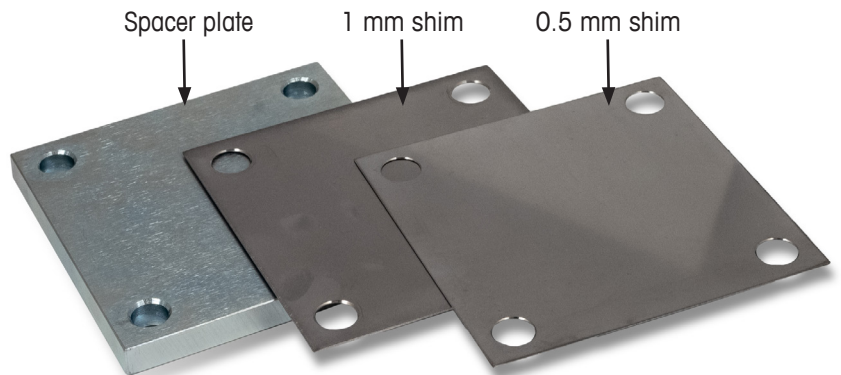
With the alignment plate removed, its mounting screws can be used to attach the ground strap in the same location.



**Figure 3-5: Ground Strap**

### 3.4.5 Spacer Plate and Shims

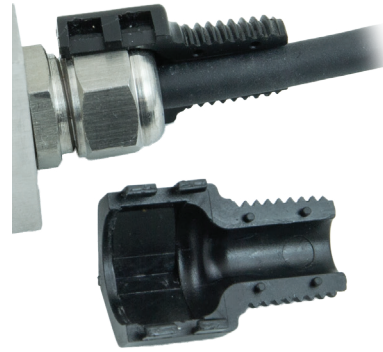
When the SWB305 is used to replace O958 FlexMount/Centerlign or MultiMount weigh modules, the optional spacer plate (with through holes) and shims can be used to match the height of the original modules.



**Figure 3-6: Spacer Plate and Shims**

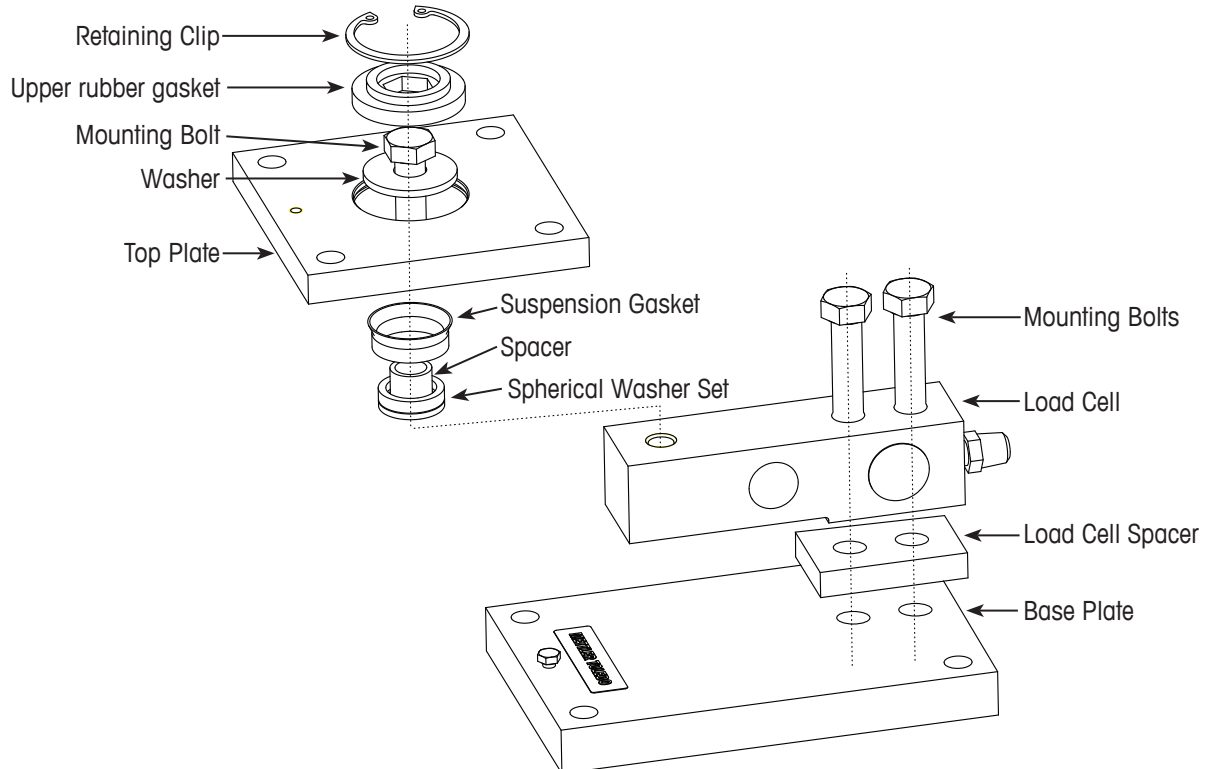
**3.4.6 Conduit Adapter**

An optional conduit adapter (item number 64073058) can be used to run conduit to modules equipped with the SLB215 load cell. The adapter has 1/4"-18 NPT internal threads and 1/2"-14 NPT external threads. Adapter 30095581 can be used to adapt SLB515 to conduit with a 1/4"-18 NPT male Thread.



**Figure 3-7: Conduit Adapter**

**3.4.7 Load Cell Replacement Procedure**



**Figure 3-8: Key to Components**

To replace the load cell, perform this procedure:

1. Support the vessel.
2. Break load cell bolts loose.
3. Unbolt the module and separate it from the vessel.



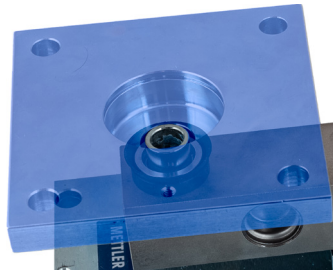
4. Remove the top plate:
  - a. Use the snap ring pliers to remove the snap ring then remove the self-centering rubber gasket.



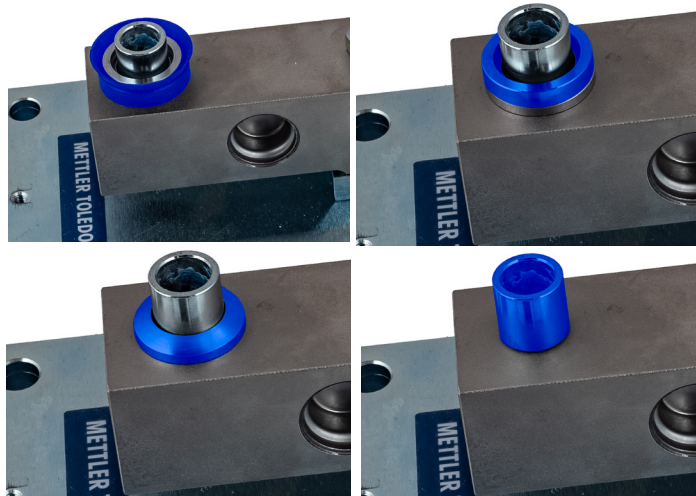
- b. Loosen the mounting bolt and remove the bolt and its washer.



- c. Remove the top plate.



- d. Remove the suspension gasket, sleeve and upper and lower spherical washers.



4. Loosen the load cell bolts.



5. Remove the load cell from the base plate..

To install the replacement load cell, follow steps 1 to 5 in reverse order, being careful to ensure that the load cell is parallel to the base plate. Also, inspect all rubber gaskets for wear, and replace as necessary.

### 3.4.8 Load Cell Replacement Notes

**Table 3-2: Torque Values for Load Cell Mounting Bolts**

Size	Torque, N m	Torque, lb-ft
2	98	72
3	300	221

Lubricate the spherical washers with a food-grade anti-seize lubricant (Loctite 1167237) and apply Loctite 243 to the threads of both the load cell bolts and the top plate bolt. Be sure to install the spherical washers in the orientation indicated:



### 3.4.9 Washer and Seal Replacement

To replace the spherical washers and seals, follow the procedure described above; at step **3d**, remove the worn seal and bearings. Before installing replacement parts, apply Loctite anti-seize to the surfaces of the upper and lower spherical bearings.



