

72238303R

DIVISION 2 / ZONE 2 HAZARDOUS AREA

NON HAZARDOUS SAFE AREA

LOAD CELL  
Voc/Uo=5 VDC  
Isc/Io=150 mA  
Po=1.5 W  
Ca/Co=500 uF  
La/Lo=3 mH

REFER TO PAGE 3 OF THIS CONTROL DRAWING FOR LOAD CELL CONNECTIONS.

DISPLAY MODULE FROM PANEL VERSION OR OPTIONAL DISPLAY MODULE FOR DIN VERSION INSTALLED TO MAINTAIN DUST TIGHT RATING OF ENCLOSURE.

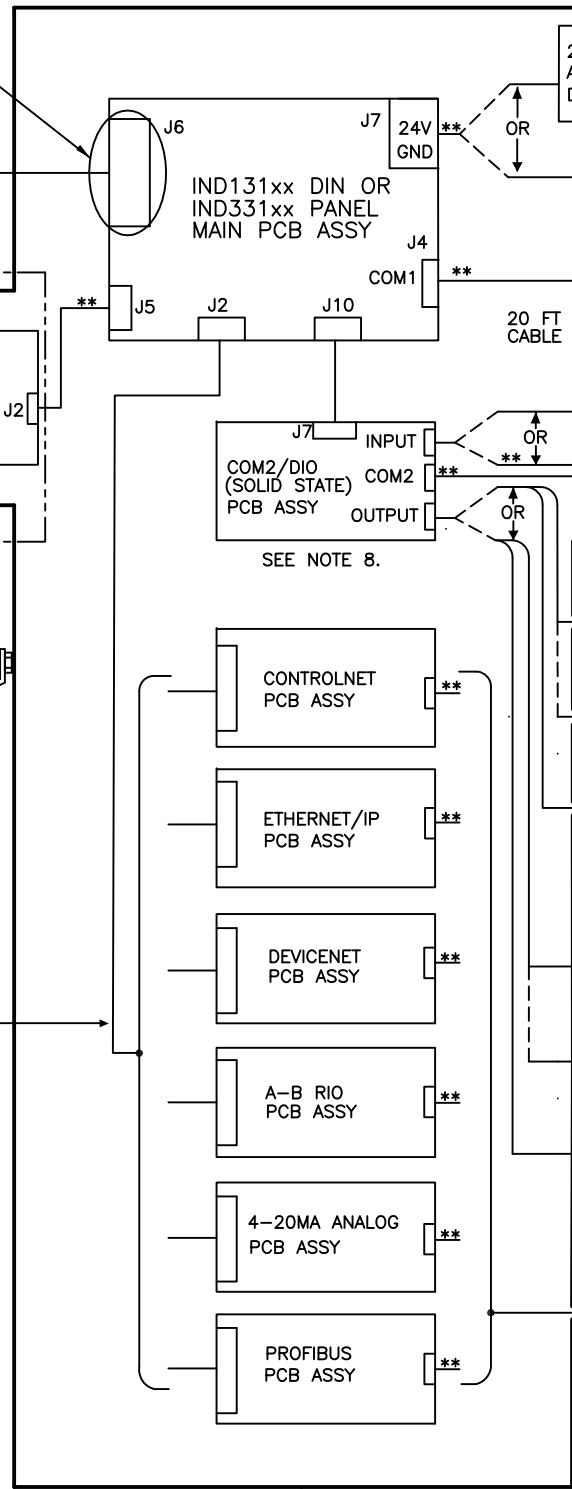
ENCLOSURE GROUNDING CONDUCTOR TO A TRUE EARTH GROUND BY INSTALLER. SEE NOTE 6.

EARTH GROUND

ONLY (1) OF THESE OPTIONS ARE ALLOWED AT A TIME.

