| Rev | ECN/DDC | DESCRIPTION | DATE | DRAFT | CHECK | APV'D |
|---|---|---|---|---|---|---|
| A | | Initial Release. | 02-24-17 | V.J.C. | E.M.J. | V.J.C. |
| B | | Incorporated Agency Requested Changes. | 04-06-17 | V.J.C. | E.M.J. | V.J.C. |
| C | | Incorporated Agency Requested Changes. | 04-07-17 | V.J.C. | E.M.J. | V.J.C. |
| D | | Incorporated Agency Requested Changes. | 04-11-17 | V.J.C. | L.E.G. | V.J.C. |
| E | | Incorporated Agency Requested Changes. | 04-12-17 | V.J.C. | E.M.J. | V.J.C. |
| F | 12044 | Revised Per ECN. | 12-10-19 | V.J.C. | J.I. | V.J.C. |
| G | 12142 | Revised Per ECN. | 05-01-23 | V.J.C. | J.M. | V.J.C. |

## *The notes below apply to all 6 pages in this control document*

1. *No revision to the drawing without prior UL approval.*
2. *Associated apparatus manufacturer's installation drawing must be followed when installing this equipment.*
3. *Install Intrinsic Safe Barriers in accordance with barrier instructions.*
4. *The total combined length of all wiring in the system, including the cable from each associated apparatus to and from the summing box, and to each load cell must not exceed 300 feet.*
5. *Installation should be in accordance with IEC/EN 60079-14.*
6. *The product option for use in ATEX/IECEx Zone 0 Group IIC areas is the HI 6020IT-SSX-Y-EX (shipped without cable glands):*
   *SS = Stainless Steel enclosure*
   *X = 1 is without trim pots, and X=2 is with trim pots*
   *Y = blank is a 5-hole summing box enclosure, and Y=6 is a 6-hole summing box enclosure enabling connection to a second summing box*
7. *SB (summing box) maximum cable length 250 ft; used between the summing box and IS barriers.*

*WARNINGS:*

1. *To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing*

***Substitution of components may impair Intrinsic Safety and/or void Hazardous Area Approval***

# HARDY PROCESS SOLUTIONS

TITLE
**General Control Drawing, Hazardous Area Apparatus System with HI 6020IT-SSX-Y, Load Sensor And Load Points, ATEX/IECEx**