Reassemble the weigh module as described after step **5**, above, under **Load Cell Replacement**. When installing the anti-lift bolt, apply Loctite 243 to the threads, and tighten the bolt to 50 Nm (37 ft-lb) for size 2 and 98 Nm (72 ft-lb) for size 3.



### 3.5 Wiring

#### 3.5.1 Analog Mode

SWB305 weigh modules can be used with an analog junction box for summing the load cell outputs. Only analog-compatible scale terminals work with an analog junction box. See Figures 3-9 and 3-10, and Table 3-3 for cable connections.

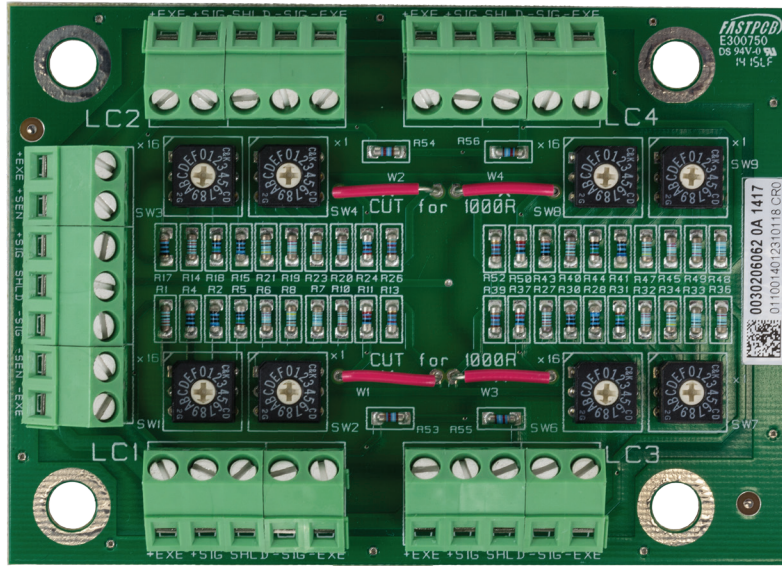


Figure 3-9: Precision Junction Box PCB (Dual Rotary Switch Shift Adjust)

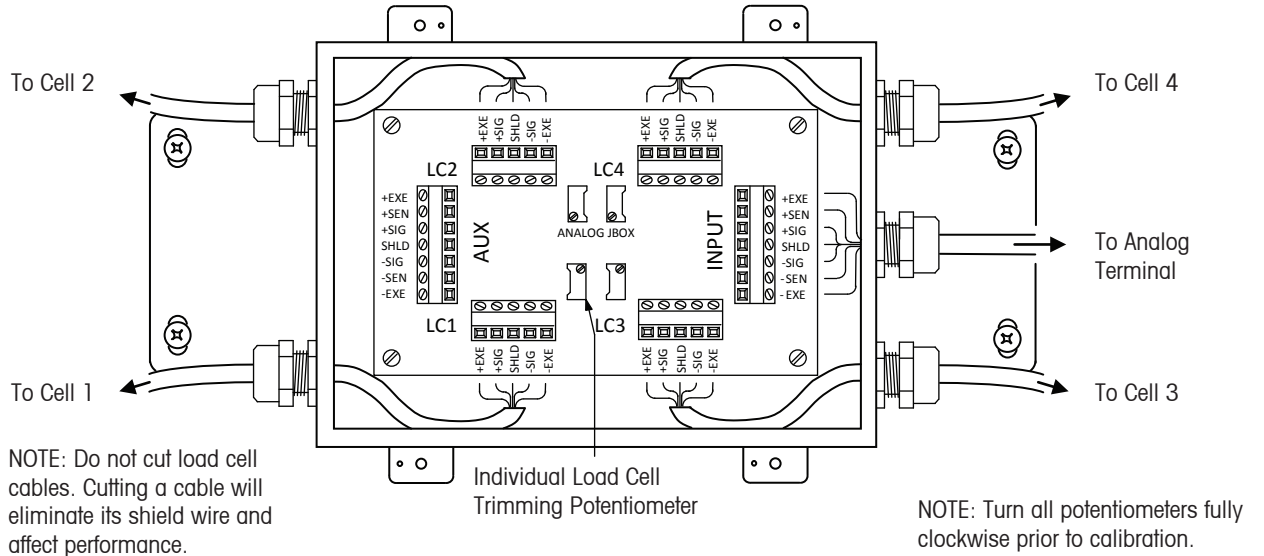


Figure 3-10: Load Cell Wiring Guide

**Table 3-3: Analog Junction Box Wiring Codes**

Load Cell Wiring		Instrument Cable Wiring**	
Function	Wire Color SLB215/SLB415	Function	Wire Color
+ Excitation	Green	+ Excitation	White
+ Sense	--	+ Sense	Yellow
+Signal	White	+Signal	Green
Shield	Yellow	Shield	Orange
- Signal	Red	- Signal	Black
- Sense	--	- Sense	Red
- Excitation	Black	- Excitation	Blue

\*\* Based on METTLER TOLEDO cable number 61006641.

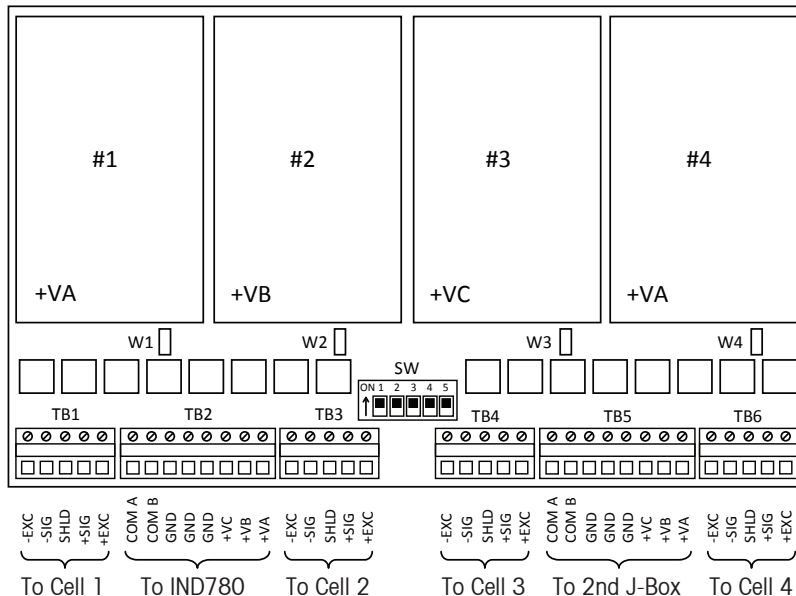
\*For load cell connections, the +Excitation and +Sense wires should be connected to the +EXE terminal; the -Excitation and -Sense wires should be connected to the -EXE terminal.

### 3.5.2 RAAD Mode

SWB305 weigh modules can be used with a RAAD junction box for summing load cell outputs. An IND780 terminal must be used with the RAAD junction box. The terminal serves as the host for the RAAD junction box, allowing you to use the terminal's keypad to adjust scale parameters. See Figure 3-9 and Table 3-4 for cable connections. Load cell wiring for RAAD mode is the same as for analog mode.

**CAUTION**

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



**Figure 3-11: RAAD Junction Box Detail**

**Table 3-4: RAAD Junction Box Wiring**

<b>RAAD TB2 Terminal</b>	<b>Function</b>	<b>IND780 Terminal</b>
1	+VA	8
2	+VB	7
3	+VC	6
4	Ground	5
5	Ground	4
6	Ground	3
7	COM B	2
8	COM A	1

NOTE: The RAAD box is a Remote Addressable Analog-to-Digital junction box. It converts a standard analog signal to a DigiTOL signal and allows monitoring of individual load cell channels.

NOTE: A DigiTOL POWERCELL card must be installed in the IND780 terminal.

NOTE: For 2 mV/V load cells, jumpers W1, W2, W3, and W4 must be ON (shorting the pins).

NOTE: If more than one junction box is used, connect the junction boxes in a daisy chain. Connect Terminal TB5 on the first junction box to Terminal TB2 on the next junction box in the series.

The addresses of the DigiTOL cards in the second RAAD box must be reset to the factory settings and then re-addressed to the correct load cell number.