GENERAL NOTES

- 1.) INSTALLATION MUST BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE (NFPA 70, ARTICLE 504) AND ANSI/ISA-RP12.6 TO MEET US REQUIREMENTS AND AND C22-1 SECTION 18, APPENDIX F TO MEET CANADIAN REQUIREMENTS.
- 2.) MAXIMUM NONHAZARDOUS VOLTAGE FOR ALL COMPONENTS IS 250VAC.
- 3.) ALL I/O PORTS IDENTIFIED AS (\*\*) ARE INCENDIVE AND MUST BE PROTECTED ACCORDING TO LOCAL AND NATIONAL ELECTRICAL CODES. RIGID CONDUIT IS SUGGESTED BUT OTHER APPROVED METHODS ARE ACCEPTABLE.
- 4.) NONINCENDIVE FIELD CIRCUIT CONNECTION RULES:  
 $V_{max} \geq V_{oc}/U_o$ ,  $I_{max} \geq I_{sc}/I_o$ ,  $C_a \geq C_i + C_{cable}$ ,  $L_a \geq L_i + L_{cable}$ .
- 5.) NO CHANGES MAY BE MADE TO THIS DRAWING WITHOUT FM APPROVAL
- 6.) ALL GROUNDING CONNECTIONS MUST BE LESS THAN 1 OHM RESISTANCE TO TRUE EARTH GROUND.
- 7.) BARRIER SELECTED TO MATCH NIFW PARAMETERS OF FM/CANADIAN NIFW APPROVED CONTROL DEVICE.
- 8.) ONLY THE SOLID STATE VERSION OF THE COM2/DIO OPTION IS APPROVED FOR USE. DO NOT USE THE RELAY VERSION OF THE COM2/DIO OPTION IN A HAZARDOUS AREA.



24VDC, FM/CANADIAN APPROVED, CLASS 1, DIV 2 POWER SUPPLY

INCENDIVE WIRING PROTECTION. NOTE 3.

20 FT MAXIMUM CABLE LENGTH. SIMPLE OPERATOR SWITCHES FOR USE WITH ACTIVE INPUTS ONLY.

5-30VDC FM/CANADIAN APPROVED, CLASS 1, DIV 2 POWER SUPPLY FM/CANADIAN APPROVED ENCLOSURE SUITABLE FOR THE ENVIRONMENT

FM/CANADIAN APPROVED DEVICES FOR CONTROL OF CUSTOMER'S EQUIPMENT INSIDE HAZARDOUS AREA (NON NIFW VALUE APPROVAL)

BARRIER REFER TO NOTE 7. 5-30VDC FM/CANADIAN APPROVED, CLASS 1, DIV 2 POWER SUPPLY FM/CANADIAN APPROVED ENCLOSURE SUITABLE FOR THE ENVIRONMENT

FM/CANADIAN APPROVED DEVICES FOR CONTROL OF CUSTOMER'S EQUIPMENT INSIDE HAZARDOUS AREA USING NIFW VALUE APPROVAL

120 - 240 VAC POWER SOURCE IN ACCORDANCE WITH NEC AND LOCAL REGULATIONS.

24VDC CLASS 2 OR LIMITED POWER SOURCE (LPS) TYPE OF POWER SUPPLY.

COM 1 RS-232 COMMUNICATION

CONNECTIONS FOR PASSIVE INPUTS ONLY EXTERNAL VOLTAGE 5-30VDC AT 10MA MAX.

COM2 RS-232 OR RS-485 COMMUNICATION

INCENDIVE WIRING PROTECTION. NOTE 3.

120 - 240 VAC POWER SOURCE IN ACCORDANCE WITH NEC AND LOCAL REGULATIONS.

5-30 VDC CLASS 2 OR LIMITED POWER SOURCE TYPE OF POWER SUPPLY.

INCENDIVE WIRING PROTECTION. NOTE 3.

120 - 240 VAC POWER SOURCE IN ACCORDANCE WITH NEC AND LOCAL REGULATIONS.

5-30 VDC CLASS 2 OR LIMITED POWER SOURCE TYPE OF POWER SUPPLY.

INCENDIVE WIRING PROTECTION. NOTE 3.

TO PROCESS CONTROL EQUIPMENT WITH 4-20MA ANALOG, A-B RIO, PROFIBUS, ETHERNET/IP, MODBUS TCP, DEVICENET OR CONTROLNET INTERFACE.

NOTICE  
THIS ITEM USED IN:  
[X] AGENCY APPROVED PRODUCT  
DO NOT CHANGE DOCUMENT  
WITHOUT APPROPRIATE APPROVAL

PANEL MOUNT VERSION IND331xx (33P10000xx00400)  
AND  
DIN RAIL VERSION IND131xx (13D10000xx00400)

CUSTOMER OR MT PROVIDED FM/CANADIAN APPROVED ENCLOSURE APPROPRIATE FOR ENVIRONMENTAL PROTECTION IN:  
CLASS I, DIVISION 2, GROUPS A, B, C, D;  
CLASS II, DIVISION 2, GROUPS E, F, G;  
CLASS III, DIVISION 2;  
CLASS I, ZONE 2, IIC (US ONLY);  
HAZARDOUS LOCATIONS.

