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Accuracy and Stability

All components are designed for high accuracy and long term stability. Precision SMT resistors and gold plated switches guarantee trouble free operation.



CalFree™

Precision Junction boxes can be set to be absolutely neutral. Thus initial shift error is low and all boxes are capable for CalFree™ test weight free calibration.



Easy Shift Adjustment

All components for shift adjustment are on board, no soldering or additional resistors are needed. Rotary switches can be operated like trim pots without their trade-offs in terms of stability and temperature impact.



Stainless Steel Housing

All junction boxes are made from stainless steel and provide best reliability even in harsh industrial environments. Version in IP65 and IP69K are available.

The Precise Link

Precision Junction Boxes



Precision Junction Boxes When Accuracy Matters

Junction boxes are often underestimated in terms of their accuracy impact. Precision junction boxes combine the best of two worlds. Discrete resistors provide high accuracy and long term stability while rotary switches combine them to a simple user interface similar to trim pots.

- Accurate and stable discrete resistors
- Rotary switches for easy user interface
- No soldering, no loose resistors
- Neutral initial setup for CalFree™ calibration
- 304 or 316 stainless steel enclosure
- IP65 or IP69K protection class
- Hygienic Version - NSF and GMP approved
- Easy connection to screw type terminal blocks
- ATEX/IECEX Version Zone 1/21 & 2/22

Precision Junction Boxes Specifications

Parameter	unit of measure	Specification							
		Precision Junction Box						Precision Junction Boxes ATEX	
Type		Precision Junction Box						Precision Junction Boxes ATEX	
Model No.		AJB540S	AJB641S	AJB841S	AJB541M	AJB540L	AJB941M	AJB641SX	AJB841SX
Size		small			medium	large	medium	small	
Application		standard		high corrosion	large size	Conduit	hygienic	hazardous	hazardous, high corrosion
Hygienic approvals		NSF and GMP certified							
Item No.		30206112	30206108	30070226	30206111	30206113	30219978	30070224	30070225
No. of load cells		2, 3, 4							
Load cell resistance range	Ω	120 - 1200			120 - 4000		120 - 1200	120 - 1200	
Method		Encoding rotary switches with precision discrete resistors							
Initial Error ¹⁾		< 1/6000							
Range (nominal)	%	1.3			1.3 (3.5 extended @ 1000Ω)		1.3		
Shift Adjustment		256							
Number of Steps		1/19000							
Smallest Adjustment Step		On-load – Adjustment without calculation similar to trim pot adjustment							
Shift Adjustment Methods Available		Initial – Compensation of multiple junction box connection							
Pair/Section shift adjustment		yes							
Legal For Trade Sealing		sealing wire or sticker							
Temperature Range		Operating -30 ~ +65 (-4 ~ +150)						-30 ~ +60 (-4 ~ +140)	
Safe Storage		-40 ~ +80 (-40 ~ +176)							
Excitation Voltage	V AC/DC	Recommended 10						Max. 17.4	
Insulation Resistance @50VDC	MΩ	> 5000							
Breakdown Voltage	V AC	> 500							
Earthing/ Grounding		via mounting screws	dedicated stud	via mounting screws	dedicated stud	via mounting screws	optional - not required		
ATEX Approval ⁴⁾		Number, Cat. 2						DEKRA O3ATEX1396X	
		Ratings, Cat. 2						II 2 G Ex ia IIC T4 Gb II 2D Ex ib IIIC T70°C ... T90°C Db	
		Entity Parameters, Cat. 2						Ui = 17.3V, Ii = 300mA, Pi = 1.2W, Ci=Li= 0 Ui = 6.0V, Ii = 200mA, Pi = 1.2W, Ci=Li=0*	
		Number, Cat. 3						DEKRA O3ATEX1397X	
		Ratings, Cat. 3						II 3 G Ex ic IIC T4 Gc II 3 G Ex nA IIC T4 Gc II 3 D Ex tc IIIC T70°C ... T90°C Dc	
		Entity Parameters, Cat. 3						Ui = 30V, Ii = 1A Ui = 10.5V, Ii = 500mA, Ci=0, Li=0	
IECEX Approval ⁴⁾		Number						IECEX DEK 17.0047X	
		Ratings						Ex ia IIC T4 Gb, Ex ic IIC T4 Gc, Ex nA IIC T4 Gc Ex ib IIIC T70°C ... T90°C Db, Ex tc IIIC T70°C ... T90°C Dc	
Material		Enclosure		stainless steel	stainless steel 316	stainless steel	stainless steel, FDA certified	stainless steel	stainless steel 316
		Cable entry fitting				Polyamide (Nylon)	carbon steel, zinc plated	stainless steel	Polyamide (Nylon)
Protection		Type						rubber gasket	
		IP Rating		IP65	IP69K	IP65	IP69K	IP69K	
		NEMA Rating						NEMA 4/4X	
Weight, nominal	kg (lb)	1.1	1.2	1.7	3.8	3.0	1.2		
Load Cell Cable		No. Conductors							
		4 and 6 + Shield							
		Conductor Size							
		mm ² (AWG)							
		Diameter		4-8 (0.16-0.32)	3-6.5 (0.12-0.26)	4.8-6.5 (0.19-0.26)	"5.0-5.4 (0.197-0.21)"*	3-6.5 (0.12-0.26)	
		No. Conductors							
		6 + Shield							
		Conductor Size							
		mm ² (AWG)							
Home-Run and AUX Cable		Diameter		mm (in)	6-12 (0.24-0.48)	4-8 (0.16-0.32)	6.4-9.5 (0.25-0.48)	"5.8-6.3; 6.8-7.1; 9.4-10.4 (0.23-0.25; 0.265-0.28; 0.37-0.41)"*	4-10 (0.16-0.4)
Extension via AUX port		Possible							
		no		yes			no		yes
		Max. no. of load cells for 1st box							
		4							
		AUX cable max. recommended wire resistance ²⁾		Ω	0.5	1.5	0.5	0.5	
		AUX cable max. recommended length of 0.14mm ² (AWG24) ²⁾		m (ft)	2.5 (8.3)	8 (26)	2.5 (8.3)	2.5 (8.3)	
		AUX cable max. recommended length of 0.5mm ² (AWG20)		m (ft)	10 (33)	30 (100)	10 (33)	10 (33)	
CalFree™ calibration without test weights		Suitable ³⁾							
		yes							
		Impact of J box on Signal							
		% < 0.1%							
		AUX cable max. recommended wire resistance for CalFree™		Ω	0.05			0.05	0.05
		AUX cable max. recommended length of 0.5mm ² (AWG20)		m (ft)	1.5 (5)			1.5 (5)	1.5 (5)