**Switch Positions (SW)**

SW1: On if Load Cell 1 is used

SW2: On if Load Cell 2 is used

SW3: On if Load Cell 3 is used

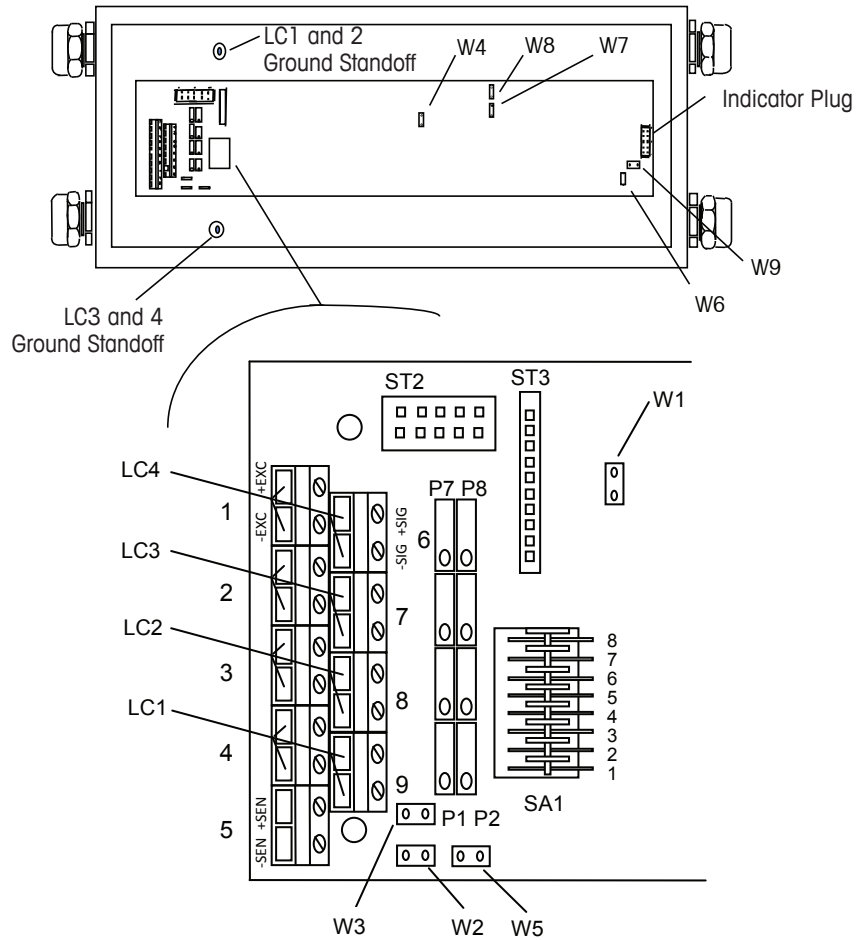
SW4: On if Load Cell 4 is used

SW5: On if last J-box in series

### 3.5.3 IDNet Mode

The IDNet junction box can output an IDNet data format compatible with METTLER TOLEDO ID weight displays. See Figure 3-12 and Table 3-5 for cable connections. For detailed information about the scale terminal's capabilities and operating instructions, refer to the appropriate service manual.

	<h2 style="margin: 0;">CAUTION</h2> <p style="margin: 0;"><b>DO NOT USE THE IDNET JUNCTION BOX IN LOCATIONS CLASSIFIED AS HAZARDOUS BY THE NATIONAL ELECTRICAL CODE (NEC) ARTICLE 500.</b></p>
---	--



**Figure 3-12: IDNet Junction Box Detail**

**Table 3-5: IDNet Junction Box Wiring**

0745A Load Cell	Terminal			
	+EXC Green	-EXC Black	+SIG White	-SIG Red
1	4	4	9	9
2	3	3	8	8
3	2	2	7	7
4	1	1	6	6

MTB Load Cell	Terminal					
	+EXC Green	+SEN Yellow	-EXC Black	-SEN Blue	+SIG White	-SIG Red
1	4		4		9	9
2	3		3		8	8
3	2		2		7	7
4	1		1		6	6

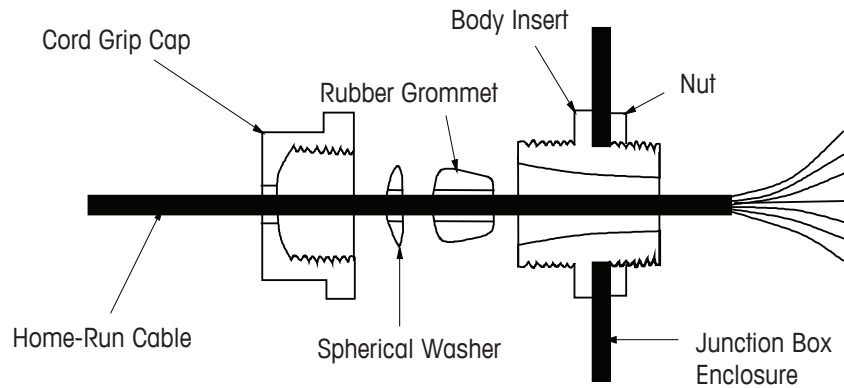
NOTE: For load cell connections, the +Excitation and +Sense wires should be connected to the +EXC terminal; the -Excitation and -Sense wires should be connected to the -EXC terminal.

**Table 3-6: IDNet Default Factory Settings**

Jumper	Status	Description
W1	Closed (ON)	Matching the gain at 2 mV/V load cells
W2	Closed (ON)	No external sensing (-Sense)
W3	Closed (ON)	No external sensing (+Sense)
W4	Closed (ON)	Internal reference voltage = 3.5 V
W5	Open (OFF)	Excitation voltage for load cells = 4.0 V
W6	Closed (ON)	Internal supply voltage = 7.1 V
W7	2-3	Protocol IDNet
W8	1-2	Interface 20 mA
W9	Open (OFF)	Supply voltage IDNet
SA1	Closed (ON)	Trim Potentiometers Circuit Disabled

NOTE: For 2 mV/V load cells, jumpers W1, W2, W3, and W4 must be ON (shorting the pins).

### 3.6 Home-Run Cable Connection



**Figure 3-13: Cord Connection Detail**

Connect the home-run cable from the scale terminal to the junction box (refer to Figure 3-13):

1. Wire the home-run cable to the PCB according to Figure 3-10 for Analog, Figure 3-11 for RAAD, or Figure 3-12 for IDNet.
2. Place the desiccant bag inside the junction box.
3. Reinstall the junction box lid. Make sure that the rubber gasket is clean and correctly positioned. Tighten all screws and make sure all cord grip caps are secure.



## 4 Calibration



### 4.1 Shift Adjust

Before making calibration adjustments, check all mechanical parts and make sure that the scale provides repeatable weight readings. To check repeatability, repeatedly place a test weight in the same position on the scale and confirm that you get the same weight reading each time.

Then perform a shift adjustment to make the weight reading at or near each weigh module the same for the same test weight.

The test weight used for the shift test should equal at least 10 percent of the rated scale capacity. Test weights should be concentrated directly (or as close as possible) over the weigh modules.

#### 4.1.1 Analog Junction Box Shift Adjustment

	 <b>CAUTION</b>
	<b>PERMIT ONLY 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.</b>

Perform a shift adjustment, using the load cell trim potentiometers mounted on the PCB inside the analog junction box. Refer to the **Precision Junction Boxes Installation and Service Manual** for the shift adjustment procedure using the dual rotary switches (shown in Figure 3-8).

