DOCSIS 4.0
READY

1.8 GHz

Indoor RF passives

4MMO-SERIES

The new 4MMO range of superior performance wall outlets provide operators with increased frequency range built into a high performance housing. With outstanding inner spring resilience to ensure good contact pressure and with easy access front cable connection, installation is swift and reliable.

Features

- Frequency range up to 2 GHz, Docsis 4.0 compliant
- Terminated & loop through versions built with directional couplers and diplex filters
- Electromagnetic compatibility exceeds Class A+ (= Class A +10 dB)
- Superior design ensures fast and easy installation
- Push button construction for the coaxial cable inner conductor
- High port-port isolation
- Wide range of Wall Outlet models

TELESTE

INDOOR RF PASSIVES / 4MMO-SERIES

TECHNICAL SPECIFICATIONS						
Insertion Loss (dB, Max.)						
In-Out	**4MMO 04D-E**	**4MMO 09D-E**	**4MMO 11D-L**	**4MMO 14D-L**	**4MMO 17D-L**	**4MMO 20D-L**
Frequency range (MHz)						
5 - 10	-	-	3.2 ± 0.5	2.0 ± 0.5	2.0 ± 0.5	1.3 ± 0.5
10 - 470	-	-	2.5 ± 1.0	2.0 ± 1.0	1.7 ± 1.0	1.3 ± 1.0
470 - 862	-	-	3.0 ± 1.0	2.0 ± 1.0	1.7 ± 1.0	1.3 ± 1.0
862 - 1006	-	-	3.0 ± 1.0	2.0 ± 1.0	1.7 ± 1.0	1.3 ± 1.0
1006 - 1218	-	-	3.0 ± 1.0	2.0 ± 1.0	1.7 ± 1.0	1.3 ± 1.0
1218 - 1800	-	-	3.2 ± 1.5	2.5 ± 1.5	1.7 ± 1.5	1.3 ± 1.5
1800 - 2000 [1]	-	-	3.2 ± 2.0	2.5 ± 2.0	1.7 ± 2.0	1.3 ± 2.0
In-Data						
5 - 10	4.0 ± 1.0	9.0 ± 1.0	11.0 ± 1.0	14.0 ± 1.0	17.0 ± 1.0	20.0 ± 1.0
10 - 470	4.0 ± 1.0	9.0 ± 1.0	11.0 ± 1.0	14.0 ± 1.0	17.0 ± 1.0	20.0 ± 1.0
470 - 862	4.0 ± 1.0	9.0 ± 1.0	11.0 ± 1.0	14.0 ± 1.0	17.0 ± 1.0	20.0 ± 1.0
862 - 1006	4.0 ± 1.0	9.0 ± 1.0	11.0 ± 1.0	14.0 ± 1.0	17.0 ± 1.0	20.0 ± 1.0
