

Fluke 707Ex mA Calibrator

NI//2/A-D Ta = -10 °C ... +50 °C

Intrinsically outputs for Class I, Div. 1, Groups A, B, C, & D

Input Entity Parameters: Ui = 30 V, li = 250 mA, Ci = 10 nF, Li = 0

Output Entity Parameters: Uo (Voc) = 27.6 Volts, Io (Isc) = 96.9 mA, Po = 0.7 W, Co (Ca) = 76 nF, Lo (La) = 2.5 mH

Nonincendive outputs for Class I, Div. 2, Groups A, B, C, & D

Input Nonincendive Parameters: Vmax = 30 V, Ci = 10 nF, Li = 0

Output Nonincendive Parameters: Voc = 27.6 Volts, Isc = 26.4 mA, Ca = 200 nF, La = 86 mH



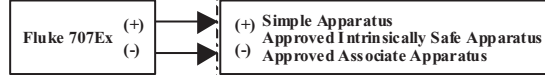
ONLY CONNECTIONS SPECIFIED ON THIS DRAWING ARE ALLOWED. OTHER CONNECTIONS MAY INVALIDATE INTRINSIC SAFETY.

DO NOT USE THE FLUKE 707Ex IN DIVISION 1 LOCATIONS!

Unclassified area or Class I, Div 2, Groups A - D see note 2

Class I, Division 1, Groups A - D or Class I, Division 2, Groups A - D

All Modes:

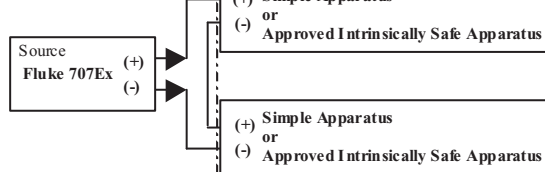


Fluke 707Ex. mA Calibrator may be connected to:

Any Simple Apparatus or Intrinsically Safe Apparatus. when connected per notes 4-9

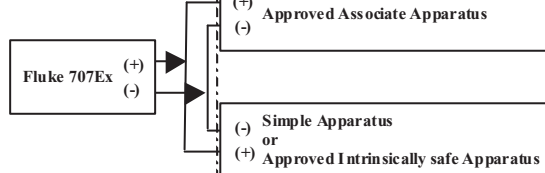
Associated Apparatus. when connected per notes 4-9

Source Mode:



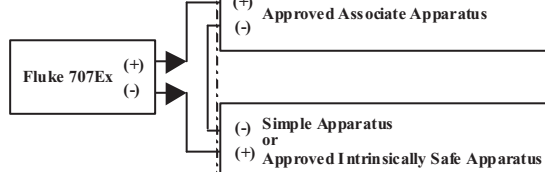
Fluke 707Ex may be connected to an existing Intrinsically Safe loop when connected per notes 4-9

Measure V:



Fluke 707Ex may be connected to an existing loop provided the loop is not opened and when connected per notes 4-9

Measure mA:



Fluke 707Ex may be connected to an existing Intrinsically Safe loop when connected per notes 4-9

Table 1. Allowed Maximum Values

Vt(loop) Total Voltage Loop in Volts	Maximum allowed loop Current, in mA It(loop), based upon Vt(loop)			Maximum allowed loop Capacitance, Ct(loop) in nF, based upon Vt(loop)			It(loop) Total Loop Current in / mA	Maximum allowed loop inductance Lt(loop) in mH based upon It(loop)
	mA			nF				
	Group A/B	Group C	Group D	Group A/B	Group C	Group D		
28	147.5	367.6	486.9	83.0	650	2150	5	1000
29	135.2	336.9	451.2	74.0	605	1970	6	860
30	124.2	311.1	418.0	66.0	560	1820	8	520
31	114.7	286.5	389.8	60.5	515.0	1670	10	330
32	108.0	265.6	362.7	56.0	475	1560	12	250
33	101.7	247.1	339.3	51.5	437	1460	14	180
34	95.9	229.9	318.4	48.0	406	1370	16	135
35	90.7	217.6	301.2	45.0	387	1280	18	110
36	85.9	206.6	285.2	42.0	370	1200	20	88
37	81.4	196.7	270.5	39.0	353	1120	22	74
38	77.3	188.1	257.0	36.4	336	1060	24	62
39	73.5	179.5	244.7	34.2	320	1000	26	50
40	70.1	170.9	233.6	32.5	305	940	28	47
41	66.8	163.5	222.5	31.0	290	890	30	39
42	63.7	157.4	212.7	29.7	275	850	32	37
43	60.9	150.0	202.9	28.4	262	810	34	33
44	58.3	143.9	194.3	27.1	250	770	36	28.5
45	55.7	138.9	185.7	25.9	240	730	38	26
46	54.1	134.3	179.7	24.7	230	690	40	24
47	52.5	129.8	173.7	23.5	220	650	44	20
48	50.8	125.2	167.7	22.3	210	620	48	16.5
49	49.2	120.6	161.7	21.1	201	594	52	14.5
50	47.5	115.6	155.7	20.0	193	570	56	10
51	46.4	112.3	151.6	19.0	187	547	60	9
52	45.3	109.0	147.5	18.3	181	524	64	8.8
53	44.2	105.7	143.4	17.4	175	501	68	8
54	43.0	102.5	139.3	16.8	170	479	72	7.2
55	41.9	99.2	135.2	16.5	166	457	76	6.6
56	40.8	95.9	131.1	15.5	159.5	434	80	6
57	39.7	92.6	127.0	14.8	154	411	84	5.3
58	38.5	89.3	123.0	14.1	148.5	389	88	4.85
							92	4.6
							96	4.2
							100	3.9
							104	3.65
							110	3.4