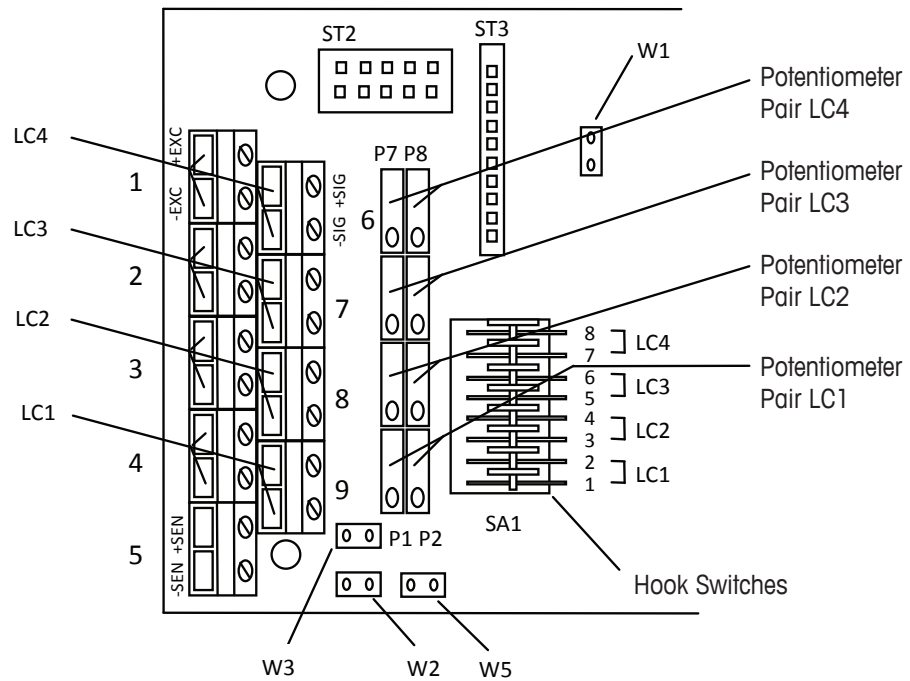
1. Turn all potentiometers fully clockwise before applying test weights.
2. Successively place the test weight at each of the designated locations (at or near the weigh modules). Record the displayed weight readings.
3. Determine the location with the lowest weight reading.
4. Proceeding clockwise, place the test weight at each designated location. If necessary, adjust the trim potentiometer corresponding to that location to obtain the weight reading recorded in Step 2.
5. Repeat this procedure until all weight readings at the designated locations are the same or within the tolerances specified by the local weights and measures authority.
6. Make sure all cable connectors and cord grip caps are tight, place the desiccant bag in the box, and reinstall the junction box lid.

### 4.1.2 RAAD Junction Box Shift Adjustment

Perform the shift adjustment at the scale terminal, with the terminal in Setup mode. For shift adjustment instructions, refer to the manual for the terminal you are using.

### 4.1.3 IDNet Junction Box Shift Adjustment

Perform the shift adjustment, using the load cell trim potentiometers mounted on the PCB inside the IDNet junction box (see Figure 4-1).



**Figure 4-1: IDNet Potentiometer Adjustment**

1. Successively place the test weight(s) at the designated locations and record each weight reading. If the readings are within the desired tolerance, no shift adjustment is needed. If the readings are not within the desired tolerance, perform Steps 2 to 6.
2. Activate the trim potentiometers by opening the eight hook switches (if they are not already open) on the PCB. Once activated, the switches remain open. Do not close the latches, even after completing the shift adjustment.
3. Start the adjustment at the load cell having the highest positive reading. This process trims the load cells to match the value of the lowest recorded value.
4. To make minor adjustments, turn the trim potentiometers (each load cell has two) clockwise to increase the reading or counterclockwise to decrease the reading.

5. If the scale needs further adjustment, turn all potentiometers counter-clockwise. Stop turning the potentiometers when the indication on the instrument or meter stabilizes.
6. Reapply the test weight(s) to the location that has the highest recorded weight reading. Then adjust the load cell potentiometers to match the reading of the location that has the lowest recorded value. Repeat this step until the readings at all locations are the same or within the specified scale tolerances. Repeat Step 1 to verify shift tolerances.
7. Make sure all cable connectors and cord grip caps are tight. Then place a desiccant bag in the box, leave all hook latches open, and reinstall the junction box lid.

## **4.2 Calibration with Test Weights**

The most accurate, reliable way to calibrate a scale is to use test weights equal to the scale capacity. With the proper test weight, calibrate the weighing system according to the instructions provided in your terminal's manual.

## **4.3 Calibration with Test Weights and Material Substitution**

For large tank scales, it is often physically impossible to hang test weights equal to the tank's full capacity. In those cases, you can use a combination of test weights and a material (such as water) to calibrate the scale.

1. For example, after taking a zero reading you might hang 500 pounds or 200 kilograms of test weights and record the weight reading.
2. Remove the test weights and record the return weight reading. Then add water to the tank until the weight reading is the same as that obtained with the test weights.
3. With the water still in the tank, hang the same test weights and record the weight reading.
4. Continue substituting water for the test weights and taking readings until you reach the tank's full capacity.
5. Once you have taken readings from zero to full capacity, use them to plot a graph of the scale's performance.

## **4.4 Calibration with Material Transfer**

When test weights cannot be used, you can calibrate a scale with material transfer. Instead of hanging test weights, weigh a material (such as water) on another scale and transfer it to the tank scale that is being calibrated. You can do this in a single transfer or in stages until you reach the tank's full capacity. This method yields only a rough indication of the scale's performance. It depends on the accuracy of the existing scale and the integrity of the transfer process. Even in the best conditions, you will not know if allowable errors are cumulative or compensating.

## 4.5 Electronic Calibration

### 4.5.1 Load Cell Simulator

A tank scale can be calibrated electronically using a load cell simulator. Attach the load cell simulator directly to the scale terminal in place of the home-run cable from the junction box. The simulator sends out a signal equal to the signal the load cells should produce. Electronic calibration is noted for its speed and simplicity; however, it calibrates only the electronics. Because it assumes that the tank and all mechanical connections are working properly, electronic calibration does not verify the scale's performance.

1. With the simulator adjusted to zero output, set the terminal to zero.
2. Adjust the simulator to full output (a signal equal to that which all the load cells should produce at their rated capacity).
3. Adjust the terminal to show the total capacity of all load cells in the system.
4. Attach the load cell input to the terminal.
5. Set the terminal to read zero for the empty weight of the tank.

### 4.5.2 CalFree™ Electronic Calibration

The CalFree™ program is another option for calibrating a scale without using test weights. This proprietary METTLER TOLEDO feature is built into the latest line of METTLER TOLEDO industrial terminals and is compatible with systems that use analog load cells rated at 2 mV/V or 3 mV/V.

The CalFree™ program calculates the full-scale system output in millivolts to calibrate the scale electronically. For most analog scales, this value is nominally 2 or 3 millivolts output per volt of excitation at rated capacity. Due to manufacturing tolerances, the output or sensitivity of an individual load cell can vary slightly from these nominal values. The CalFree™ program uses the summed average of the individual load cell sensitivities to determine the expected system output at rated capacity. The calibration certificate for each load cell lists the load cell's specific sensitivity at rated capacity.

A printed calibration certificate is supplied with each load cell that is shipped. Electronic copies of the calibration certificates can be downloaded from the following website:

<http://calfree-cert.mt.com>

To locate the calibration certificates for a scale, you will need to know the serial number of each load cell in the scale system. Calibration certificates are stored in PDF format by serial number. For example, the file for load cell serial number 6011154-6LH is 6011154-6LH.pdf.

Like a load cell simulator, the CalFree™ procedure only calibrates the scale electronically. It does not compensate for mechanical influences such as piping attachments, movement in structural supports, vibration, etc.

# 5 Routine Care and Maintenance

## 5.1 General

Once you have installed your scale, you should have an authorized METTLER TOLEDO representative periodically inspect and calibrate it. If the scale is used for legal-for-trade purposes, consult the local weights and measures authorities for minimum inspection requirements. Contact your local authorized METTLER TOLEDO service representative for information about periodic inspection and calibration services.

### 5.1.2 Site Inspection

Make sure that the scale site remains in good condition. Check for changes in the dead-to-live connections, changes in support for the weigh modules, overloading and excessive vibration conditions, and debris or material build-up under or around the scale that could prevent the scale from moving freely.