US/CANADA  
DIAGRAM, CONTROL  
DIVISION 2 & ZONE 2

METTLER TOLEDO  
MTCN / MTCZ

IND131xx DIN, IND331xx PANEL

版本/VER	更改号/ER	ECN.NO.	更改人/BY	日期/DATE	图样阶段/STAGE	重量/WGT	比例/SCALE
设计/DRN	潘菁菁		批准/APPD		S	A	1:1
审核/CHECK	王树君		认证/AGEN				
工艺/MFG	朱建忠		日期/DATE	8 Nov 2010	SHEET: 第 1 页 of 共 3 页		

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- 认证标记/Appro Mark
- Metrology
  - Safety
  - Ex

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DIVISION 2 / ZONE 2 HAZARDOUS AREA

NON HAZARDOUS SAFE AREA

CABLE SHIELDING - SEE NOTE 6.

Cable=60pf/FOOT  
Lcable=0.2uH/FOOT

LOAD CELL  
Voc/Uo=5 VDC  
Isc/Io=150 mA  
Po=1.5 W  
Ca/Co=500 uF  
La/Lo=3 mH

JUNCTION BOX  
PCB ASSY

IND131xx J-BOX  
MAIN PCB ASSY

24VDC, FM/CANADIAN  
APPROVED, CLASS 1,  
DIV 2 POWER SUPPLY

120-240 VAC POWER SOURCE  
IN ACCORDANCE WITH NEC AND  
LOCAL REGULATIONS.

24VDC CLASS 2 OR LIMITED POWER  
SOURCE (LPS) TYPE OF POWER SUPPLY.

INCENDIVE WIRING PROTECTION. NOTE 3.

COM 1 RS-232 COMMUNICATION

20 FT MAXIMUM  
CABLE LENGTH.

SIMPLE OPERATOR SWITCHES  
FOR USE WITH ACTIVE  
INPUTS ONLY.

CONNECTIONS FOR PASSIVE INPUTS ONLY  
EXTERNAL VOLTAGE 5-30VDC AT 10MA MAX.

COM2 RS-232 OR RS-485 COMMUNICATION

5-30VDC FM/CANADIAN  
APPROVED, CLASS 1,  
DIV 2 POWER SUPPLY

120 - 240 VAC POWER SOURCE  
IN ACCORDANCE WITH NEC AND  
LOCAL REGULATIONS.

5-30 VDC CLASS 2 OR LIMITED POWER  
SOURCE TYPE OF POWER SUPPLY.

FM/CANADIAN APPROVED  
DEVICES FOR CONTROL OF  
CUSTOMER'S EQUIPMENT  
INSIDE HAZARDOUS AREA  
(NON NIFW VALUE APPROVAL)

INCENDIVE WIRING PROTECTION. NOTE 3.

BARRIER REFER TO  
NOTE 8. 5-30VDC FM/CANADIAN  
APPROVED, CLASS 1,  
DIV 2 POWER SUPPLY

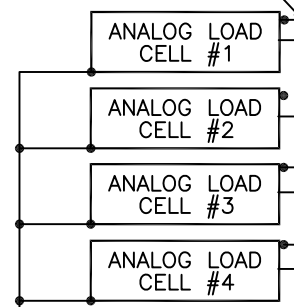
120 - 240 VAC POWER SOURCE  
IN ACCORDANCE WITH NEC AND  
LOCAL REGULATIONS.

5-30 VDC CLASS 2 OR LIMITED POWER  
SOURCE TYPE OF POWER SUPPLY.

FM/CANADIAN APPROVED  
DEVICES FOR CONTROL OF  
CUSTOMER'S EQUIPMENT  
INSIDE HAZARDOUS AREA  
USING NIFW VALUE APPROVAL

TO PROCESS CONTROL EQUIPMENT  
WITH 4-20MA ANALOG, A-B RIO,  
PROFIBUS, ETHERNET/IP, MODBUS TCP,  
DEVICENET OR CONTROLNET INTERFACE.