NOTES:

- The Fluke 707Ex Calibrator must not be used in Division 1 Hazardous (Classified) Locations.
 - NOTE The Fluke 707Ex Calibrator cannot be installed using standard NEC Division 2 wiring practices. Note 2 must be adhered to.**
 - The Fluke 707Ex Calibrator can only be used Division 2 Hazardous (Classified) Location provide the following conditions are satisfied.
 - The area is free of Flammable Vapors OR
 - The connections are to a device(s) with nonincendive field wiring parameters (see notes 5 & 6) OR
 - The connections are to a device(s) with Intrinsic Safety (see notes 4 & 6)
 - Connections to an Intrinsically safe Apparatus/Associated Apparatus/Loop must meet the requirements of notes 4, 6, & 7**
Connections to a Nonincendive wiring Apparatus/Associated Apparatus/Loop must meet the requirements of notes 5, 6, & 7
 - Intrinsic Safety Entity concept:**
The Intrinsic Safety Entity concept allows the interconnection of devices with entity parameters: Uo or Voc or Vt ≤ Vmax or Ui, Io or Isc or It ≤ Imax or Ii. Ca or Co ≥ Ci + Ceable. La or Lo ≥ Li + Leable. Po ≤ Pi. Uo or Voc or Vt of Associated Apparatus ≤ Ui of Fluke 707 Ex Calibrator. Uo (Voc) of Fluke 707 Ex mA Calibrator ≤ Vmax or Ui of Intrinsically Safe Apparatus and ≤ Uo or Voc or Vt of Associated Apparatus Io (Isc) of Associated Apparatus ≤ Ii of Fluke 707Ex
- Notes for Fluke 707Ex connected to Associated Apparatus**
Vt(loop) = Voc(707Ex) + Voc or Vt of Associated Apparatus.
It(loop) = Io(707Ex) + Isc or It of Associated Apparatus.
Pt(loop) = Po(707Ex) + Po of Associated Apparatus
Vt(loop) ≤ Ui of Intrinsically Safe Apparatus.
It(loop) ≤ Ii of Intrinsically Safe Apparatus.
Pt(loop) ≤ Pi of Intrinsically Safe Apparatus.
Uo (Voc) of Fluke 707 Ex Calibrator ≤ Vmax or Ui of Intrinsically Safe Apparatus.
Ct(loop) = Co(707Ex) + Co of Associated Apparatus + Ci of Intrinsically Safe Apparatus + Ceable
Lt(loop) = Lo(707Ex) + Lo of Associated Apparatus + Li of Intrinsically Safe Apparatus + Leable
It(loop) ≤ Itable for calculated Vt(loop)
Ct(loop) ≤ Ctable for calculated Vt(loop)
Lt(loop) ≤ Ltable for calculated It(loop) calculated Vt(loop)
- Nonincendive wiring concept:**
The Nonincendive wiring concept allows the interconnection of devices with Nonincendive wiring parameters:
Voc or Vt ≤ Vmax
Ca or Co ≥ Ci + Ceable
La or Lo ≥ Li + Leable.
Voc or Vt of Associated Nonincendive Field Wiring Apparatus ≤ Vmax of Fluke 707 Ex Calibrator.
Voc of Fluke 707 Ex Calibrator ≤ Vmax of Nonincendive Field Wiring Apparatus and ≤ Voc or Vt of associated nonincendive field wiring Apparatus
- Notes for Fluke 707Ex connected to associated nonincendive field wiring Apparatus (NI)**
Vt(loop) = Voc(707Ex) + Voc or Vt of Associated Nonincendive Field Wiring Apparatus.
It(loop) = Isc (707Ex) + Isc or It of Associated Nonincendive Field Wiring Apparatus.
Vt(loop) ≤ Vmax of Nonincendive Field Wiring Apparatus.
Voc of Fluke 707 Ex Calibrator ≤ Vmax of Nonincendive Field Wiring Apparatus.
Ct(loop) = Ca(707Ex) + Ca of Associated Nonincendive Field Wiring Apparatus + Ci of Nonincendive Field Wiring Apparatus + Ceable
Lt(loop) = La(707Ex) + La of Associated Nonincendive Field Wiring Apparatus + Li of Nonincendive Field Wiring Apparatus + Leable
It(loop) ≤ Itable for calculated Vt(loop)
Ct(loop) ≤ Ctable for calculated Vt(loop)
Lt(loop) ≤ Ltable for calculated It(loop) calculated Vt(loop)
- Installation must be in accordance with Article 500 of the NEC® (ANSI/NFPA 70) and ANSI/ISA RPI2.6
 - The Fluke 707Ex Calibrator may only be connected to loop terminals and must not be connected to internal circuitry of Associated Apparatus or Intrinsically Safe Apparatus. Connection to internal circuitry of Associated Apparatus or internal circuitry of Intrinsically Safe Apparatus violates Approval.
 - Applying more than 28 volts to the input terminals invalidates the Calibrator's Ex Approval and results in permanent damage to the unit so it can no longer be used.
 - Refer to the 707Ex Users Manual (provided on the CD) for additional Safety Information
 - No revision to this drawing is permitted without FM approval

Rev	Description	By	Date
FLUKE® Control Drawing			
Date	13.11.2002		
By:	Bergmeier	Fluke 707Ex CCD	
SCALE:	None	PN 2053993 Rev. 2	SHEET 1 of 1