### 5.1.3 Weigh Module and Junction Box Inspection

During periodic inspections of the weigh modules, check:

- Load cells for signs of unusual wear
- Floor drain for adequate drainage away from the weigh modules
- Junction box lid: Is it properly sealed? Are all cord grips tight?
- Moisture or foreign material present around or inside the junction box assembly
- Instrument cable: Is it damaged? Does it bind the scale?
- Repeatability and shift of the scale

## 6 Troubleshooting

### 6.1 General

	<p style="text-align: center;"> <b>CAUTION</b></p> <p><b>PERMIT ONLY 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.</b></p>
	<p style="text-align: center;"> <b>CAUTION</b></p> <p><b>IF OPERATING IN A HAZARDOUS AREA, THE HAZARDOUS AREA MUST BE MADE SAFE PRIOR TO INSTALLATION, REPLACEMENT OR TROUBLESHOOTING. FAILURE TO COMPLY COULD RESULT IN PERSONAL INJURY, DEATH, AND/OR PROPERTY DAMAGE. THE FOLLOWING CONDITIONS SHOULD BE FULFILLED:</b></p> <ol style="list-style-type: none"> <li><b>1. THE AREA HAS BEEN RENDERED SAFE AND THE CUSTOMER'S SAFETY COORDINATOR HAS CONFIRMED THAT THERE IS NO DANGER. ENSURE THAT ALL INSTRUCTIONS RELATED TO SAFETY ISSUED BY THE CUSTOMER CAN BE COMPLIED WITH.</b></li> <li><b>2. THE CUSTOMER HAS ISSUED A PERMIT ("SPARK PERMIT" OR "FIRE PERMIT")</b></li> <li><b>3. THE NECESSARY TOOLS AND ANY REQUIRED PROTECTIVE CLOTHING ARE PROVIDED (DANGER OF THE BUILD-UP OF STATIC ELECTRICITY).</b></li> </ol>
	<p style="text-align: center;"> <b>CAUTION</b></p> <p><b>BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING 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.</b></p>

If a scale is not working properly, find out as much about the problem as possible. Try to determine whether the problem is constant or intermittent. Mechanical and electrical influences can cause malfunctions, so be patient and use sound logic when troubleshooting.

Check the instrument cable for damage and check all connections for loose/incorrect wiring. Examine the physical location of the scale, checking for the following:

- Water
- Corrosive materials
- Unlevel floors
- High vibrations
- Air currents
- Physical damage to the scale

## 6.2 Isolate the Problem

To determine whether the problem is in the scale or the scale terminal:

1. Remove power from the system.
2. Disconnect the terminal from the scale, and connect the terminal to a load cell simulator (analog load cell simulators are available from METTLER TOLEDO).
3. Reapply power. If the problem persists, consult the terminal's manual for further troubleshooting assistance.
4. If the problem is NOT present with the load cell simulator attached to the terminal, remove power. Disconnect the simulator and reconnect the scale. If the problem persists, continue troubleshooting the scale.

## 6.3 Check Wiring

1. Remove power from the system.
2. Remove the lid from the junction box and check the interior for moisture and foreign material.
3. Make sure that all wiring connections are tight and that no insulation material is touching the terminal contacts.
4. Check all cable connections for correct wiring (see Table 6-1).
5. Check all cable connectors and cord grip caps on the junction box. Tighten any loose connectors.

NOTE: See Figure 3-8 and Table 3-4 for RAAD instrument cable wiring.

**Table 6-1: Load Cell Wiring Color Code**

Load Cell Wiring		Instrument Cable Wiring**	
Function	Wire Color SLB215/SLB415	Function	Wire Color
+ Excitation	Green	+ Excitation	White
+ Sense	--	+ Sense	Yellow
+Signal	White	+Signal	Green
Shield	Yellow	Shield	Orange
- Signal	Red	- Signal	Black
- Sense	--	- Sense	Red
- Excitation	Black	- Excitation	Blue
** Based on METTLER TOLEDO cable number 61006641.			

\*For load cell connections, the +Excitation and +Sense wires should be connected to the +EXE terminal; the -Excitation and -Sense wires should be connected to the -EXE terminal.

## 6.4 Check Load Cells

1. Remove power from the system. Fully disconnect each load cell and check for proper input/output resistances (see Table 6-2).

**Table 6-2: Load Cell Measuring Points**

Measuring Points	Resistance
+Exc (Green) to -Exc (Black)	385 ohms minimum
+Sig (White) to -Sig (Red)	348 to 352 ohms

2. If resistance is within specification, perform a shorted-signal symmetry test.
  - 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.
  - Remove the lead from the +Excitation wire and place it on the -Excitation wire. The two resistance values should be approximately equal.
3. If the load cells pass the shorted-signal test, reconnect them and reapply power to the scale. Confirm that the proper excitation voltage is reaching the load cells by placing multimeter leads on the excitation positions of each load cell terminal.
4. If proper excitation voltage is reaching the load cells, check the output signal from each cell by disconnecting the signal leads and measuring voltage output. 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 (15 mV for model SLB215 and SLB515 250-lb load cells).
5. If any load cell has an unusual signal, remove all load from that cell.
  - Model SLB215 and SLB515: With the power on, measure the output from the suspect load cell. The no-load zero 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 would be 30 mV and the no-load zero output should be within  $\pm 0.3$  mV (within  $\pm 0.15$  mV for 250-lb load cells).
6. If a load cell fails any of the above tests, replace it.



## 6.5 Check Mechanical Components

Because the weigh module design is so simple, only a few mechanical components require troubleshooting. Make sure that the scale can move freely.

Check the following:

- Check for debris that could restrict the movement of the scale or load cells.
- Make sure that each weigh module is able to move freely. Examine all piping and other live-to-dead connections for possible mechanical binding.
- Check for any structural deflection that could cause mechanical binding.
- Is the scale rocking or out of level? If so, it might need to be reshimmed.
- Make sure that the locking plate and centering spacer have been removed from each weigh module.

# 7 Service Parts

## 7.1 Weigh Modules

Refer to the following drawing and tables when ordering weigh module parts.

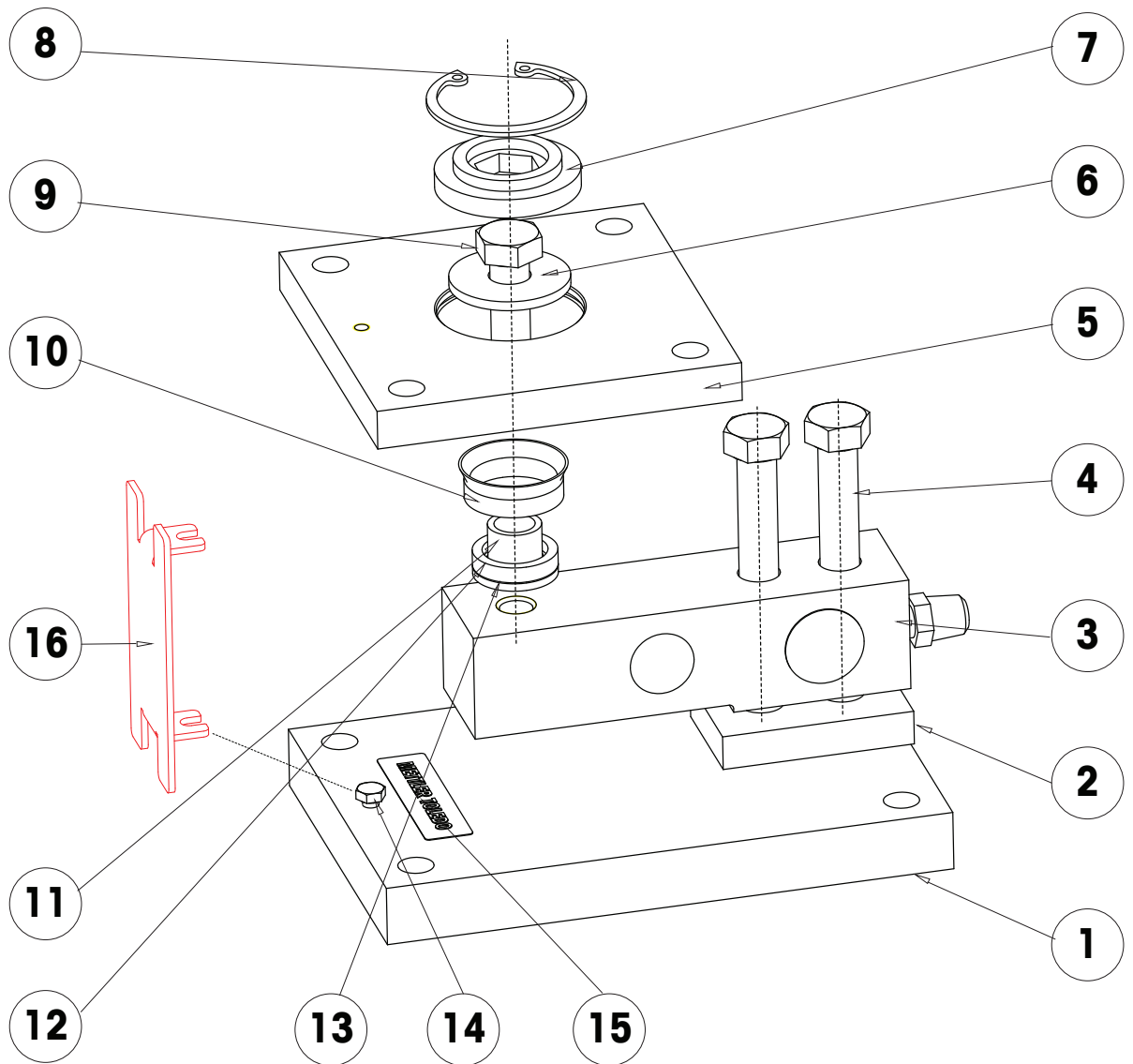


Figure 7-1: Weigh Module Assembly (Sizes 2 and 3)