| SIZE | FSCM | DRAWING NO. | REV. |
|---|---|---|---|
| D | 21316 | 0594-0012 | G |

| FILE NAME: | SCALE: | SHEET | OF |
|---|---|---|---|
| 0594-0012G1.VSD | NONE | 1 | 6 |

| Intrinsic Safety Barriers Approved For Use In This System (ATEX/IECEx) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Component Description | Supplier | Model | Class | Zone | Group | $U_o$ (V) | $I_o$ (mA) | $P_o$ (mW) | $C_o$ (uF) | $L_o$ (mH) |
| IS Barrier Type 1 (excitation) | MTL | 7766Pac | I | 0 | IIC | 12.0 | 157.0 | 471.0 | 1.41 | 1.47 |
| | | | | | IIB | | | | 9.00 | 4.40 |
| | | | | | IIA | | | | 36.00 | 11.00 |
| IS Barrier Type 2 (signals & sense) | | 7761Pac | I | 0 | IIC | 9.0 | 26.0 | 225.0 | 4.90 | 56.00 |
| | | | | | IIB | | | | 40.00 | 208.00 |
| | | | | | IIA | | | | 500.00 | 419.00 |
| IS Barrier Type 3 (C2) | | 7710+ | I | 0 | IIC | 10.0 | 200.0 | 500.0 | 3.00 | 0.91 |
| | | | | | IIB | | | | 20.00 | 2.72 |
| | | | | | IIA | | | | 100.00 | 7.25 |
| IS Barrier Type 1 (excitation) | Pepperl+Fuchs | Z966.H | I | 0 | IIC | 12.0 | 164.0 | 492.0 | 1.41 | 1.32 |
| | | | | | IIB | | | | 9.00 | 5.28 |
| | | | | | IIA | | | | 36.0 | 10.57 |
| IS Barrier Type 2 (signals & sense) | | Z961.H | I | 0 | IIC | 8.7 | 25.0 | 54.4 | 5.9 | 56.88 |
| | | | | | IIB | | | | 50.0 | 227.55 |
| | | | | | IIA | | | | 1000 | 455.11 |
| IS Barrier Type 3 (C2) | | Z710 | I | 0 | IIC | 9.56 | 195.0 | 466.1 | 3.6 | 0.93 |
| | | | | | IIB | | | | 26.0 | 3.74 |
| | | | | | IIA | | | | 210.0 | 7.48 |
| IS Barrier Type 1 (excitation) | Stahl | 9002/11-130-360-001 | I | 0 | IIC | 13.0 | 321.0 | 1040.0 | 1.0 | 0.19 |
| | | | | | IIB | | | | 6.2 | 1.6 |
| IS Barrier Type 2 (signals & sense) | | 9002/10-187-020-001 | I | 0 | IIC | 9.33 | 20.0 | 50.0 | 3.9 | 90.0 |
| | | | | | IIB/IIA | | | | 29.0 | 330.0 |
| IS Barrier Type 3 (C2) | | 9001/01-086-150-101 | I | 0 | IIC | 8.6 | 150.0 | 322.5 | 6.2 | 1.3 |
| | | | | | IIB/IIA | | | | 55.0 | 7.0 |

Notes:
1. For more information, please refer to the Zener barrier manufacturer control drawings.
2. IS Barriers used within a single system must be from the same supplier. Do not mix barrier suppliers within the same system.

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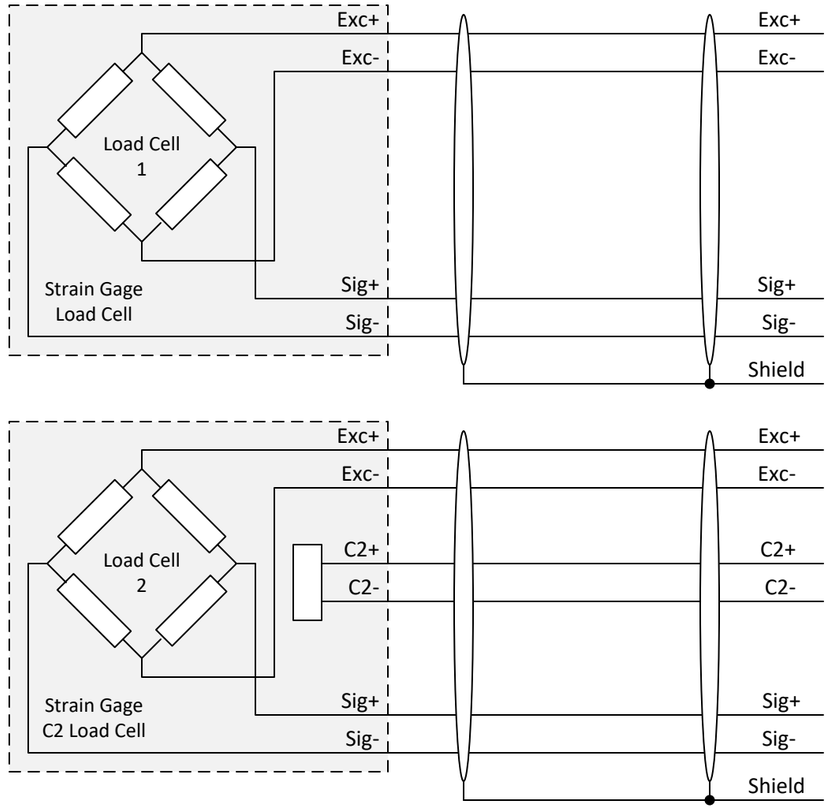
**HARDY PROCESS SOLUTIONS**