NOTICE  
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 AGENCY APPROVED PRODUCT  
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WITHOUT APPROPRIATE APPROVAL



LOAD CELL CABLE SHIELDS TO BE TERMINATED  
TO METAL LOAD CELL CABLE GLAND ON ENCLOSURE

LOAD CELL GROUNDING CONDUCTOR TO  
A TRUE EARTH GROUND BY INSTALLER.  
SEE NOTE 7.



ENCLOSURE GROUNDING CONDUCTOR TO  
A TRUE EARTH GROUND BY INSTALLER.  
SEE NOTE 7.



ONLY (1) OF THESE OPTIONS  
ARE ALLOWED AT A TIME.

GENERAL NOTES

- 1.) INSTALLATION MUST BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE (NFPA 70, ARTICLE 504) AND ANSI/ISA-RP12.6 TO MEET US REQUIREMENTS AND AND C22-1 SECTION 18, APPENDIX F TO MEET CANADIAN REQUIREMENTS.
- 2.) MAXIMUM NONHAZARDOUS VOLTAGE FOR ALL COMPONENTS IS 250VAC.
- 3.) ALL I/O PORTS IDENTIFIED AS (\*\*) ARE INCENDIVE AND MUST BE PROTECTED ACCORDING TO LOCAL AND NATIONAL ELECTRICAL CODES. RIGID CONDUIT IS SUGGESTED BUT OTHER APPROVED METHODS ARE ACCEPTABLE.
- 4.) NONINCENDIVE FIELD CIRCUIT CONNECTION RULES:  
 $V_{max} \geq V_{oc}/U_o$ ,  $I_{max} \geq I_{sc}/I_o$ ,  $C_a \geq C_i + C_{cable}$ ,  $L_a \geq L_i + L_{cable}$ .
- 5.) NO CHANGES MAY BE MADE TO THIS DRAWING WITHOUT FM APPROVAL
- 6.) LOAD CELL CABLE SHIELDING IS NOT SAFETY CRITICAL AND CAN VARY FROM METHOD SHOWN IF REQUIRED FOR A STABLE WEIGHT READING.
- 7.) ALL GROUNDING CONNECTIONS MUST BE LESS THAN 1 OHM RESISTANCE TO TRUE EARTH GROUND.
- 8.) BARRIER SELECTED TO MATCH NIFW PARAMETERS OF FM/CANADIAN NIFW APPROVED CONTROL DEVICE.
- 9.) ONLY THE SOLID STATE VERSION OF THE COM2/DIO OPTION IS APPROVED FOR USE. DO NOT USE THE RELAY VERSION OF THE COM2/DIO OPTION IN A HAZARDOUS AREA.

J-BOX VERSION IND131xx (13B10000xx00400)

MT PROVIDED STAINLESS STEEL OUTER ENCLOSURE  
APPROPRIATE FOR ENVIRONMENTAL PROTECTION IN:  
CLASS I, DIVISION 2, GROUPS A, B, C, D;  
CLASS II, DIVISION 2, GROUPS E, F, G;  
CLASS III, DIVISION 2;  
CLASS I, ZONE 2, IIC (US ONLY);  
HAZARDOUS LOCATIONS.

