CABLE PARAMETERS AND PERMITTED COMBINATIONS

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	L/R ratio µH/Ω (or)	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	16	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	L/R ratio µH/Ω (or)	
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 Any number of 786 channels	Ex842114	Yes	0.39	1.8	46.6	1.62
2 x 779 channels	Ex842114	Yes	0.39	4.3	83	1.3
2 x 779 channels Any number of 786 channels	Ex842114	Yes	0.39	4.3	55.6	1.3

* L/R = 31µH/Ω

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 25µH/Ω and capacitance below 200pF per metre.

Note 1 If values are not quoted for when an earth return is not used, those for an earth return ('Yes' in the table) can be used.

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 The values of the parameters for Groups IIA and IIB can be found in certificate numbers BAS01ATEX7202 and BAS01ATEX7203.

For FM permitted combinations, refer to MTL document SCI-88 (via FM ref 1H8A1.AX).

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June 2004