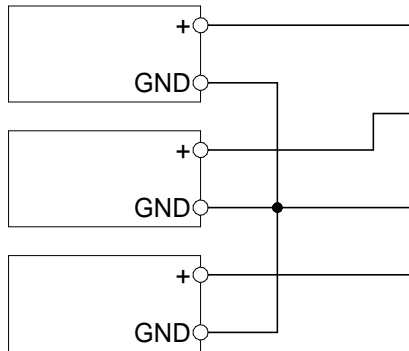


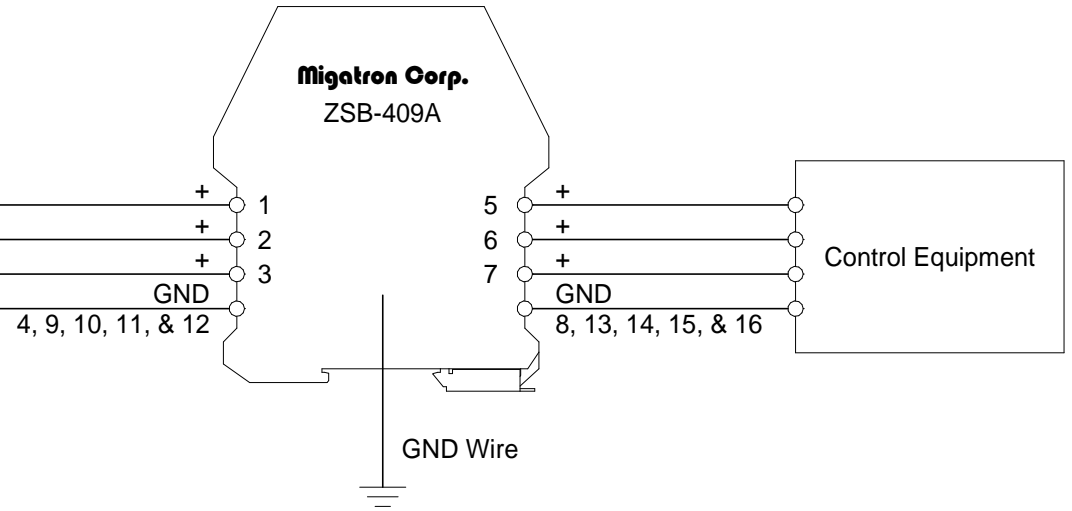
Hazardous Location

UL/cUL: Class I, Groups A, B, C, and D;
 Class II, Groups E, F, and G; and Class III
 ATEX/IECEX: Zones 0, 1, and 2, Groups I, IIA, IIB, and IIC;
 Zones 20, 21, and 22, Groups IIIA, IIIB, and IIIC

Intrinsically Safe
 Equipment (apparatus)
 with entity parameters
 appropriate for
 connection to the
 associated apparatus.



Non-Hazardous Location



See Note 6 for specific condition of use.

Notes

NOTE 1: ZSB-409A [Exia] ASSOCIATED APPARATUS/ASSOCIATED EQUIPMENT/APPAREILLAGE CONNEXE Entity Parameters

ZSB-409A Entity Parameters																
Model Number	Terminals	Voc or Uo (V dc)	Isc or Io (mA)	Po (W)	Ca or Co (µF)				La or Lo (mH)				La/Ra or Lo/Ro (µH/ohm)			
					I*	A, B, or IIC	C, E, or IIB	D, F, G, or IIA	I*	A, B, or IIC	C, E, or IIB	D, F, G, or IIA	I*	A, B, or IIC	C, E, or IIB	D, F, G, or IIA
ZSB-409A	3 & GND	28.4	100	0.710	3.64	0.079	0.632	2.07	5	1	5	5	657	50	200	401
	1 & GND	11.6	6	0.017	46.0	1.59	10.8	43.0	1000	987	1000	1000	26800	2040	8170	16300
	2 & GND	11.6	6	0.017	46.0	1.59	10.8	43.0	1000	987	1000	1000	26800	2040	8170	16300

GND = Hazardous Location ground terminals are 4, 9, 10, 11, & 12.

* Values are for Group I, ATEX and IECEX installations only.

Table 1

Rev	Drawing Date	Description	Approved By	Approval Date	Effective Date	Drawn By/Date	Migatron Corporation 935 Dieckman Street Woodstock, IL 60098 USA		
1	08-01-2013	Initial Release	F. Wroga	08-26-2013	08-27-2013	JVV/05-12-2011			Title: ZSB-409A Control Drawing
							Size: A	Drawing No.: Ex05121109	Rev.: 1
							Scale: 1:1	Date: August 1, 2013	Page 1 of 2

Notes (continued from previous page)

NOTE 2: WARNING: Do not remove this associated apparatus/equipment from the DIN-Rail or make any changes to the wiring unless the power is off or the area to which outputs are connected is known to be non-hazardous.

