

7.5 Cable parameters for MTL700 range – BASEEFA(ATEX) & FM

Table 9: Maximum cable parameters (gas group IIC) (for notes 1, 2, and 3, see bottom of page)

Barrier model number MTL	Number of single channels interconnected within hazardous area	Earth 1 return used?	Maximum permissible cable parameters					Matched 2 power W (BASEEFA)
			BASEEFA (ATEX) (group IIC)			FM (groups A&B)		
			Capacitance μF	Inductance mH	or L/R ratio $\mu\text{H}/\Omega$	Capacitance μF	Inductance mH	
702+	1	Yes	0.110	2.39	47	0.17	2.2	0.782
706+	1	Yes	0.083	3.05	56	0.12	4.0	0.65
707+	Both	Yes	0.083	3.05	56	0.12	4.0	0.65
708+	1	Yes	0.083	3.05	56	0.12	4.0	0.65
710	1	Yes	3.0	0.91	74	3.0	1.0	0.50
710P	1	Yes	3.0	0.38	44	4.89	0.22	0.75
715	1	Yes	0.580	1.45	66	0.7	1.4	0.56
715P	1	Yes	0.580	0.33	28	1.04	0.23	1.09
722	1	Yes	0.165	1.45	45	0.2	1.4	0.81
722P	1	Yes	0.165	0.30	32	0.33	0.53	1.18
728	1	Yes	0.083	3.05	56	0.12	4.0	0.65
728P	1	Yes	0.083	1.82	44	0.16	2.86	0.83
751ac	1	Yes	100	3.72	1464	1000	4.5	0.025
	2	Yes	100	0.96	558	1000	1.2	0.05
		No	100	3.72	732	1000	4.5	0.05
755ac	1	Yes	100	0.46	145	1000	0.4	0.225
	2	Yes	100	0.13	69	150	0.1	0.45
		No	40	0.41	73	150	0.1	0.45
	3	No	40	0.125	48	-	-	0.68
	4	Yes	40	0.035	31.25	-	-	0.92
		No	40	0.06	42	-	-	0.92
758	1	Yes	11.1	0.070	26	6.0	0.05	1.40
	2	Yes	11.1	0.02	10	6.0	0.02	2.80
760ac	1	Yes	3.0	0.91	74	3.0	0.9	0.50
	2	Yes	3.0	0.20	27	3.0	0.2	1.00
761ac	1	Yes	4.9	3.72	163	3.1	3.5	0.225
	2	Yes	4.9	0.91	62	0.4	1.0	0.45
		No	0.31	3.72	81	0.4	1.0	0.45
	4	Yes	0.42	0.20	26.39	-	-	0.90
		No	0.42	0.37	37.78	-	-	0.90
	6	Yes	0.42	0.085	14.39	-	-	1.35
		No	0.42	0.13	18.67	-	-	1.35
761Pac	2	Yes	0.31	56	306	0.43	14.4	0.115
764±	1	Yes	1.41	240	1000	1.5	200	0.036
	2	Yes	1.41	61	360	1.0	60	0.072
764ac	1	Yes	1.41	240	1000	1.5	200	0.036
	2	Yes	1.41	61	360	0.18	60	0.072
		No	0.125	240	500	0.18	60	0.072
765ac	1	Yes	0.58	1.45	66	0.7	1.3	0.56
	2	Yes	0.58	0.32	22	0.7	1.4	1.125
766ac	1	Yes	1.41	5.8	151	1.5	5.6	0.24
	2	Yes	1.41	1.47	58	0.18	1.5	0.48
		No	0.125	5.8	75	0.18	1.5	0.48
766Pac	2	Yes	1.41	0.34	29	0.22	0.20	0.942
767	1	Yes	0.58	1.45	66	0.7	1.7	0.56
	2	Yes	0.58	0.32	22	0.5	0.4	1.125
768	1	Yes	0.165	1.45	45	0.2	1.7	0.81
772ac	1	Yes	0.165	6.77	89	0.2	6.0	0.404
	2	Yes	0.165	1.45	34	0.2	1.8	0.808
778ac	1	Yes	0.083	3.05	107	0.12	14	0.327
	2	Yes	0.083	3.05	42	0.12	4.2	0.654
779	1	Yes	0.083	3.05	56	0.12	4.0	0.65
786	1 or 2	Yes	0.083	-	-	0.11	500	-
787 & 787S	Both	Yes	0.083	3.05	56	0.11	4.0	0.65
787SP	2	Yes	0.083	1.82	44	0.13	2.70	0.835
788 & 788R	Both	Yes	0.083	0.33	25	0.11	0.5	0.92
791	Both	No	0.165	0.30	32	0.24	0.31*	1.18
796	Both	Yes	0.10	1.94	34	0.13	2.0	0.81
			BASEEFA (group IIB)			FM (group C)		
707P	2	Yes	0.65	5.65	127	0.45	6.21	1.19
729P	1	Yes	0.65	5.65	127	0.49	6.25	1.19

System combination	BASEEFA system Cert. No.	Earth 1 return used?	BASEEFA Maximum permissible cable parameters for group IIC (hydrogen)			Matched 2 power W (BASEEFA)
			Capacitance μF	Inductance mH	or L/R ratio $\mu\text{H}/\Omega$	
1x715P 4x764ac	Ex92C2425	Yes	0.135	0.23	39.3	0.91
2 x 761ac channels 2 x 764ac channels 2 x 766ac channels	Ex842125	Yes	0.2	0.24	11.6	1.01
4 x 761ac channels 2 x 764ac channels	Ex842125	Yes	0.2	0.2	12.7	0.98
4x761Pac channels 2x766Pac channels	Ex92C2424	Yes	0.18	0.17	18.4	1.17
2 x 764ac channels 4 x 766ac channels	Ex842128	Yes	0.2	0.28	11	1.04
758 + 761ac	Ex872392	Yes	0.42	0.013	10.5	3.27
			BASEEFA Maximum permissible cable parameters for group IIB (not safe for group IIC)			
4 x 764ac channels 4 x 766ac channels	Ex842128	Yes	0.6	1.1	32.6	1.12
2 x 768 channels	Ex842114	Yes	0.78	1.8	70	1.62
2 x 768 channels	Ex842114	Yes	0.39	1.8	46.6	1.62
Any number of 786 channels						
2 x 779 channels	Ex842114	Yes	0.39	4.3	83	1.3
2 x 779 channels	Ex842114	Yes	0.39	4.3	55.6	1.3
Any number of 786 channels						

* L/R = 31 $\mu\text{H}/\Omega$

The tables give the maximum permitted cable parameters (including cable and load) for hazardous-area circuits in group IIC and IIB gases. However, the tables are by no means exhaustive and for full details of other safe combinations, consult either BASEEFA system certificates Ex832469, Ex92C2374 or Ex92C2376 or MTL. The MTL702 is covered by BASEEFA system certificate Ex842308, and the MTL706 by Ex872513.

In practice cable parameters rarely present a problem, as all cables normally used for instrument interconnection have L/R ratios below 25 $\mu\text{H}/\Omega$ and capacitance below 200pF per metre.

Note 1 If a 'No' value is not quoted for a barrier, use the 'Yes' value.

Note 2 The maximum power that can be drawn from the barrier combination under fault conditions. Used for assessing the temperature classification of 'simple' hazardous-area apparatus.

Note 3 Values for Groups IIA and IIB are given on certificates BAS01ATEX7202 and BAS01ATEX7203. For FM permitted combinations, refer to our document SCI-88 (via FM ref 1H8A1.AX).