1006 - 1218	4.0 ± 1.0	9.0 ± 1.0	11.0 ± 1.0	14.0 ± 1.0	17.0 ± 1.0	20.0 ± 1.0
1218 - 1800	4.0 ± 1.5	9.0 ± 1.5	11.0 ± 1.5	14.0 ± 1.5	17.0 ± 1.5	20.0 ± 1.5
1800 - 2000 [1]	4.0 ± 2.0	9.0 ± 2.0	11.0 ± 2.0	14.0 ± 2.0	17.0 ± 2.0	20.0 ± 2.0
In-TV						
5 - 65	> 54.0	> 55.0 ~ 59.0	> 56.0 ~ 61.0	> 60.0 ~ 64.0	> 63.0 ~ 67.0	> 65.0 ~ 70.0
65 - 204	> 44.0	> 47.0 ~ 49.0	> 47.0 ~ 51.0	> 50.0 ~ 54.0	> 53.0 ~ 57.0	> 55.0 ~ 60.0
258 - 862	4.5 ± 1.0 [2]	9.5 ± 1.0 [2]	11.5 ± 1.0 [2]	14.5 ± 1.0 [2]	17.5 ± 1.0 [2]	20.5 ± 1.0 [2]
Return Loss (dB, Min.)						
Input	**4MMO 04D-E**	**4MMO 09D-E**	**4MMO 11D-L**	**4MMO 14D-L**	**4MMO 17D-L**	**4MMO 20D-L**
5 - 47	16.0	16.0	16.0	16.0	16.0	16.0
47 - 204 [3]	16.0	16.0	16.0	16.0	16.0	16.0
258 - 752 [3]	16.0	16.0	16.0	16.0	16.0	16.0
752 - 1800	10.0	10.0	10.0	10.0	10.0	10.0
1800 - 2000 [1]	10.0	10.0	10.0	10.0	10.0	10.0
TV-port						
258 - 376	12.5	12.5	12.5	12.5	12.5	12.5
376 - 752	12.5	12.5	12.5	12.5	12.5	12.5
752 - 862	12.5	12.5	12.5	12.5	12.5	12.5
Data-port						
5 - 47	18.0	18.0	18.0	18.0	18.0	18.0
47 - 1800 [3]	18.0	18.0	18.0	18.0	18.0	18.0
1800 - 2000 [1]	10.0	10.0	10.0	10.0	10.0	10.0
Output						
5 - 47	16.0	16.0	16.0	16.0	16.0	16.0
47 - 752 [3]	16.0	16.0	16.0	16.0	16.0	16.0
752 - 1800	10.0	10.0	10.0	10.0	10.0	10.0
1800 - 2000 [1]	10.0	10.0	10.0	10.0	10.0	10.0
Input when TV/DATA open + output terminated						
10 - 950	-	-	10.0	10.0	10.0	10.0
950 - 1800 [1]	-	-	8.0	8.0	8.0	8.0
Isolation (dB, Min.)						
TV to Data	**4MMO 04D-E**	**4MMO 09D-E**	**4MMO 11D-L**	**4MMO 14D-L**	**4MMO 17D-L**	**4MMO 20D-L**
5 - 65	60.0	60.0	60.0	60.0	60.0	60.0
65 - 204	55.0 ~ 60.0	55.0 ~ 60.0	55.0 ~ 60.0	55.0 ~ 60.0	55.0 ~ 60.0	55.0 ~ 60.0
204 - 1800	24.0	24.0	24.0	24.0	24.0	24.0
1800 - 2000 [1]	24.0	24.0	24.0	24.0	24.0	24.0