NOTE 3: The output current of this associated apparatus/equipment is limited by a resistor such that the output voltage-current plot is a straight line drawn between open-circuit voltage and short-circuit current.

NOTE 4: Selected intrinsically safe apparatus must be third party listed as intrinsically safe for the application, and have intrinsically safe entity parameters conforming with Table 2.

NOTE 5: Capacitance and inductance of the field wiring from the intrinsically safe apparatus to the associated apparatus/equipment shall be calculated and must be included in the system calculations as shown in Table 2. Cable capacitance, C_{cable} , plus intrinsically safe apparatus capacitance, C_i must be less than the marked capacitance, C_a (or C_o), shown on any associated apparatus/equipment used. The same applies for inductance (L_{cable} , L_i and L_a or L_o , respectively). Where the cable capacitance and inductance per foot are not known, the following values shall be used: $C_{cable} = 60 \text{ pF/ft.}$, $L_{cable} = 0.2 \text{ }\mu\text{H/ft.}$

I.S. Equipment	Associated Apparatus
$V_{max} \text{ or } U_i \geq$	$V_{oc} \text{ or } V_t \text{ or } U_o$
$I_{max} \text{ or } I_i \geq$	$I_{sc} \text{ or } I_t \text{ or } I_o$
$P_{max} \text{ or } P_i \geq$	P_o
$C_i + C_{cable} \leq$	$C_a \text{ or } C_o$
$L_i + L_{cable} \leq$	$L_a \text{ or } L_o$

Table 2

NOTE 6: For installations in which both the C_i and L_i of the intrinsically safe apparatus exceeds 1% of the C_o and L_o parameters of the associated apparatus/equipment (excluding cable), then no more than 50% of C_o and L_o parameters are applicable.

Additionally, for ATEX/IECEx, the reduced capacitance of the external circuit (including cable) shall not be greater than 1 μF for Groups I, IIA, IIB, IIIA, IIIB, and IIIC, and 600 nF for IIC.

Additionally, for UL/cUL, the maximum capacitance allowed shall not be greater than $C_o = 1 \text{ }\mu\text{F}$ for Groups C and D and $C_o = 600 \text{ nF}$ for Group A.

NOTE 7: This associated apparatus/equipment must be installed in accordance with this Control Drawing, the National Electrical Code (ANSI/NFPA 70) for installation in the United States, the Canadian Electrical Code for installations in Canada, or other local codes, as applicable.

NOTE 8: This associated apparatus/equipment may also be connected to simple apparatus as defined in Article 504.2 and installed and temperature classified in accordance with Article 504.10(B) of the National Electrical Code (ANSI/NFPA 70), or other local codes, as applicable.

NOTE 9: This associated apparatus/equipment must be installed in an enclosure suitable for the application in accordance with the National Electrical Code (ANSI/NFPA 70) for installation in the United States, the Canadian Electrical Code for installations in Canada, or other local codes, as applicable.

NOTE 10: This associated apparatus/equipment must be connected to a suitable ground electrode per the National Electrical Code (ANSI/NFPA 70), the Canadian Electrical Code or other local installation codes, as applicable. The resistance of the ground path must be less than 1 ohm. The ZSB-409A is fitted with an insulated wire having a cross-sectional area of at least 4 mm squared for making the ground connection.

NOTE 11: Intrinsically safe circuits must be wired and separated in accordance with Article 504.20 of the National Electrical Code (ANSI/NFPA 70) or other local codes, as applicable. Where multiple circuits extend from the same piece of associated apparatus/equipment, they must be installed in separate cables or in one cable having suitable insulation. Refer to Article 504.30(B) of the National Electrical Code (ANSI/NFPA 70) and Instrument Society of America Recommended Practice ISA RP12.6 for installing intrinsically safe equipment.

NOTE 12: This associated apparatus/equipment has not been evaluated for use in combination with another associated apparatus/equipment.

NOTE 13: Control equipment must not use or generate more than 250 V rms or dc with respect to earth.

NOTE 14:
WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.
AVERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SÉCURITÉ INTRINSÈQUE.

Rev	Drawing Date	Description	Approved By	Approval Date	Effective Date	Drawn By/Date	Migatron Corporation	
1	08-01-2013	Initial Release	F. Wroga	08-26-2013	08-27-2013	JVV/05-12-2011	935 Dieckman Street Woodstock, IL 60098 USA	
							Title: ZSB-409A Control Drawing	
						Size: A	Drawing No.: Ex05121109	Rev.: 1
						Scale: 1:1	Date: August 1, 2013	Page 2 of 2