US/CANADA		DIAGRAM, CONTROL	
DIVISION 2 & ZONE 2			
设计/DRN	潘菁菁	批准/APPD	
审核/CHECK	王树君	认证/AGEN	
工艺/MFG	朱建忠	日期/DATE	Nov 2010
版本/VER	更改号/ER, ECN, NO.	更改人/BY	日期/DATE
图样阶段/STAGE	重量/WGT	比例/SCALE	
S	A	1:1	
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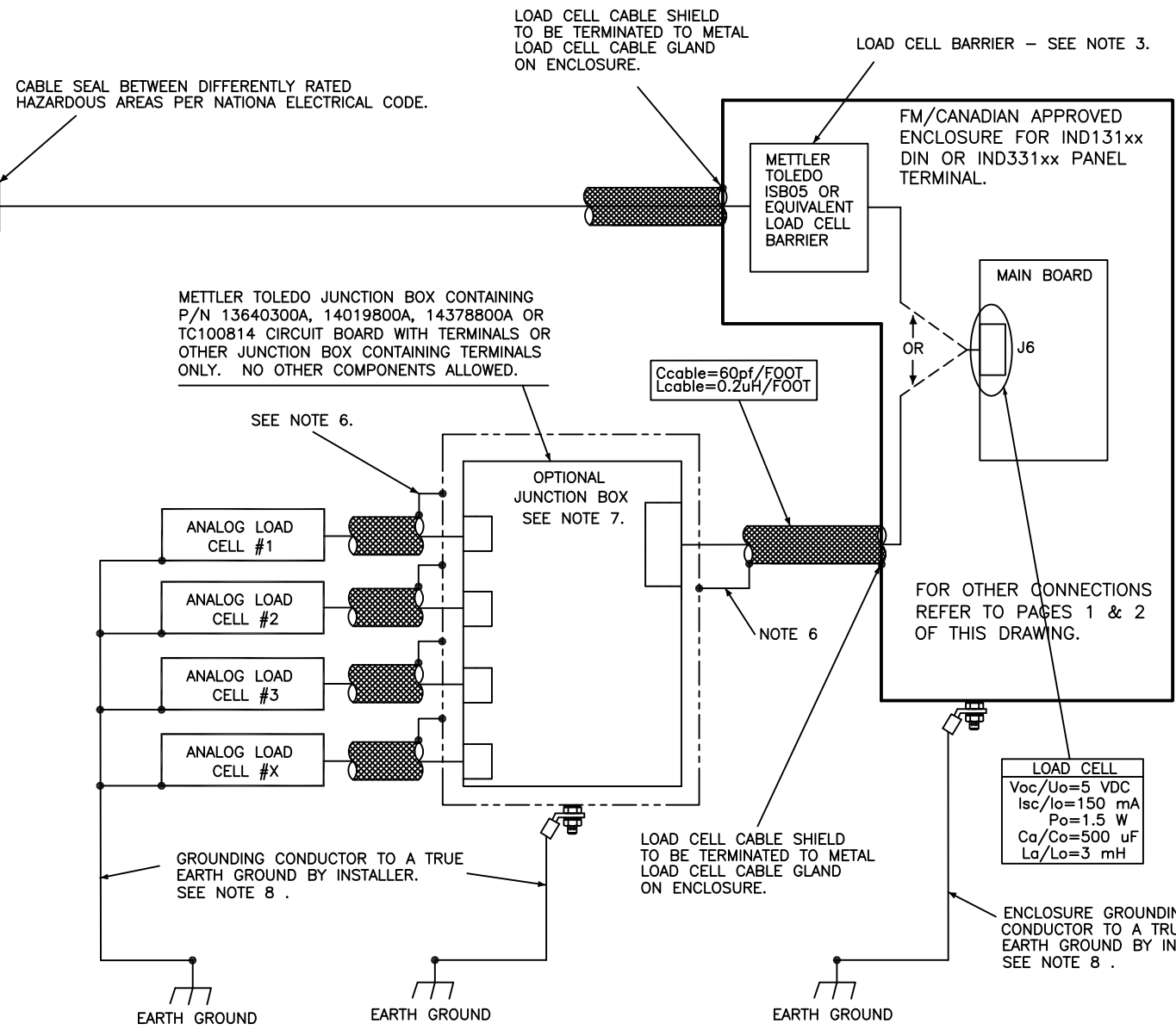
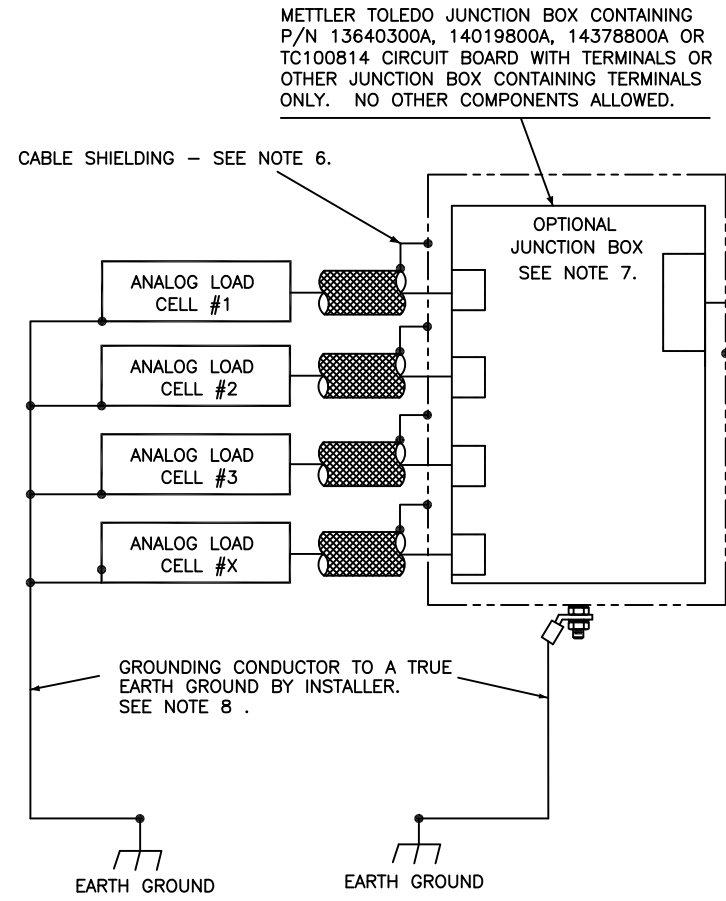
**METTLER TOLEDO**  
MTCN / MTCZ  
IND131xx J-Box  
72238303R