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TECHNICAL SPECIFICATIONS

Isolation (dB, Min.) Out to TV	4MMO 04D-E	4MMO 09D-E	4MMO 11D-L	4MMO 14D-L	4MMO 17D-L	4MMO 20D-L
5 - 204	-	-	60.0	60.0	60.0	60.0
204 - 862	-	-	24.0	24.0	24.0	24.0
862 - 1800	-	-	22.0	22.0	22.0	22.0
1800 - 2000 [1]	-	-	22.0	22.0	22.0	22.0
Out to Data						
5 - 10	-	-	32.0 ~ 35.0	32.0 ~ 35.0	32.0 ~ 35.0	35.0
10 - 30	-	-	32.0 ~ 35.0	32.0 ~ 35.0	35.0	35.0
30- 204	-	-	35.0	35.0	35.0	35.0
204 - 862	-	-	24.0	24.0	24.0	24.0
862 - 1800	-	-	22.0	22.0	22.0	22.0
1800 - 2000 [1]	-	-	22.0	22.0	22.0	22.0

GENERAL SPECIFICATIONS

Impedance	75 Ohm	**Operating temperature**	0...55 °C	
Housing Material & Plating	Zinc die cast + White Bronze plating	**Connectors**	IN & OUT TV DATA	cable clamp + center contact push button IEC male F female
Back cover	Galvanized steel	**Material & Plating**	IN/OUT IEC male pin F-spring Clamp Contact spring	Berylium Copper + Nickel plating Brass + Nickel plating Berylium Copper + Nickel plating Stainless Steel
Intermodulation distortion All ports [4] (dB, Min.) (2f1, f1+f2, 2f2) before surge after 25V surge after 1kV surge **Data port only** after 160V surge	 -118 dBc [a] -115 dBc [b] -110 dBc [c] -105 dBc [d]	**Electromagnetic Compatibility [5] (dB, Min.)** Class A+ (= Class A +10 dB)	5 - 300 300 - 470 470 - 950 950 - 2000	95 90 85 65
Cables range (cable structure dependent)	**Input/Output (Cable-clamp)**	**Cable acceptance range**	center conductor = 0.4~1.1 mm outer conductor = 3.5~6.0 mm outer jacket = 4.1~7.2 mm	
		Cable retraction force	center conductor retraction force >20N @ 0.6 - 1.13 mm pin diameter outer conductor retraction force >50N @ 3.2 - 5.8 conductor diameter	

NOTES

(1) Typical dB value within this frequency range

(2) In the range 258 - 274 MHz and 800 - 862 MHz with additional 0.5 dB loss

(3) At F ≥ 47 MHz -1.5 dB/ oct. (stepped shaped limit lines)

(4) Two carriers (60 & 65 MHz and 199 & 204 MHz), applied to each port, @120 dBµV

(a) No surge

(b) Measured after 10 pulses 25 VDC (1.2/500 µS) have been applied to each port

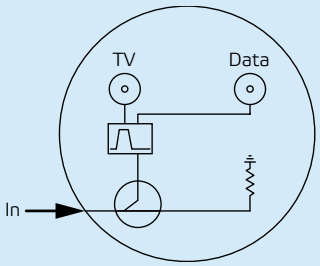
(c) Measured after 1 pulse of 1 kV (1.2/50 µsec) have been applied to each port

(d) Additional 160 V surge test for the data port

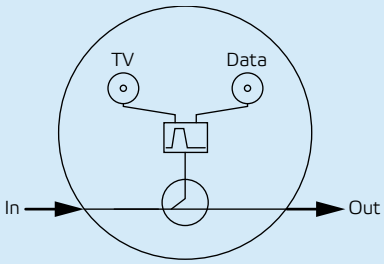
(5) EMC exceeding Class A+ (= Class A +10 dB), according to IEC60728-2.

BLOCK DIAGRAM

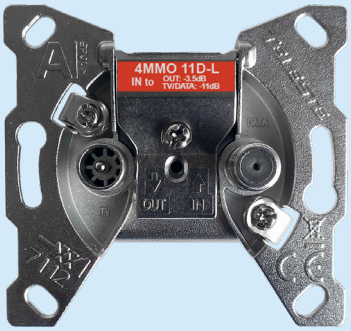
4MMO xxD-E

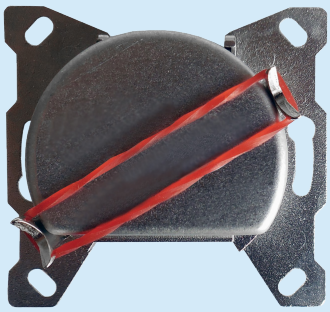


4MMO xxD-L



PICTURE GALLERY





ORDERING INFORMATION

4MMO 04D-E	2GHz 2 Port Wall Outlet, TV & Data, 4dB Terminated
4MMO 09D-E	2GHz 2 Port Wall Outlet, TV & Data, 9dB Terminated
4MMO 11D-L	2GHz 2 Port Wall Outlet, TV & Data, 11dB Loop Through
4MMO 14D-L	2GHz 2 Port Wall Outlet, TV & Data, 14dB Loop Through
4MMO 17D-L	2GHz 2 Port Wall Outlet, TV & Data, 17dB Loop Through
4MMO 20D-L	2GHz 2 Port Wall Outlet, TV & Data, 20dB Loop Through

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