

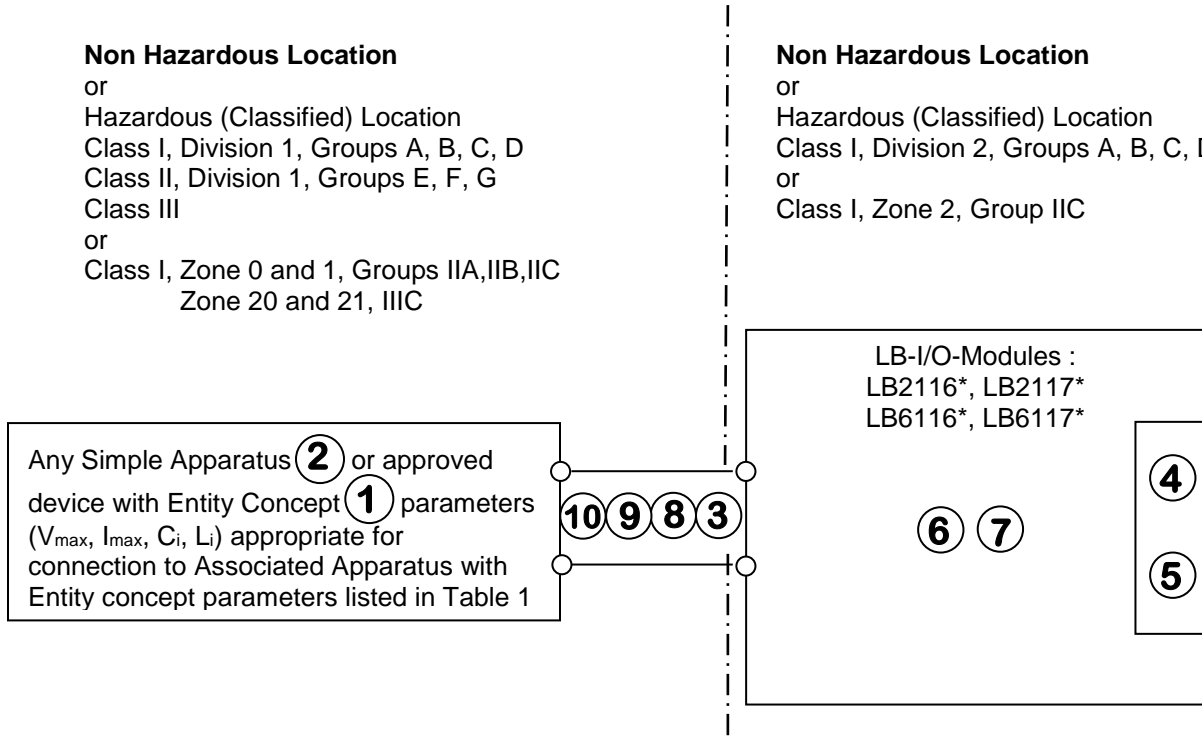
LB Remote I/O type LB2116*, LB2117*, LB6116* and LB6117*

UL-File Number E106378

Connections

Non Hazardous Location
 or
 Hazardous (Classified) Location
 Class I, Division 1, Groups A, B, C, D
 Class II, Division 1, Groups E, F, G
 Class III
 or
 Class I, Zone 0 and 1, Groups IIA, IIB, IIC
 Zone 20 and 21, IIC

Non Hazardous Location
 or
 Hazardous (Classified) Location
 Class I, Division 2, Groups A, B, C, D
 or
 Class I, Zone 2, Group IIC



LB2116*, LB2117*

LB6116*, LB6117*



*: must show one character.
 Character shows a letter to identify the variant

Example of front views

1 10 see notes next pages!

This document contains safety-relevant information. It must not be altered without the authorization of a NE Ex		
	Only valid as long as released in EDM	date: 2016-Oct-28
 Worldwide	Control Drawing UL File No.: E106378 LB2116, LB2117, LB6116, LB6117	116-0426
		sheet 1 of 3

Notes


1. The Entity Concept allows interconnection of non-incendive apparatus with associated apparatus not specifically examined in combination as a system when the approved values of Voc (or Uo) and Isc (or Io) for the associated apparatus are less than or equal to Vmax (Ui) and Imax(li) for the non-incendive apparatus and the approved values of Ca(Co) and La(Lo) for the associated apparatus are greater than Ci + Ccable and Li + Lcable, respectively, for the intrinsically safe apparatus,
Where Ccable= 60pF/ft., if unknown
Where Lcable= 0.20uH/ft., if unknown
2. Simple apparatus: an electrical component or combination of components of simple construction with well-defined electrical parameters that does not generate more than 1.5 V, 100 mA, 25 mW, or is a passive component that does not dissipate more than 1.3W and is compatible with the intrinsic safety of the circuit in which it is used.
3. Wiring methods must be in accordance with all applicable installation requirements of the county in use. For US, this is NFPA 70 (NEC) article 504 with additional information in ANSI-ISA –RP12.06.01. For Canada this is CSA 22.1-12 (CEC) section 18 and appendix F.
4. The voltages that can be applied to the module via the dedicated listed backplanes* are:
 - Ur = +12 VDC +4 % for module power supply input by LB power supply
 - Ur =+5.4 VDC +5 % for module bus signal input (communication input) by a LB gateway
 - Ur = +12 VDC +4 % for the shutdown input derived from LB internal +12 V power supply
(No further signals used by the module)
5. *Connection only to certified backplane and certified power supply as listed in control-drawing 116-0396.
6. The device must be installed and operated only in an environment that ensures a pollution degree 2 (or better) according to ANSI/ISA resp. ANSI/UL 61010-1 or CAN/CSA-C22.2 No. 61010-1.
If used in areas with higher pollution degree, the device needs to be protected accordingly.
All circuits connected to the device must comply with the overvoltage category II (or better) according to ANSI/ISA resp. ANSI/UL 61010-1 or CAN/CSA-C22.2 No. 61010-1.
The enclosure must be able to accept Division 2 / Zone 2 wiring methods.
If the LB Remote I/O is intended to be mounted in a Division 2 / Zone 2 location it must be mounted in an enclosure with a minimum ingress protection of IP54. The enclosure must meet UL/CSA 60079-0 requirements.
7. The permitted ambient temperature range is -40 °C to +60 °C. Temperature code is T4.
8. Modules with multiple intrinsically safe field wiring pairs shall be installed as separate intrinsically safe circuits.
9. Applicable for output channels with linear characteristic only:
For installations in which both the Ci and Li of the intrinsically safe apparatus exceeds 1 % of the Co and Lo parameters of the associated apparatus (excluding the cable), then 50 % of Co and Lo parameters are applicable and shall not be exceeded.
Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1 uF for IIB and 600 nF for IIC.
10. The analog input channels can be used to connect an active field device. The safety relevant parameters of the analog input for that case is **Ui = 10 V, li = 13 mA**.
11. Additional notes