TITLE
**General Control Drawing, Hazardous Area Apparatus System with HI 6020IT-SSX-Y, Load Sensor And Load Points, ATEX/IECEx**

| SIZE | FSCM | DRAWING NO. | REV. |
|---|---|---|---|
| D | 21316 | 0594-0012 | G |

FILE NAME: 0594-0012G1.VSD | SCALE: NONE | SHEET 2 OF 6




***Terminology:***

***Load Sensor*** ***= Load Cell or C2 Load Cell***

***Load Point*** ***= Load Sensor and Mounting Hardware***

***Load Cell or C2 Load Cell Wiring to Connectors TB2, TB3, TB4 & TB5 on HI 6020IT Series Summing Card***

| Load Cell I.S. Entity Parameters | | | |
|---|---|---|---|
| Component Description | $U_o$ (V) | $I_o$ (mA) | $P_o$ (mW) |
| Load Sensor or Load Point | 29.9 | 511 | 1470 |
| C2 Load Sensor or Load Point | 29.9 | 511 | 1470 |

***This device is intended for connection to load cells which are considered simple apparatus with the following parameters:***
***Ci = 0uF***
***Li = 0uF***

***The entity concept allows interconnection of intrinsically safe apparatus with associated apparatus when the following is true:***

| [Field device] | [Barrier] |
|---|---|
| $V_{max}$ or $U_i$ | ≥ $V_{oc}$, $V_t$, or $U_o$ |
| $I_{max}$ or $I_i$ | ≥ $I_{sc}$, $I_t$, or $I_o$ |
| $P_{max}$ or $P_i$ | ≥ $P_o$ |
| $C_i + C_{cable}$ | ≤ $C_a$ or $C_o$ |
| $L_i + L_{cable}$ | ≤ $L_a$ or $L_o$ |

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**HARDY PROCESS SOLUTIONS**

TITLE
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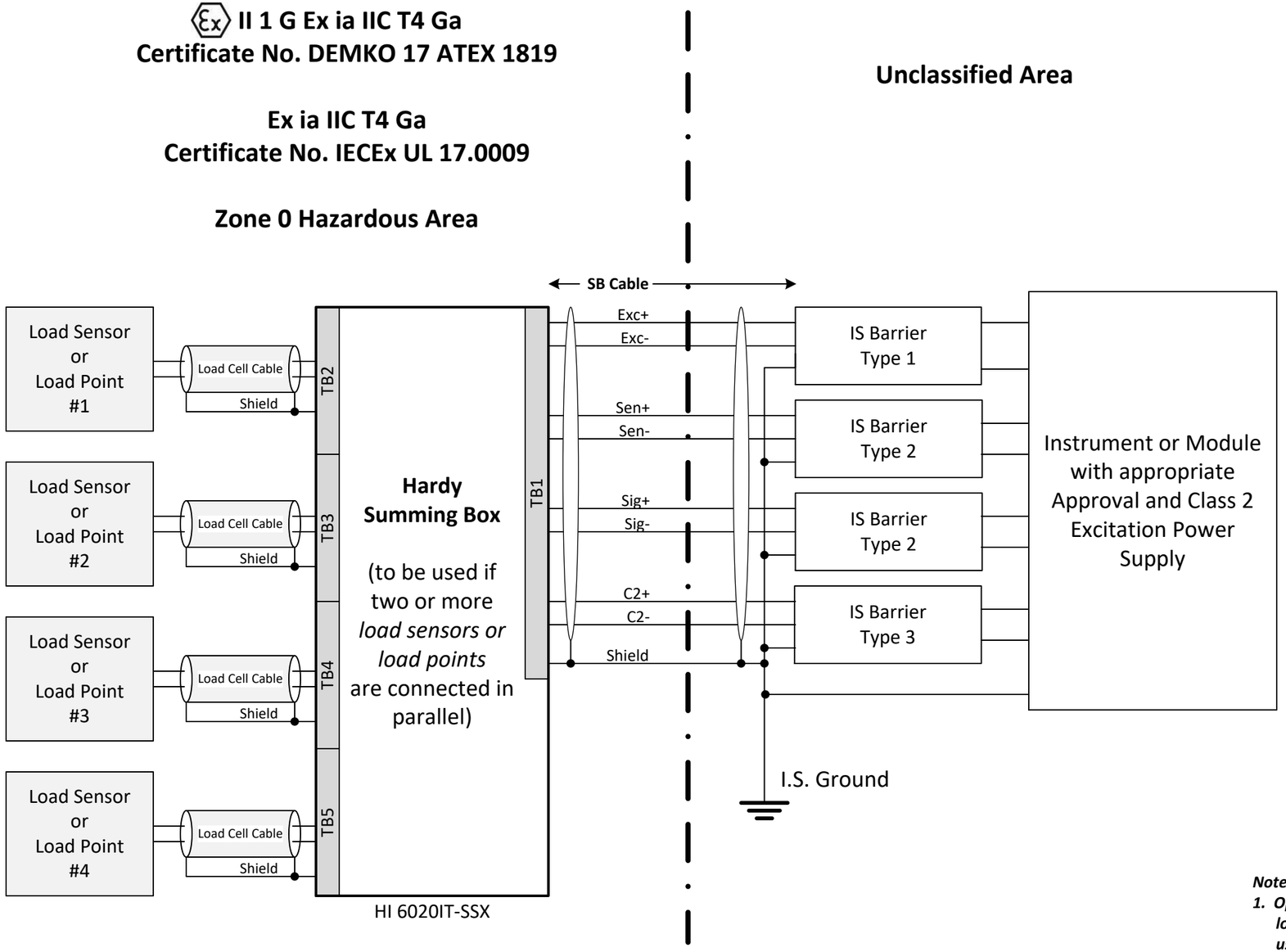
| 0594-0012G1.VSD | NONE | 3 | 6 |