**Table 7-1: Weigh Module Assembly**

Ref. No.	Description	Qty.
1	Base Plate (To replace a base plate or top plate, order a weigh module kit)	1
3	Load Cell - refer to Table 7-3	1
5	Top Plate (To replace a top plate or base plate, order a weigh module kit)	1
14	Grounding Strap Bolt	1
15	Adhesive Label, METTLER TOLEDO	1
16	Shipping Fixture	1

## 7.2 Spare Parts List

**Table 7-2: SWB305 Spare Parts Kits**

Part Number	Description	Qty.	Assembly Drawing Ref.
30459563	SWB305 LC mounting kit S2 110 kg - 1.1t		
	Spacer SWB305 1.1t SS	1	2
	SCR GB5780 M12x65 SS A2-70	2	4
304595465	SWB305 mounting kit S2 2.2t		
	Spacer SWB305 2.2t SS	1	2
	SCR GB5780 M12x65 SS A2-70	2	4
30459567	SWB305 LC mounting kit S3		
	Spacer SWB305 4.4t SS	1	2
	SCR GB5783 M20x80 SS A2-70	2	4
30459568	Load introduction kit SWB305 S2		
	Washer SWB305 S2	1	6
	Upper rubber gasket SWB305 S2	1	7
	Retaining clip SWB305 S2	1	8
	Anti-lift bolt SWB305 S2	1	9
	Suspension gasket SWB305 S2	1	10
	Load cell spacer SWB305 S2	1	11
	Concave washer SWB305 S2 SS	1	12
	Convex washer SWB305 S2 SS	1	13
30459569	Load introduction kit SWB305 S3		
	Washer SWB305 S3	1	6
	Upper rubber gasket SWB305 S3	1	7
	Retaining clip SWB305 S3	1	8
	Anti-lift bolt SWB305 S3	1	9
	Suspension gasket SWB305 S3	1	10
	Load cell spacer SWB305 S3	1	11
	Concave washer SWB305 S3 SS	1	12
	Convex washer SWB305 S3 SS	1	13

## 7.3

## Replacement Load Cells

Table 7-3: SWB305 Load Cells

Item Number	Description
30328249	Load Cell SLB215-110kg/250lb 5m, C3
30328250	Load Cell SLB215-110kg/250lb 10m, C3
72258650	Load Cell SLB215-220kg 5m , Carbon Steel
72258654	Load Cell SLB215-220kg 10m , Carbon Steel
72258656	Load Cell SLB215-550kg 5m , Carbon Steel
72258660	Load Cell SLB215-550kg 10m , Carbon Steel
72258693	Load Cell SLB215-1.1t 5m , Carbon Steel
72258697	Load Cell SLB215-1.1t 10m , Carbon Steel
72258699	Load Cell SLB215-2.2t 5m , Carbon Steel
72258703	Load Cell SLB215-2.2t 10m , Carbon Steel
72258710	Load Cell SLB215-4.4t 5m , Carbon Steel
72258714	Load Cell SLB215-4.4t 10m , Carbon Steel
30101610	LC SLB515 110kg/250lb PU3m 0.03%, Stainless Steel
30101611	LC SLB515 110kg/250lb PU5m 0.03% T, Stainless Steel
30101612	LC SLB515 110kg/250lb PU10m 0.03%, Stainless Steel
30101616	LC SLB515 220kg/500lb PU3m C3/IIIM n:5, Stainless Steel
30101617	LC SLB515 220kg/500lb PU5m C3/IIIM n:5, Stainless Steel
30101618	LC SLB515 220kg/500lb PU10m C3/IIIM n:5, Stainless Steel
30101622	LC SLB515 550kg/1.25klb PU3m C3/IIIM n:5, Stainless Steel
30101623	LC SLB515 550kg/1.25klb PU5m C3/IIIM n:5, Stainless Steel
30101624	LC SLB515 550kg/1.25klb PU10m C3/IIIMn:5, Stainless Steel
30101628	LC SLB515 1.1t/2.5klb PU3m C3/IIIM n:5, Stainless Steel
30101629	LC SLB515 1.1t/2.5klb PU5m C3/IIIM n:5, Stainless Steel
30101630	LC SLB515 1.1t/2.5klb PU10m C3/IIIM n:5, Stainless Steel
30101634	LC SLB515 2.2t/5klb PU3m C3/IIIM n:5, Stainless Steel
30101635	LC SLB515 2.2t/5klb PU5m C3/IIIM n:5, Stainless Steel
30101636	LC SLB515 2.2t/5klb PU10m C3/IIIM n:5, Stainless Steel
30101640	LC SLB515 4.4t/10klb PU3m C1/IIIM n:1.6, Stainless Steel
30101641	LC SLB515 4.4t/10klb PU5m C1/IIIM n:1.6, Stainless Steel
30101642	LC SLB515 4.4t/10klb PU10m C1/IIIM n:1.6, Stainless Steel

# 8 Reference Material

## 8.1 Reference Drawings

**Table 8-1: Reference Drawings**

<b>General Dimensions</b>	<b>Analog Wiring Diagram</b>	<b>RAAD Box Wiring Diagram</b>	<b>IDNet Wiring Diagram</b>	<b>Precision Junction Box</b>
30459563	TB100809	15962700A	TB100600	61808118

<b>EN</b>	<b>EU Declaration of Conformity</b>	<b>LV</b>	<b>ES atbilstības deklarācija</b>
<b>DE</b>	<b>EU-Konformitätserklärung</b>	<b>RU</b>	<b>Декларация о соответствии ЕС</b>
<b>ES</b>	<b>Declaración de conformidad UE</b>	<b>PL</b>	<b>UE Deklaracja Zgodności</b>
<b>FR</b>	<b>Déclaration de conformité UE</b>	<b>CZ</b>	<b>EU – Prohlášení o shodě</b>
<b>IT</b>	<b>Dichiarazione di conformità UE</b>	<b>HU</b>	<b>EU megfeleléségi nyilatkozat</b>
<b>NL</b>	<b>EU-conformiteitsverklaring</b>	<b>TR</b>	<b>AB Uyumluluk Beyanname</b>
<b>PT</b>	<b>Declaração de Conformidade UE</b>	<b>BU</b>	<b>Декларация за съответствие на EU</b>
<b>SE</b>	<b>EU-försäkran om överensstämmelse</b>	<b>HR</b>	<b>Deklaracija o sukladnosti EU-a</b>
<b>DK</b>	<b>EU-overensstemmelseserklæring</b>	<b>RO</b>	<b>Declarație UE de conformitate</b>
<b>NO</b>	<b>EU-samsvarserklæring</b>	<b>SK</b>	<b>EÚ – Vyhlásenie o zhode</b>
<b>FI</b>	<b>EU:n vaatimustenmukaisuusvakuutus</b>	<b>SL</b>	<b>EU-izjava o skladnosti</b>
<b>EE</b>	<b>EL-i vastavusdeklaratsioon</b>	<b>GR</b>	<b>Δήλωση συμμόρφωσης ΕΕ</b>
<b>LT</b>	<b>ES atitikties deklaracija</b>		