- 认证标志/Appro Mark
- Metrology
  - Safety
  - Ex

72238303R

DIVISION 1 / ZONE 1  
HAZARDOUS AREA

DIVISION 2 / ZONE 2  
HAZARDOUS AREA



GENERAL NOTES

- 1.) INSTALLATION MUST BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE (NFPA 70, ARTICLE 504) AND ANSI/ISA-RP12.6 TO MEET US REQUIREMENTS AND C22-1 SECTION 18, APPENDIX F TO MEET CANADIAN REQUIREMENTS.
- 2.) MAXIMUM NONHAZARDOUS VOLTAGE FOR ALL COMPONENTS IS 250VAC.
- 3.) WHEN THE LOAD CELLS ARE LOCATED IN A DIVISION 1 OR ZONE 1 AREA, A BARRIER IS REQUIRED. METTLER TOLEDO MODEL ISB05, ISB05X OR EQUIVALENT BARRIER CAN BE INSTALLED INSIDE A DUST TIGHT ENCLOSURE OR THE MODEL ISB05X CAN BE INSTALLED INSIDE THE DIVISION 1, DIVISION 2, ZONE 1 OR ZONE 2 AREA. REFER TO ISB CONTROL DRAWING 159672R OR 165089R FOR MORE DETAILS.
- 4.) NONINCENDIVE FIELD CIRCUIT CONNECTION RULES:  
 $V_{max} \geq V_{oc}/U_o$ ,  $I_{max} \geq I_{sc}/I_o$ ,  $C_a \geq C_i + C_{cable}$ ,  $L_a \geq L_i + L_{cable}$ .
- 5.) NO CHANGES MAY BE MADE TO THIS DRAWING WITHOUT FM APPROVAL.
- 6.) LOAD CELL CABLE SHIELDING IS NOT SAFETY CRITICAL AND CAN VARY FROM METHOD SHOWN IF REQUIRED FOR A STABLE WEIGHT READING.
- 7.) A JUNCTION BOX IS REQUIRED IF MORE THAN 1 LOAD CELL IS CONNECTED OR IF A LONGER LOAD CELL CABLE IS REQUIRED.
- 8.) ALL GROUNDING CONNECTIONS MUST BE LESS THAN 1 OHM RESISTANCE TO TRUE EARTH GROUND.

NOTICE  
THIS ITEM USED IN:  
 AGENCY APPROVED PRODUCT  
DO NOT CHANGE DOCUMENT  
WITHOUT APPROPRIATE APPROVAL

US/CANADA				DIAGRAM, CONTROL	
DIVISION 1,2 & ZONE 1,2				LOAD CELL CONNECTIONS	
版本/VER	更改号/ER	ECN.NO.	更改人/BY	日期/DATE	图样阶段/STAGE
设计/DRN	潘菁菁	批准/APPD			S A
审核/CHECK	王树君	认证/AGEN			1:1
工艺/MFG	朱建忠	日期/DATE	8 Nov 2010		SHEET: 第 3 页 of 共 3 页

**METTLER TOLEDO**  
MTCN / MTCZ

LOAD CELL CONNECTIONS

72238303R

- 认证标记/Appro Mark
- Metrology
  - Safety
  - Ex