1) Impact of junction box due to resistor tolerances

2) Assuming 50 % shift adjustment range left

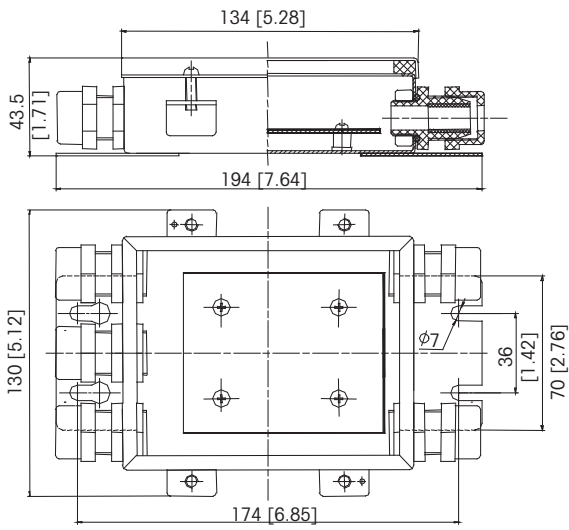
3) In conjunction with MT CalFree™ terminals

4) See certificate for complete information

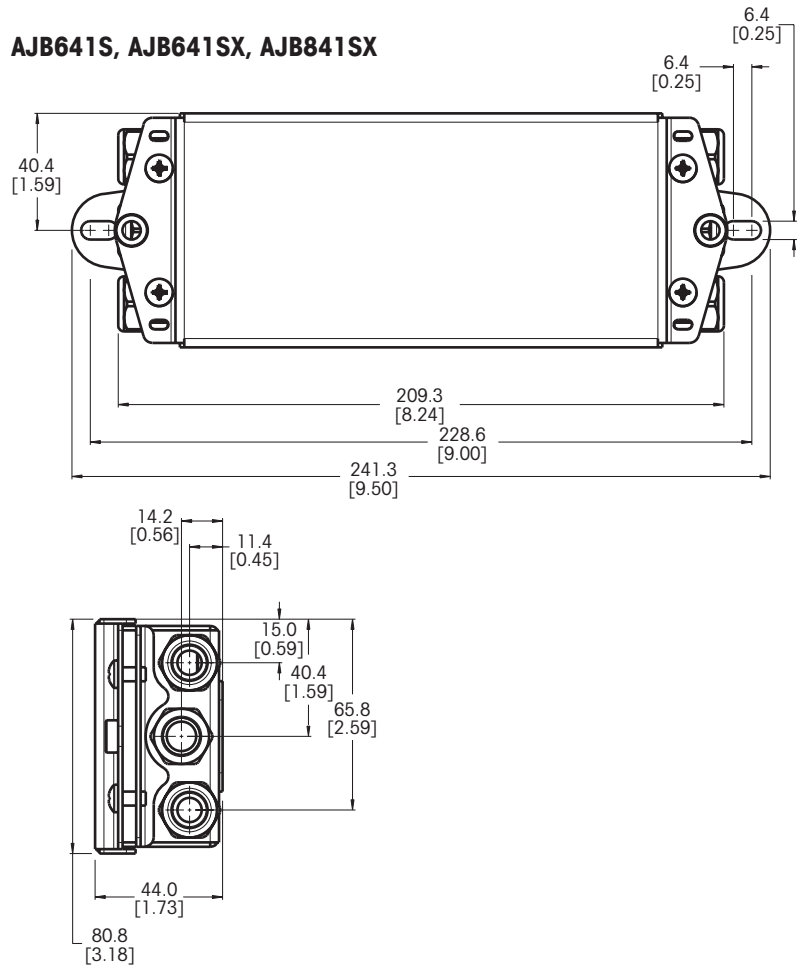


Dimensional Drawings mm [in]