30220652C

**Model/Type: SLB215...SLB415...**



**Mettler-Toledo GmbH**  
**Im Langacher 44, 8606 Greifensee, Switzerland**

**This declaration of conformity is issued under the sole responsibility of the manufacturer /**

**Der Hersteller trägt die alleinige Verantwortung für die Ausstellung der Konformitätserklärung /**  
**La presente declaración de conformidad se publica bajo la responsabilidad exclusiva del fabricante /**  
**Cette déclaration de conformité est délivrée sous la seule responsabilité du fabricant /**  
**Questa dichiarazione di conformità è rilasciata sotto l'esclusiva responsabilità del produttore /**  
**Deze conformiteitsverklaring wordt uitsluitend afgegeven onder de verantwoordelijkheid van de fabrikant /**  
**Esta declaração de conformidade é emitida sob a responsabilidade exclusiva do fabricante /**  
**Denna försäkran om överensstämmelse utfärdas på tillverkarens eget ansvar.**  
**Denne overensstemmelseserklæring er udstedt under producentens eneansvar.**  
**Denne samsvarserklæringen er utstedt under eget ansvar av produsenten.**  
**Tämä vaatimustenmukaisuusvakuutus on annettu ainoastaan valmistajan vastuulla.**  
**Käesolev vastavusdeklaratsioon on välja antud tootja ainuvastutusele.**  
**Ši atitikties deklaracija yra išduota tik gamintojo atsakomybe.**  
**Ši atbilstības deklarācija ir izdota vienīgi uz ražotāja atbildību.**  
**Эта декларация соответствия выдается под ответственность производителя.**  
**Niniejsza deklaracja zgodności wydana jest na wyłączną odpowiedzialność producenta.**  
**Za toto prohlášení o shodě nese odpovědnost pouze výrobce.**  
**Ezen megfeleléségi nyilatkozat kiadása a gyártó kizárólagos felelőssége mellett történt.**  
**Bu uyumluluk beyanname sadece üreticinin sorumluluğu altındaki gayrimisliştir.**  
**Настоящата декларация за съответствие е издадена на пълната отговорност на производителя.**  
**Ova deklaracija o sukladnosti izdaje se pod punom odgovornosti proizvođača.**  
**Prezenta declarație de conformitate este emisă pe răspunderea exclusivă a producătorului.**  
**Za toto vyhlásenie o zhode nesie zodpovednosť iba výrobca.**  
**Za to izjava o skladnosti odgovarja izključno proizvajalec.**  
**Η παρούσα δήλωση συμμόρφωσης εκδίδεται με αποκλειστική ευθύνη του κατασκευαστή.**

**The object of the declaration described above is in conformity with the following documents:**

**Das oben beschriebene Produkt ist konform mit den Anforderungen der folgenden Dokumente:**  
**El objeto de la declaración descrita anteriormente es conforme con los siguientes documentos:**  
**L'objet de la déclaration décrite ci-dessus est en conformité avec les documents suivants:**  
**L'oggetto della dichiarazione di cui sopra è conforme ai seguenti documenti:**  
**Het product, waar de hierboven omschreven verklaring betrekking op heeft, is in overeenstemming met onderstaande documenten:**  
**O objeto da declaração descrita acima está em conformidade com os seguintes documentos:**  
**Föremålet för försäkran ovan överensstämmer med följande dokument:**  
**Genstanden for erklæringen, som beskrevet ovenfor, er i overensstemmelse med følgende dokumenter:**  
**Gjenstanden for erklæringen ovenfor er i samsvar med følgende dokumenter:**  
**Edellä kuvattu vakuutuksen kohde on seuraavien asiakirjojen vaatimusten mukainen:**  
**Eelnevalt kirjeldatud deklaratsioonobjekt vastab järgmistele dokumentidele.**  
**Pirmiau nurodytas deklaracijos objektas atitinka toliau išvardytus dokumentus:**  
**Iepriekš aprakstītais deklarācijas priekšmets atbilst attiecīgajiem dokumentiem:**  
**Объектом декларации, описанный выше, в соответствии со следующими документами:**  
**Przedmiot deklaracji opisany powyżej jest zgodny z następującą dokumentacją:**  
**Výše popsaný předmět prohlášení je ve shodě s následujícími dokumenty:**  
**A fent ismertetett nyilatkozat tárgyja megfelel a következő dokumentumoknak:**  
**Yukarıda açıklanan beyanın konusu aşağıdaki belgelerle uyumludur:**  
**Целта на описаната по-горе декларация е съответствие със следните документи:**  
**Gore opisani predmet izjave u skladnosti je sa sljedećim dokumentima:**  
**Obiectul declarației descrise mai sus este conform cu următoarele documente:**  
**Vyššie popísaný predmet vyhlásenia je v súlade s nasledujúcimi dokumentmi:**  
**Predmet zgoraj opisane izjave je v skladu z naslednjimi dokumenti:**  
**Το αντικείμενο της δήλωσης περιγράφεται παραπάνω συμμορφώνεται με τα ακόλουθα έγγραφα:**

Marking	EU Directive	Standards / Norm	
	RoHS Directive 2011/65/EU (OJEU, 2011, L174, p88)	EN 50581:2012	
	ATEX Directive 2014/34/EU (OJEU, 2014, L96, p309)	EN 60079-0:2012+A11: 2013 EN 60079-11:2012 EN 60079-15:2010 EN 60079-31:2009	DEKRA 13ATEX0082 Issue 2 II 3 G Ex ic IIC T4 Gc II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIC T100°C Dc
<b>Units that bear the ATEX required markings</b> Geräte die die Kennzeichnung nach ATEX Richtlinie tragen Unidades que llevan los marcados ATEX requeridos Unités qui portent les marquages ATEX requis Unità che recano le marcature ATEX richieste Producten die zijn voorzien van de voor ATEX vereiste markeringen Unidades que apresentam as marcações exigidas ATEX Enheter som bär de ATEX-nödvändiga markeringarna Enheder, som er forsynet med den påkrævede ATEX-mærkning Enheter som har den nødvendige ATEX-merkingen Laitteet, jotka on varustettu ATEX-määräysten mukaisilla merkinnöillä ATEX-i nõutavat tähist kandvad seadmed Įrenginiai, pažymėti ženklais pagal ATEX reikalavimus		Vienības, kurām ir ATEX pieprasītais marķējums единицы оборудования, на которые нанесены требуем маркировки ATEX Urządzenia posiadające wymagane oznakowanie ATEX Jednotky, které mají označení vyžadovaná ATEX Az ATEX szükséges jelöléseit viselő egységek ATEX tarafından gerekli kılan işletmeleri taşıyan birimler Инструменти, които носят маркировки, изискващи ATEX Jedinice koje nose obavezne oznake sukladno direktivi ATEX Unități care au marcajele necesare ATEX Jednotky, ktoré nesú označenia požadované normou ATEX Enote z oznakami, ki se zahtevajo za ATEX Μονάδες που φέρουν τις απαιτούμενες σήμανσεις ATEX	
	ATEX Directive 2014/34/EU (OJEU, 2014, L96, p309)	EN 60079-0:2012+A11: 2013 EN 60079-11:2012	DEKRA 13ATEX0081 Issue 2 II 2 G Ex ib IIC T4 Gb II 2 D Ex ib IIIC T100°C Db

(1) – Certificate issued by DEKRA Certification B.V., Meander 1051, 6825 MJ Arnhem, The Netherlands, Notified Body No. 0344

EN 60079-31:2009, A review against EN 60079-31:2014\*, EN 60079-31:2009\*\*

\*) which is harmonised, shows no significant changes relevant to this equipment so; \*\*) continues to represent "State of the Art"

**Mettler-Toledo GmbH**  
**Issued on: 2018-09-10**



**Jean Christophe Emery**  
**General Manager**



**Ralph Werren**  
**Head of SBU**



30136754D

<b>EN</b> EU Declaration of Conformity	<b>LV</b> ES atbilstības deklarācija
<b>DE</b> EU-Konformitätserklärung	<b>RU</b> Декларация о соответствии ЕС
<b>ES</b> Declaración de conformidad UE	<b>PL</b> UE Deklaracja Zgodności
<b>FR</b> Déclaration de conformité UE	<b>CZ</b> EU – Prohlášení o shodě
<b>IT</b> Dichiarazione di conformità UE	<b>HU</b> EU megfeleléségi nyilatkozat
<b>NL</b> EU-conformiteitsverklaring	<b>TR</b> AB Uyumluluk Beyanname
<b>PT</b> Declaração de Conformidade UE	<b>BU</b> Декларация за съответствие на EU
<b>SE</b> EU-försäkran om överensstämmelse	<b>HR</b> Deklaracija o skladnosti EU-a
<b>DK</b> EU-overensstemmelseserklæring	<b>RO</b> Declarație UE de conformitate
<b>NO</b> EU-samsvarserklæring	<b>SK</b> EÚ – Vyhlásenie o zhode
<b>FI</b> EU:n vaatimustenmukaisuusvakuutus	<b>SL</b> EU-izjava o skladnosti
<b>EE</b> EL-i vastavusdeklaratsioon	<b>GR</b> Δήλωση συμμόρφωσης EE
<b>LT</b> ES atitikties deklaracija	

Model/Type: SLB515...,SLB815...