**II 1 G Ex ia IIC T4 Ga**
**Certificate No. DEMKO 17 ATEX 1819**

**Ex ia IIC T4 Ga**
**Certificate No. IECEx UL 17.0009**

**Zone 0 Hazardous Area**

**Unclassified Area**




***Notes:***

1. ***Optional IS barrier on the sense lines is used to automatically compensate for losses through the IS barrier on the excitation lines. If the sense lines are not used, the IS Barrier for the sense lines is not required***
2. ***For customers using an instrument or module without a Class 2 rated excitation power supply, a separate Class 2 power supply can be used to power IS Barrier Type 1.***

***Substitution of components may impair Intrinsic Safety and/or void Hazardous Area Approval***

# HARDY PROCESS SOLUTIONS

TITLE
**General Control Drawing, Hazardous Area Apparatus System with HI 6020IT-SSX-Y, Load Sensor And Load Points, ATEX/IECEx**

| SIZE | FSCM | DRAWING NO. | REV. |
|---|---|---|---|
| D | 21316 | 0594-0012 | G |

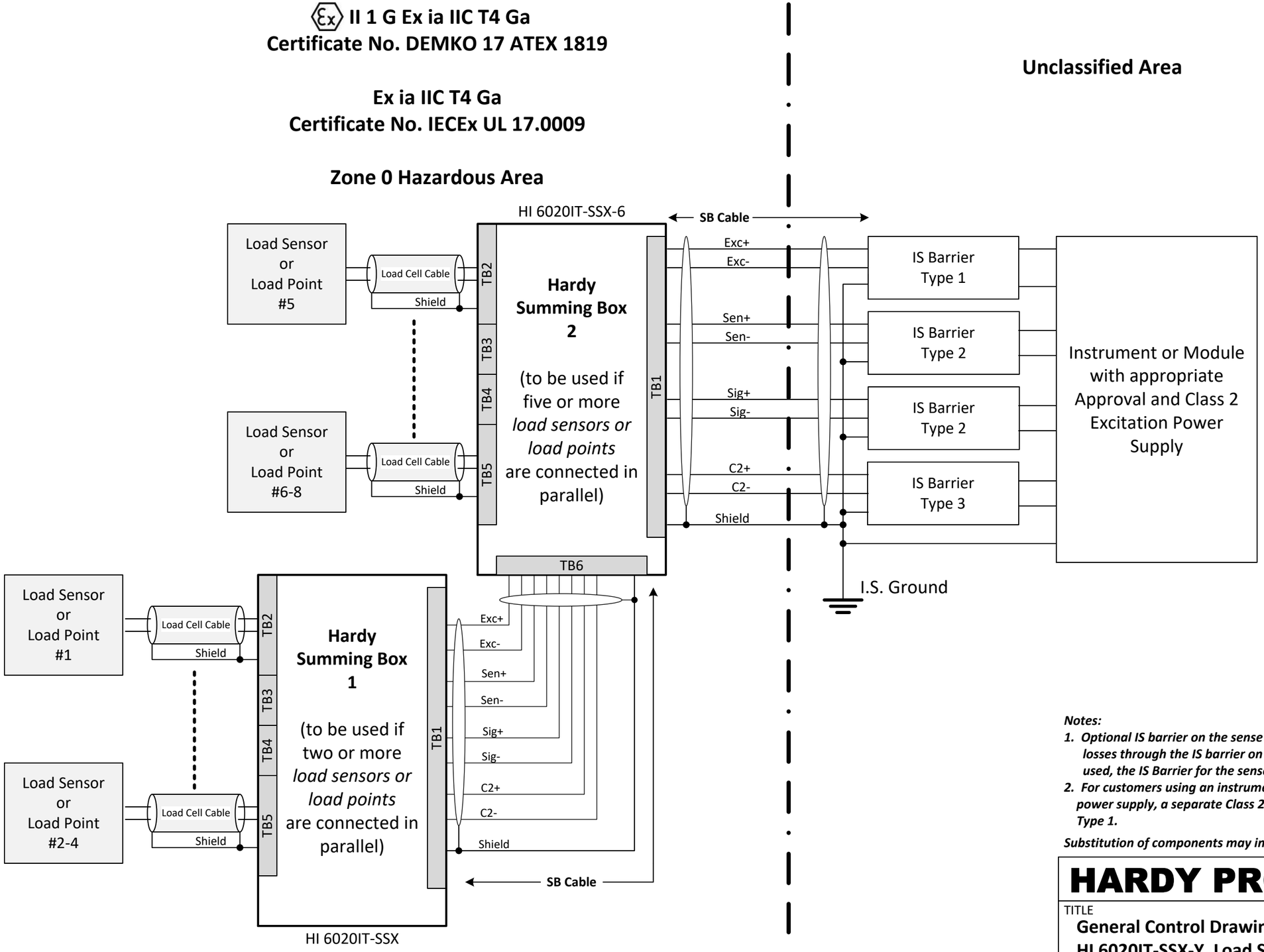
| FILE NAME: | SCALE: | SHEET | OF |
|---|---|---|---|
| 0594-0012G1.VSD | NONE | 4 | 6 |

**II 1 G Ex ia IIC T4 Ga**
**Certificate No. DEMKO 17 ATEX 1819**

**Ex ia IIC T4 Ga**
**Certificate No. IECEx UL 17.0009**

**Zone 0 Hazardous Area**

**Unclassified Area**




***Notes:***

1. ***Optional IS barrier on the sense lines is used to automatically compensate for losses through the IS barrier on the excitation lines. If the sense lines are not used, the IS Barrier for the sense lines is not required***
2. ***For customers using an instrument or module without a Class 2 rated excitation power supply, a separate Class 2 power supply can be used to power IS Barrier Type 1.***