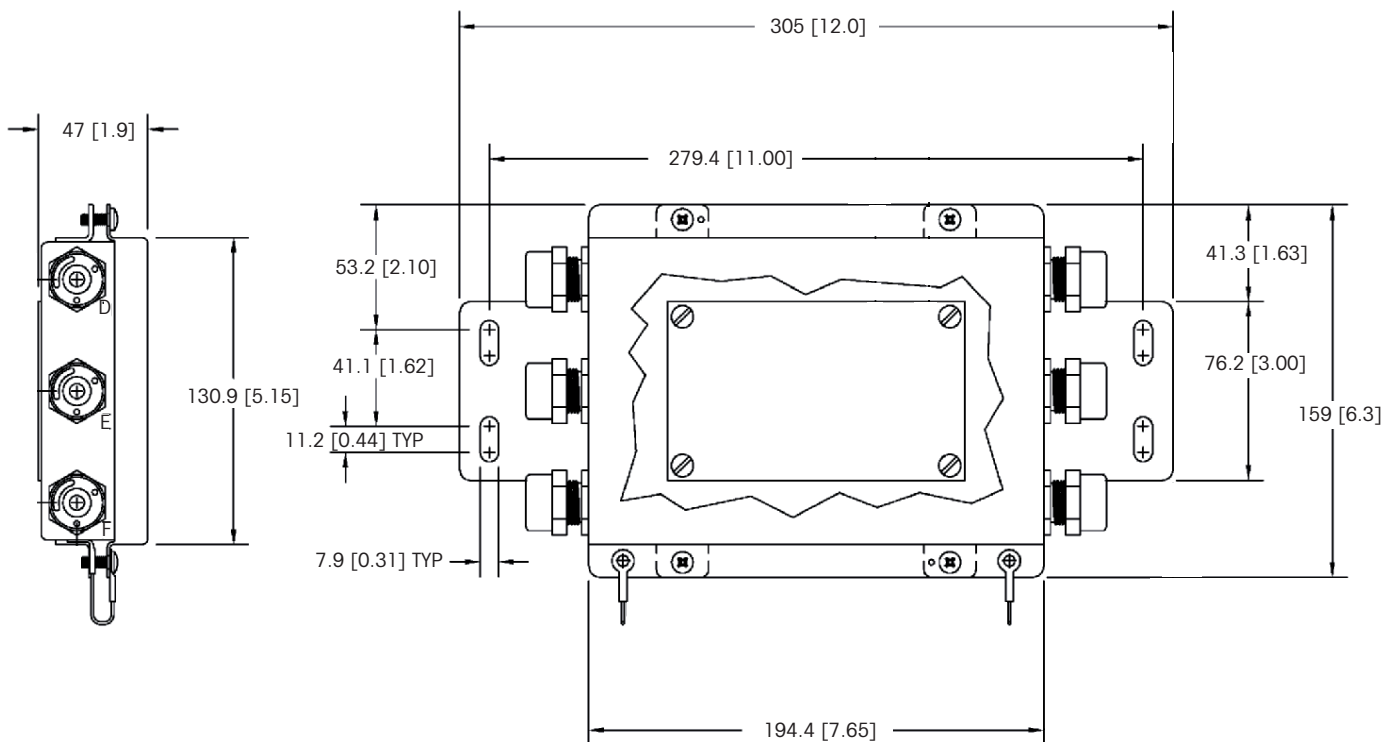
AJB540S



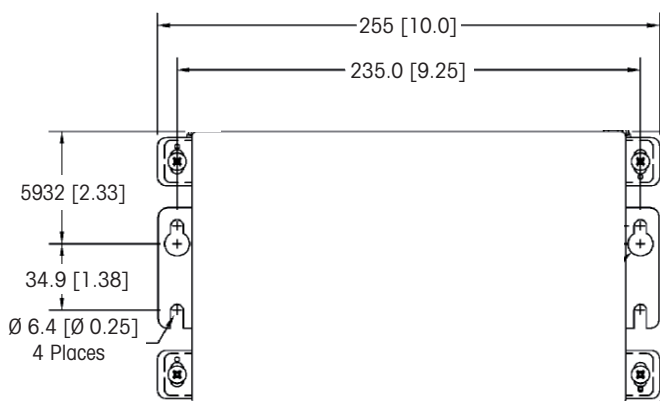
AJB641S, AJB641SX, AJB841SX



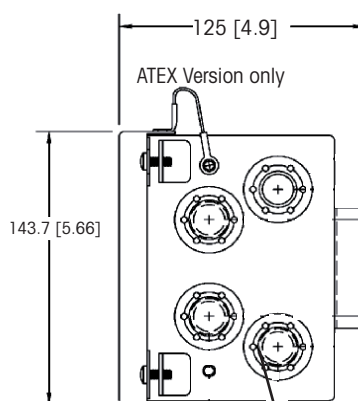
AJB541M



AJB540L

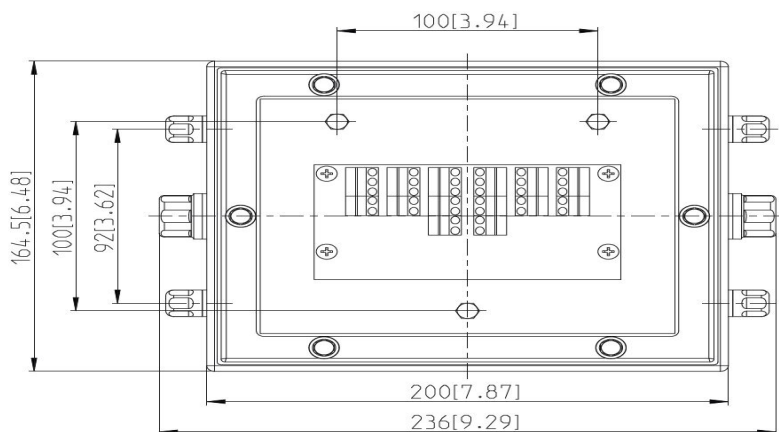
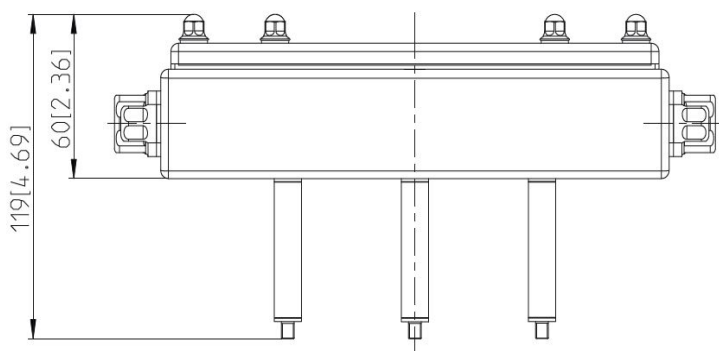


2 Hole plugs supplied to close any unused cable entry fittings.



For threaded conduit with 1/2"-14 NPT thread

AJB941M



Precision Junction Boxes Order Information

Model	Description	Item No.
AJB540S	Precision Junction Box, small, IP65	30206112
AJB641S	Precision Junction Box, small, IP69K	30206108
AJB841S	Precision Junction Box, small, IP69K, 316SS	30070226
AJB541M	Precision Junction Box, medium, IP65	30206111
AJB540L	Precision Junction Box, large, IP65	30206113
AJB941M	Precision Junction Box, medium, hygienic, IP69K	30219978
AJB641SX	Precision Junction Box, small, ATEX/IECEx, IP69K	30070224
AJB841SX	Precision Junction Box, small, ATEX/IECEx, IP69K , 316SS	30070225

Bolded entries are stocked

Global Approvals

The Precision Junction Box is provided with all listed approvals. No need to think about options and additional charges. Simplifies the conduct of global business, order processing and service-part stocking.



METTLER TOLEDO Service

Our extensive service network is among the best in the world and ensures maximum availability and service life of your product.

Weighing Electronics

METTLER TOLEDO offers a complete family of electronics from simple weighing to application solutions for filling, stock control, batching, formulation, counting, checkweighing.



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