



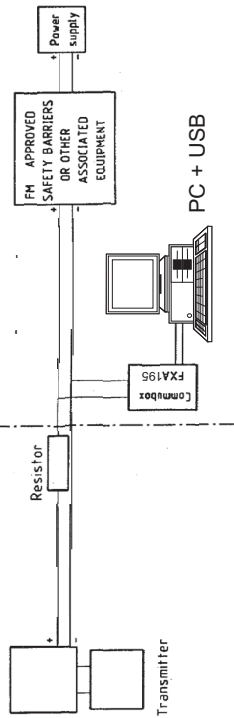
Control drawing
960007250

Commubox FXA195

Unclassified Location

Hazardous classified Location

Class I, II, III Division 1
 Groups A,B,C,D,E,F and G



Entity Concept Definition - The entity concept allows interconnection of intrinsically safe apparatus to associated apparatus not specifically examined in such combination. The criteria for interconnection is that the voltage and current which intrinsically safe apparatus can receive and remain intrinsically safe, considering faults, must be equal to or greater than the voltage (V_{oc} or V_I) and current (I_{sc} or I_I) levels which can be delivered by the associated apparatus, considering faults and applicable factors. In addition, the maximum unprotected capacitance (C_i) and inductance (L_i) of the intrinsically safe apparatus, including interconnecting wiring and other equipment, must be equal to or less than the capacitance and inductance which can be safely connected to associated apparatus.

Entity parameters:

Output: $V_{oc} = 6.5 \text{ Vdc}$ $I_{sc} = 6,1 \text{ mA}$ $C_a = 21 \mu\text{F}$ $L_a = 790 \text{ mH}$
 $C_i = 0$ $L_i = 0$

If connected to an intrinsically safe circuit the maximum allowable connected inductance (L_a) of the associated apparatus has to be determined by adding $6,1 \text{ mA}$ to the I_{sc} of the barrier ($I_m = I_{sc} + 6,1 \text{ mA}$) and entering Table 1 at the resulting value I_m or the next higher value of I_m to determine the L_a .

Example I_{sc} of barrier = 120 mA (Group A)
 $I_m = 120 \text{ mA} + 6,1 \text{ mA} = 126,1 \text{ mA}$
 Enter Table 1 at $I_m = 130 \text{ mA}$ $L_a = 1,7 \text{ mH}$

Only one Commubox FXA195 may be connected to the circuit in the unclassified area.

Table 1

I_m (mA)	L_a			
	Gp A, B, C D, E, F, G (mH)	Gp C, D E, F, G (mH)	Gp D E, F, G (mH)	Gp D F, G (mH)
500	—	—	—	1,2
450	0,1	0,2	1,6	1,6
400	0,12	0,5	1,7	1,7
380	0,15	0,8	1,8	1,8
360	0,16	1,0	2,1	2,1
340	0,17	1,3	2,5	2,5
320	0,18	1,45	2,7	2,7
300	0,19	1,6	3,2	3,2
290	—	1,8	3,6	3,6
280	0,2	1,9	3,7	3,7
270	0,21	2,1	3,8	3,8
260	0,23	2,4	4,0	4,0
250	0,25	2,5	4,3	4,3
240	0,27	2,7	4,5	4,5
230	—	2,7	5,0	5,0
220	0,3	2,8	5,3	5,3
210	0,4	3,5	6,8	6,8
200	—	3,6	6,9	6,9
190	0,5	3,8	7,0	7,0
180	—	4,0	7,5	7,5
170	0,6	5,0	9,5	9,5
160	0,7	5,4	10,2	10,2
150	0,8	5,2	10	10
140	1,3	6,7	14	14
130	1,7	7,0	15	15
120	2,2	9,0	18	18
110	2,7	11	22	22
100	3,5	12	25	25
90	4,0	16	32	32
85	4,3	16,6	34,4	34,4
80	4,8	18,5	38,4	38,4
75	5,4	20,7	43,3	43,3
70	6,1	23,4	49,2	49,2
65	6,9	26,6	56,3	56,3
60	8,0	30,6	65,1	65,1
55	9,3	35,5	76,1	76,1
50	11	48	90,2	90,2
45	16	49,6	108,7	108,7
40	16,1	60,7	133,5	133,5
35	20,2	75,6	167,8	167,8
30	26,1	96,8	217,2	217,2
25	34,9	128,6	292,7	292,7

Notes:

1. BARRIERS MUST BE INSTALLED IN ACCORDANCE WITH APPLICABLE CONTROL DRAWING.
2. THE OUTPUTS OF THE BARRIERS SHALL BE LINEAR.
3. IF MULTIPLE BARRIERS OR MULTIPLE CHANNELS OF BARRIERS ARE USED, THE COMBINED OUTPUT SHALL BE RESISTIVELY NON-IGNITION CAPABLE FOR THE APPLICABLE GROUP OF THE HAZARDOUS LOCATION APPARATUS.
4. BARRIER ENTITY PARAMETERS MUST MEET THE FOLLOWING REQUIREMENTS:
 V_{oc} or $V_I \leq V_{max}$
 I_{sc} or $I_I \leq I_{max}$
 $C_a \geq C_i + C$ cable
 $L_a \geq L_i + L$ cable
5. MAXIMUM AREA VOLTAGE MUST NOT EXCEED 250V.
6. MAXIMUM PERMITTED VOLTAGE OF THE FM APPROVED SAFETY BARRIER OR COMBINATION OF SAFETY BARRIERS SHALL NOT EXCEED 30V 500mA.
7. FOR GUIDANCE ON INSTALLATION: SEE ANSI/ISA RP 12.06.01 "INSTALLATION OF INTRINSICALLY SAFE INSTRUMENT SYSTEMS FOR HAZARDOUS (CLASSIFIED) LOCATIONS".
8. SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.