

## Manufacturer`s Declaration of Conformity

**Hirschmann Automation and Control GmbH**

**Stuttgarter Straße 45-51  
D-72654 Neckartenzlingen, Germany**

declares in sole responsibility, that the product(s)

### **Ethernet Switch**

(Product description)

**OCTOPUS OS20 / OS24**

with the following possible product codes:

**OS[20|24]-[00|08] [09|10] [00] [T5] [T5] [T] [A\*|F\*|N] [E|G|F|K] [B|U] [H] [H|B] [nn.n.nn]**

(n = any number or letter,

\* = Variants with product code A and F are not subject of the Low Voltage Directive.)

(Type, reference number)

has been designed and manufactured in accordance with the following standards

### **EN 50155:2007 – Railway Applications – Environmental conditions**

Test description	EN 50155 Section	Test Reference	Requirement
Operational	4.1.2	EN 60068-2-1, Ad EN 60068-2-2, Bd	Class TX -40 °C to +70 °C in rack T over +15 K, 10 min.
Power supply from battery	5.1.1	-	[A F] [N] 24 V 72V 36 V 96V 110V
Power supply interrupts	5.1.1.2	-	Class S2 <= 10 ms
Switching between power supplies	5.1.3	-	Class C1 0.6 x UN during 100 ms
Low air temperature	12.2.3	EN 60068-2-1	Test Ad, -40 °C
High air temperature	12.2.4	EN 60068-2-2	Test Bd, +70 °C in rack T over +15 K, 10 min.
Humidity	12.2.5	EN 60058-2-30	Test Db, 95 %
Over voltage test	12.2.6	-	1.4 x UN during 1.0 s
Transient immunity test	12.2.7	EN 50121-3-2:2015	
Radio frequency interference test	12.2.8	EN 50121-3-2:2015	

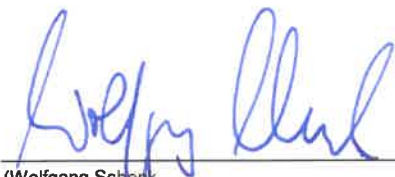
Test description	EN 50155 Section	Test Reference	Requirement
Dielectric test	12.2.9	-	U <sub>rated</sub> < 72 Vdc: 707 Vdc U <sub>rated</sub> ≥ 72 Vdc ≤ 125 Vdc: 1414 Vdc
Vibration	12.2.11	IEC 61373	Category 1, Class B broadband noise 5-150 Hz <i>vertical axis:</i> 1,0 m/s <sup>2</sup> , life test: 7,9 m/s <sup>2</sup> <i>longitudinal / transverse axis:</i> 0,7 m/s <sup>2</sup> , life test: 5,5 m/s <sup>2</sup>
Shock	12.2.11	IEC 61373	Category 1, Class B <i>vertical axis:</i> 30 m/s <sup>2</sup> , 30 ms <i>longitudinal / transverse axis:</i> 50 m/s <sup>2</sup> , 30 ms

**EN 50121-3-2: 2016 – Railway Applications – EMC – Rolling stock**

Test description	EN 50121-3-2 Section	Test Reference	Requirement
Radiated electromagnetic field	table 5.1 table 5.2	IEC 61000-4-3 IEC 61000-4-3	80...1000 MHz, 20 V/m 1400...2000 MHz, 10 V/m 2000...2700 MHz, 5 V/m 5100...6000 MHz, 3 V/m
Electrostatic Discharge	table 5.3	IEC 61000-4-2	±6 kV contact discharge ±8 kV air discharge
Conducted disturbances	table 3.1/ 4.1	IEC 61000-4-6	<i>Signal ports, power ports:</i> 10 V
Fast transient / burst	table 3.2/ 4.2	IEC 61000-4-4	<i>Signal ports, power ports:</i> ±2 kV
Surges 1,2/50µs	table 3.3	IEC 61000-4-5	<i>Signal ports, power ports:</i> CM ±2 kV DM ±1 kV
Radiated Emission	7	EN 61000-6-4	30...230 MHz: 40 dBµV/m (10m) 230...1000 MHz: 47 dBµV/m (10m) 1...3 GHz: 76 dBµV/m peak (3m) 56 dBµV/m av. (3m) 3...6 GHz: 80 dBµV/m peak (3m) 60 dBµV/m av. (3m)
Emission AC or DC power ports	table 1.1	EN 55016-2-1	<i>Power ports:</i> 150...500 kHz: 99 dBµV qp. 500 kHz...30 MHz: 93 dBµV qp.

**EN 50121-4:2016 – Railway Applications**  
**– EMC – Signalling and telecommunication apparatus**

Test description	EN 50121-4 Section	Test Reference	Requirement
Radiated electromagnetic field	table 2.1 table 2.2	IEC 61000-4-3 IEC 61000-4-3	80...800 MHz, 10 V/m 800... 1000 MHz, 20 V/m 1400...2000 MHz, 10 V/m 2000...2700 MHz, 5 V/m 5100...6000 MHz, 3 V/m
Electrostatic Discharge	table 2.4	IEC 61000-4-2	±6 kV contact discharge ±8 kV air discharge
Conducted disturbances	table 3.1/ 4.1/ 5.1/ 6.1	IEC 61000-4-6	Signal ports, power ports: 10 V
Fast transient / burst	table 3.2/ 4.2/ 5.2/ 6.2	IEC 61000-4-4	Signal ports, power ports: ±2kV
Surges 1,2/50µs	table 3.3/ 4.3/ 5.3	IEC 61000-4-5	Signal ports, power ports: CM ±2kV DM ±1kV
Radiated Emission	5	EN 61000-6-4	30... 230 MHz: 40 dBµV/m (10m) 230... 1000 MHz: 47 dBµV/m (10m) 1... 3 GHz: 76 dBµV/m peak (3m) 56 dBµV/m av. (3m) 3... 6 GHz: 80 dBµV/m peak (3m) 60 dBµV/m av. (3m)
Emission – AC or DC power ports	table 1.1	EN 55016-2-1	Power ports: 150...500 kHz: 79 dBµV qp. 66 dBµV av. 500 kHz...30 MHz: 73 dBµV qp. 60 dBµV av.

  
\_\_\_\_\_  
(Wolfgang Schenk  
Managing Director)

  
\_\_\_\_\_  
(i.V. Peter Schumacher  
Director Quality Management)

Neckartenzlingen, 2018-01-22  
\_\_\_\_\_  
(Issue place and date)