

TWS OUTLET SERIES

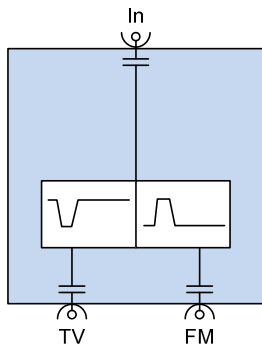


Features

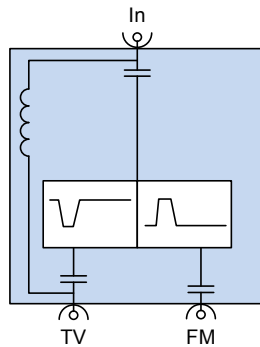
- Wide range of outlet versions
- Frequency range up to 1750 MHz
- All ports feature 1 kV high voltage protection
- TV port 5-68/136-1750 MHz, FM port 87,5-108 MHz
- Screening efficiency class A
- Superior housing design ensures fast and easy installation

Technical specifications, minimum values

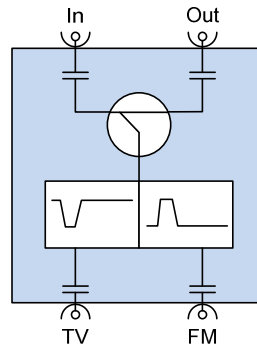
Parameter	Specification
Screening effectiveness	Class A
Impedance (nominal)	75 Ohm
Connectors	TV IEC male FM IEC female



TWS010



TWS011



TWS071/111/131/171

TWS-xxx outlets, TV port 5-68 and 136-1750 MHz, FM port 87.5-108 MHz

Parameter

Insertion Loss (dB)	TWS010	TWS011	TWS071	TWS111	TWS131	TWS171
In-Out						
5...10 MHz	-	-	2.3 ± 0.5	1.1 ± 0.5	0.8 ± 0.5	0.8 ± 0.5
10...174 MHz	-	-	2.2 ± 0.5	1.0 ± 0.5	0.7 ± 0.5	0.7 ± 0.5
174...862 MHz	-	-	2.6 ± 0.5	1.5 ± 0.5	1.2 ± 0.5	1.2 ± 0.5
862...1006 MHz	-	-	2.7 ± 0.75	1.6 ± 0.75	1.3 ± 0.75	1.3 ± 0.75
1006...1750 MHz	-	-	3.6 ± 1.5	2.0 ± 1.0	2.2 ± 1.0	2.2 ± 1.0
In-TV port						
5...10 MHz	0.2 ± 0.2	0.2 ± 0.2	7.0 ± 1.0	11.0 ± 1.0	13.0 ± 1.0	17.0 ± 1.0
10...68 MHz	0.3 ± 0.3	0.3 ± 0.3	7.0 ± 1.0	11.0 ± 1.0	13.0 ± 1.0	17.0 ± 1.0
87,5...108 MHz	≥ 8.0	≥ 8.0	≥ 20.0	≥ 20.0	≥ 20.0	≥ 20.0
136...470 MHz	0.3 ± 0.3	0.5 ± 0.3	7.0 ± 1.0	11.0 ± 1.0	13.0 ± 1.0	17.0 ± 1.0
470...862 MHz	0.4 ± 0.4	0.4 ± 0.4	7.0 ± 1.0	11.0 ± 1.0	13.0 ± 1.0	17.0 ± 1.0
862...1006 MHz	0.5 ± 0.5	0.5 ± 0.5	7.0 ± 1.0	11.0 ± 1.0	13.0 ± 1.0	17.0 ± 1.0
1006...1750 MHz	0.75 ± 0.75	0.75 ± 0.75	7.5 ± 1.0	11.5 ± 1.0	13.5 ± 1.0	17.5 ± 1.0
In-FM port						
5...68 MHz	≥ 20	≥ 20	≥ 20	≥ 20	≥ 20	≥ 20
87,5...108 MHz	1.5 ± 1.0	1.5 ± 1.0	7.5 ± 1.5	11.5 ± 1.5	13.5 ± 1.5	17.5 ± 1.5
136...862 MHz	≥ 25	≥ 25	≥ 35	≥ 35	≥ 35	≥ 35
862...1006 MHz	≥ 30	≥ 30	≥ 30	≥ 30	≥ 30	≥ 30
1006...1750 MHz	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25
Return loss (dB)	TWS010	TWS011	TWS071	TWS111	TWS131	TWS171
Input/Output						
5...10 MHz	≥ 15	≥ 15	≥ 15	≥ 15	≥ 15	≥ 15
10...68 MHz	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *
87,5...108 MHz	≥ 10	≥ 10	≥ 10	≥ 10	≥ 10	≥ 10
136...1006 MHz	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *
1006...1200 MHz	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12
1200...1750 MHz	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12
TV port						
5...10 MHz	≥ 15	≥ 15	≥ 16	≥ 16	≥ 16	≥ 16
10...68 MHz	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *
136...1006 MHz	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *	≥ 18 *
1006...1200 MHz	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12
1200...1750 MHz	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12
FM port						
87,5...108 MHz	≥ 10	≥ 10	≥ 10	≥ 10	≥ 10	≥ 10
Isolation (dB)	TWS010	TWS011	TWS071	TWS111	TWS131	TWS171
Out to FM						
5...68 MHz	-	-	≥ 45	≥ 50	≥ 55	≥ 55
87,5...108 MHz	-	-	≥ 30	≥ 30	≥ 36	≥ 40
136...470 MHz	-	-	≥ 40	≥ 45	≥ 50	≥ 50
Out to TV						
5...10 MHz	-	-	≥ 26	≥ 26	≥ 30	≥ 34
10...100 MHz	-	-	≥ 28	≥ 28	≥ 34	≥ 38
100...1006 MHz	-	-	≥ 26 *	≥ 28 *	≥ 40 **	≥ 40 **
1006...1200 MHz	-	-	≥ 20	≥ 22	≥ 25	≥ 25
1200...1750 MHz	-	-	≥ 18	≥ 18	≥ 20	≥ 20