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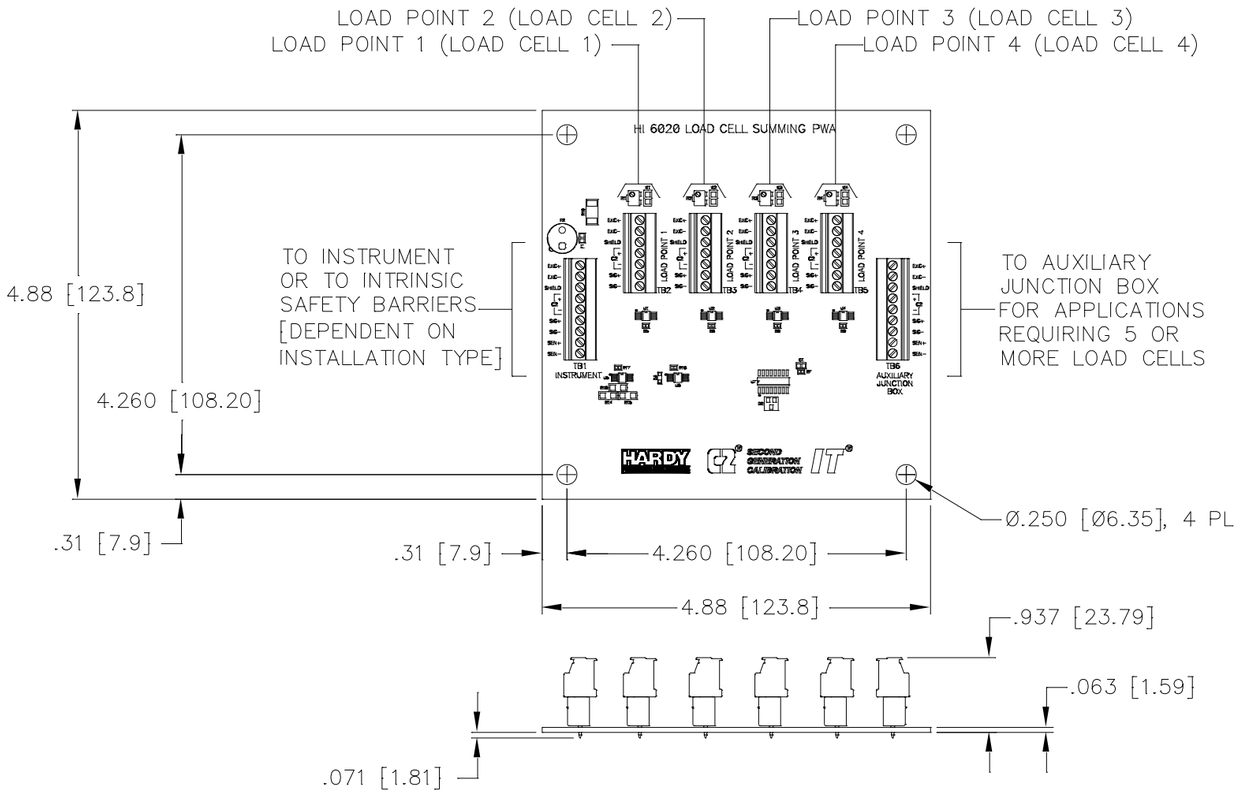
|---|---|---|---|
| D | 21316 | 0594-0012 | G |

| FILE NAME: | SCALE: | SHEET | OF |
|---|---|---|---|
| 0594-0012G1.VSD | NONE | 5 | 6 |




## *Notes for summing box and the HI 6020IT summing card*

1. *Refer to load cell Calibration sheet or weighing assembly selection guide for load cell wiring code.*
2. *Optional trim pots can not be used with C2 load sensors or C2 load points.*
3. *Load Cell wire tightening torque for the terminal blocks is 2lb-in minimum to 4lb-in maximum.*
4. *Cable glands are not supplied on units for use in ATEX and IECEX Zone 0, Group IIC hazardous area locations. Only use cable glands that are appropriate for the hazardous area locations.*
5. *When a cable gland cord grip is not used a cable gland hole plug must be inserted into the hole to prevent water and/or dust ingress into the enclosure.*

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| 0594-0012G1.VSD | NONE | 6 | 6 |