WARNING – EXPLOSION HAZARD – Substitution of Components may impair intrinsic safety and suitability for use in Class I, Division 2/Zone 2.

AVERTISSEMENT – RISQUE D'EXPLOSION – La substitution de composants peut compromettre la sécurité intrinsèque et rendre ce matériel inacceptable pour l'utilisation dans les emplacements de Classe I, Division 2/ Zone 2.

WARNING – EXPLOSION HAZARD – Do not disconnect the equipment unless the power has been switched off or the area is known to be non-hazardous

AVERTISSEMENT – RISQUE D'EXPLOSION - Ne pas déconnecter l'appareil si sous tension ou en présence d'une atmosphère explosive

This document contains safety-relevant information. It must not be altered without the authorization of a NE Ex		
	Only valid as long as released in EDM	date: 2016-Oct-28
 PEPPERL+FUCHS Worldwide	Control Drawing UL File No.: E106378 LB2116, LB2117, LB6116, LB6117	116-0426
		sheet 2 of 3

UL Notes:

- LB Remote I/O must be installed in an enclosure that meets the requirements of ANSI/ISA S82.01 and NEC resp. ANSI/ISA 12.12.01
- Installation should be in accordance with ANSI RP 12.6 „Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations“ and the National Electrical Code (ANSI/NFPA 70). Where multiple intrinsically safe circuits extend from an associated apparatus, they must be installed in separate cables or in one cable having suitable insulation.

c-UL Notes:

- LB Remote I/O must be installed in an enclosure that meets the requirements of the Canadian Electrical Code, CSA C 22.1; Part 1 Appendix F.
- Wiring methods must be in accordance with the Canadian Electrical Code CSA C22.1 Part 1 Appendix F.

Entity Parameters

Table 1 – ENTITY PARAMETERS I/O MODULES

MODEL TYPE	FIELD TERMINALS	U _i (V _{oc}) [V]	I _p (I _{sc}) [mA]	P _i (P _{max}) [mW]	GROUPS	ia, ib		
						C _i (C _a) [nF]	L _i (L _a) [mH]	L _i /R _i (L _i /R _a) [mH/Ω]
LB2116* LB2117*	2(+), 4/5/6(-) 3(+), 4/5/6(-)	10	13	33	A,B IIC	2970	100	1.094
					C,E IIB	19700	100	4.376
					D,F,G IIA	99700	100	8.752
LB2116*	1(+), 4/5/6(-)	24.2	108	654	A,B IIC	110	3.04	0.054
					C,E IIB	898	12.10	0.216
					D,F,G IIA	3250	24.30	0.432
LB2117*	1(+), 4/5/6(-)	17.8	162	721	A,B IIC	309	1.35	0.049
					C,E IIB	1820	5.41	0.196
					D,F,G IIA	7880	10.83	0.392
LB6116*	1(+), 4/5/6/8(-) 7(+), 4/5/6/8(-)	24.2	108	654	A,B IIC	110	3.04	0.054
					C,E IIB	898	12.10	0.216
					D,F,G IIA	3250	24.30	0.432
LB6117*	1(+), 4/5/6/8(-) 7(+), 4/5/6/8(-)	17.8	162	721	A,B IIC	309	1.35	0.049
					C,E IIB	1820	5.41	0.196
					D,F,G IIA	7880	10.83	0.392

*C_i is 12 nF and L_i is negligible for all model types.
The output characteristic is linear.*

For LB6116 and LB6117 operating in parallel mode C_i is 24 nF.

LB6116*	1/7(+), 4/5/6/8(-)	24.2	216	1308	A,B IIC	--	--	--
					C,E IIB	886	3.04	0.027
					D,F,G IIA	3240	6.09	0.108
LB6117*	1/7(+), 4/5/6/8(-)	17.8	324	1442	A,B IIC	297	0.338	0.024
					C,E IIB	1810	1.35	0.096
					D,F,G IIA	7870	2.70	0.192


The values of L_o and C_o listed in the table above are allowed if one of the following conditions is met:

- the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
- the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

The values of L_o and C_o listed in the table above shall be reduced to 50% when both of the following conditions are met:

- the total L_i of the external circuit (excluding the cable) is > 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is > 1% of the C_o value.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1uF for IIA, IIB and 600nF for IIC.

This document contains safety-relevant information. It must not be altered without the authorization of a NE Ex		
	Only valid as long as released in EDM	date: 2016-Oct-28
 PEPPERL+FUCHS Worldwide	Control Drawing UL File No.: E106378 LB2116, LB2117, LB6116, LB6117	116-0426
		sheet 3 of 3