TV to FM (TV APS012)	TWS010	TWS011	TWS071	TWS111	TWS131	TWS171
5...10 MHz	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55
10...68 MHz	≥ 22	≥ 22	≥ 22	≥ 22	≥ 22	≥ 22
87,5...108 MHz	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12	≥ 12
136...1006 MHz	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25
1006...1200 MHz	≥ 30	≥ 30	≥ 30	≥ 30	≥ 30	≥ 30
1200...1750 MHz	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25	≥ 25

Electromagnetic compatibility (dB) ⁽¹⁾	TWS010	TWS011	TWS071	TWS111	TWS131	TWS171
5...300 MHz	≥ 85	≥ 85	≥ 85	≥ 85	≥ 85	≥ 85
300...470 MHz	≥ 80	≥ 80	≥ 80	≥ 80	≥ 80	≥ 80
470...950 MHz	≥ 75	≥ 75	≥ 75	≥ 75	≥ 75	≥ 75
950...1750 MHz	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55	≥ 55

Safety Isolation ⁽²⁾	TWS010	TWS011	TWS071	TWS111	TWS131	TWS171
2120 VDC	≤ 0.7 mA	≤ 0.7 mA	≤ 0.7 mA	≤ 0.7 mA	≤ 0.7 mA	≤ 0.7 mA
230 VAC RMS, 50/60 Hz	≤ 8.0 mA	≤ 8.0 mA	≤ 8.0 mA	≤ 8.0 mA	≤ 8.0 mA	≤ 8.0 mA

Surge Immunity ⁽³⁾	TWS010	TWS011	TWS071	TWS111	TWS131	TWS171
Each port	1 kV	1 kV	1 kV	1 kV	1 kV	1 kV

Accessories

APU102	Outlet cover plate, white
APU202	Outlet surface mounting package, white, 85 mm
APU302	Outlet cover plate, white, 85 mm
APV750	Terminator for TWS, diameter 5 mm
APV752	Terminator for TWS, diameter 4 mm

Colour coding

TWS010	gray
TWS011	black
TWS071	brown
TWS111	bleu
TWS131	white
TWS171	red

Notes

- * @ F >40 MHz -1,5 dB per octave, but ≥10 dB
- ** @ F > 100 MHz -4,0 dB per octave
- 1 Class A, according to IEC 60728-2 2010 (new 2012), EMC
- 2 According to IEC-60728-11 2007, Safety. (2120VDC ≤ 0.7 mA, ≥ 1 minute. 230VAC RMS ≤ 8.0 mA RMS)
- 3 1 kV, 1,2/50 μs Surge voltage according to IEC 61000-4-5, EMC (class 2, level 2) applied between the inner and outer conductor of each port