Mettler-Toledo GmbH  
Im Langacher 44, 8606 Greifensee, Switzerland



**This declaration of conformity is issued under the sole responsibility of the manufacturer /**

Der Hersteller trägt die alleinige Verantwortung für die Ausstellung der Konformitätserklärung /  
La presente declaración de conformidad se publica bajo la responsabilidad exclusiva del fabricante /  
Cette déclaration de conformité est délivrée sous la seule responsabilité du fabricant /  
Questa dichiarazione di conformità è rilasciata sotto l'esclusiva responsabilità del produttore /  
Deze conformiteitsverklaring wordt uitsluitend afgegeven onder de verantwoordelijkheid van de fabrikant /  
Esta declaração de conformidade é emitida sob a responsabilidade exclusiva do fabricante /  
Denna försäkran om överensstämmelse utfärdas på tillverkarens eget ansvar.  
Denne overensstemmelseserklæring er udstedt under producentens eneansvar.  
Denne samsvarserklæringen er udstedt under eget ansvar av produsenten.  
Tämä vaatimustenmukaisuusvakuutus on annettu ainoastaan valmistajan vastuulla.  
Käesolev vastavusdeklaratsioon on välja antud tootja ainuvastutusele.  
Ši atitikties deklaracija yra išduota tik gamintojo atsakomybe.  
Ši atbilstības deklarācija ir izdota vienīgi uz ražotāja atbildību.  
Эта декларация соответствия выдается под ответственность производителя.  
Niniejsza deklaracja zgodności wydana jest na wyłączną odpowiedzialność producenta.  
Za toto prohlášení o shodě nese odpovědnost pouze výrobce.  
Ezen megfeleléségi nyilatkozat kiadásá a gyártó kizárólagos felelőssége mellett történik.  
Bu uyumluluk beyanname sadece üreticinin sorumluluğu altındaki gayimlanmistir.  
Настоящата декларация за съответствие е издадена на пълната отговорност на производителя.  
Ova deklaracija o skladnosti izdaje se pod punom odgovornosti proizvođača.  
Prezentă declarație de conformitate este emisă pe răspunderea exclusivă a producătorului.  
Za toto vyhlásenie o zhode nesie zodpovednosť iba výrobca.  
Za to izjava o skladnosti odgovarja izključno proizvajalec.  
Η παρούσα δήλωση συμμόρφωσης εκδίδεται με αποκλειστική ευθύνη του κατασκευαστή.

**The object of the declaration described above is in conformity with the following documents:**

Das oben beschriebene Produkt ist konform mit den Anforderungen der folgenden Dokumente:  
El objeto de la declaración descrita anteriormente es conforme con los siguientes documentos:  
L'objet de la déclaration décrite ci-dessus est en conformité avec les documents suivants:  
L'oggetto della dichiarazione di cui sopra è conforme ai seguenti documenti:  
Het product, waar de hierboven omschreven verklaring betrekking op heeft, is in overeenstemming met onderstaande documenten:  
O objeto da declaração descrita acima está em conformidade com os seguintes documentos:  
Föremålet för försäkran ovan överensstämmer med följande dokument:  
Genstanden for erklæringen, som beskrevet ovenfor, er i overensstemmelse med følgende dokumenter:  
Gjenstanden for erklæringen ovenfor er i samsvar med følgende dokumenter:  
Edellä kuvattu vakuutuksen kohde on seuraavien asiakirjojen vaatimusten mukainen:  
Eelnevalt kirjeldatud deklaratsiooniobjekt vastab järgmistele dokumentidele.  
Pirmiau nurodytas deklaracijos objektas atitinka toliau išvardytus dokumentus:  
Iepriekš aprakstītais deklarācijas priekšmets atbilst attiecīgajiem dokumentiem:  
Объектом декларации, описанный выше, в соответствии со следующими документами:  
Przedmiot deklaracji opisany powyżej jest zgodny z następującą dokumentacją:  
Výše popsaný předmět prohlášení je ve shodě s následujícími dokumenty:  
A fent ismertetett nyilatkozat tárgyáa megfelelel a következő dokumentumoknak:  
Yukarıda açıklanan beyanın konusu aşağıdaki belgelerle uyumludur:  
Целта на описаната по-горе декларация е съответствие със следните документи:  
Gore opisani predmet izjave u skladnosti je sa sljedećim dokumentima:  
Obiectul declarației descrise mai sus este conform cu următoarele documente:  
Vyššie popísaný predmet vyhlásenia je v súlade s nasledujúcimi dokumentmi:  
Predmet zgoraj opisane izjave je v skladu z naslednjimi dokumenti:  
Το αντικείμενο της δήλωσης περιγράφεται παραπάνω συμμορφώνεται με τα ακόλουθα έγγραφα:



Marking	EU Directive	Standards / Norm	
	RoHS Directive 2011/65/EU (OJEU, 2011, L174, p88)	EN 50581:2012	
	ATEX Directive 2014/34/EU (OJEU, 2014, L96, p309)	EN 60079-0:2012+A11 EN 60079-11:2012 EN 60079-15:2010 EN 60079-31:2009	DEKRA 13ATEX0082 Issue 2 II 3 G Ex ic IIC T4 Gc II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIC T100°C Dc
<b>Units that bear the ATEX required markings</b> Geräte die die Kennzeichnung nach ATEX Richtlinie tragen Unidades que llevan los marcados ATEX requeridos Unités qui portent les marquages ATEX requis Unità che recano le marcature ATEX richieste Producten die zijn voorzien van de voor ATEX vereiste markeringen Unidades que apresentam as marcações exigidas ATEX Enheter som bär de ATEX-nödvändiga markeringarna Enheder, som er forsynet med den påkrævede ATEX-mærkning Enheter som har den nødvendige ATEX-merkingen Laitteet, jotka on varustettu ATEX-määräysten mukaisilla merkinnöillä ATEX-i nõutavat tähist kandvad seadmed Įrenginiai, pažymėti ženklais pagal ATEX reikalavimus		Vienības, kurām ir ATEX pieprasītais marķējums единицы оборудования, на которые нанесены требуемь маркировки ATEX Urządzenia posiadające wymagane oznakowanie ATEX Jednotky, které mají označení vyžadovaná ATEX Az ATEX szükséges jelöléseit viselő egységek ATEX tarafından gerekli kılan işaretileri taşıyan birimler Инструменти, които носят маркировки, изискващи ATEX Jedinice koje nose obavezne oznake sukladno direktivi ATEX Unități care au marcajele necesare ATEX Jednotky, ktoré nesú označenia požadované normou ATEX Enote z oznakami, ki se zahtevajo za ATEX Μονάδες που φέρουν τις απαιτούμενες σημάσεις ATEX	
	ATEX Directive 2014/34/EU (OJEU, 2014, L96, p309)	EN 60079-0:2012+A11 EN 60079-11:2012	DEKRA 13ATEX0081 Issue 2 II 2 G Ex ia IIC T4 Gb II 2 D Ex ib IIIC T100°C Db

(1) – Certificate issued by DEKRA Certification B.V., Meander 1051, 6825 MJ Arnhem, The Netherlands, Notified Body No. 0344

EN 60079-31:2009, A review against EN 60079-31:2014\*, EN 60079-31:2009\*\*

\*) which is harmonised, shows no significant changes relevant to this equipment so; \*\*) continues to represent "State of the Art"

**Mettler-Toledo GmbH**  
**Issued on: 2018-07-09**



**Jean Christophe Emery**  
**General Manager**



**Ralph Werren**  
**Head of SBU**

**To protect your METTLER TOLEDO product's future:**

METTLER TOLEDO Service assures the quality,  
measuring accuracy, and preservation of value of all  
METTLER TOLEDO products for years to come.

Please send for full details about our attractive terms  
of service.

Thank you.

[www.mt.com/weigh-modules](http://www.mt.com/weigh-modules)

For more information

**METTLER TOLEDO**

1900 Polaris Parkway  
Columbus, Ohio 43240 USA

[www.mt.com](http://www.mt.com)

Subject to technical changes  
© 06/2019 Mettler-Toledo LLC  
Printed in USA  
Order number 30549259



30549259