

## Herstellererklärung Manufacturer`s Declaration of Conformity

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erklärt in alleiniger Verantwortung, dass das/die Produkt(e)  
*declares in sole responsibility, that the product(s)*

### Managed Ethernet Switch

(Bezeichnung / Product description)

**OCTOPUS OS20 / OS24 / OS30 / OS34**

with the following possible product codes:

- OS20-00 [08|12|20|28] [00] 2x[T5|R5|1M|1S|1P|1L|4M|4S|4P|4L|5M|5S|5P|5L] T5- [V|T][BB|HH|N9] [US|S9|SY] nn [nn] [S|M|P|H|N|D|T] [n] [2S|2A|3S] nn.n.nn-nn,
- OS24-[08|10|11|12|14|15] [12|20|28] [00] 2x[T5|R5|1M|1S|1P|1L|4M|4S|4P|4L|5M|5S|5P|5L]T5-[V|T] [FF|N9|QQ] [US|S9|SY] nn [nn] [S|M|P|H|N|D|T] [n] [2S|2A|3S] nn.n.nn-nn,
- OS30-00 [08|16|24][02|04] 2x[T6|R6|1A|1B|1C|1D|4A|4B|4C|4D|5A|5B|5C|5D|99] T5- [V|T] [BB|HH|N9] [US|S9|SY] nn [nn] [S|M|P|H|N|D|T] [n] [2S|2A|3S] nn.n.nn-nn
- OS34-[08|10|11|12|14|15] [08|16|24][02|04] 2x[T6|R6|1A|1B|1C|1D|4A|4B|4C|4D|5A|5B|5C|5D|99]T5-[V|T] [FF|N9|QQ] [US|S9|SY] nn [nn] [S|M|P|H|N|D|T] [n] [2S|2A|3S] nn.n.nn-nn
- OS[2|3]4-[08|10|11|12|14|15][08|12|16|20|24|28][00|02|04] 2x[T5|R5|T6|R6|1M|1S|1P|1L|1A|1B|1C|1D|4M|4S|4P|4L|4A|4B|4C|4D|5M|5S|5P|5L|5A|5B|5C|5D|99] T5-[V|T]PP[T9|S9]nnHH[S|M|P|H|N|D|T] [n] [2S|2A|3S] nn.n.nn-nn,  
with Power Supply: PC150/110V/54V , 942 242-001

Optional assembled with Auto-Configuration Adapter: ACA21-M12 (EEC) , ACA22-M12 (EEC)  
(n = any number or letter)

(Typ, Erzeugnisnummer / Type, reference number)

mit den folgenden Normen oder normativen Dokumenten übereinstimmt  
*has been designed and manufactured in accordance with the following standards*

### **EN 50155:2017 – Bahnanwendungen – Umweltaforderungen – Railway Applications – Environmental conditions**

Prüfung <i>Test description</i>	EN 50155 <i>Kapitel / Section</i>	Prüfstandard <i>Test Reference</i>	Anforderungen <i>Requirement</i>
Umgebungstemperatur <i>Operating temperature</i>	4.3.2	EN 60068-2-1, Ad EN 60068-2-2, Bd	Class OT4 -40 °C to +70 °C in rack
Einschalttemperatur <i>Start-up temperature</i>	4.3.3		Class ST1 OT over +15 K, 10 min.
Versorgungsspannung aus Batterie <i>Power supply from battery</i>	5.1.1	-	BB HH FF N9 PP with PC150/110V/51V 24V 36V 24V 72V 110V 48V 36V 96V 48V 110V
Überspannungstest <i>Over voltage test</i>	13.4.3.2	-	1.4 x UN during 1.0 s
Umschalten zwischen Spannungsversorgungen <i>Switching between power supplies</i>	13.4.3.3	-	Class C1 0.6 x UN during 100 ms

Spannungsunterbrechungen <i>Power supply interrupts</i>	13.4.3.4	-	Class S2 ≤ 10 ms
<b>Prüfung</b> <i>Test description</i>	<b>EN 50155</b> <i>Kapitel / Section</i>	<b>Prüfstandard</b> <i>Test Reference</i>	<b>Anforderungen</b> <i>Requirement</i>
Kälteprüfung <i>Low air temperature</i>	13.4.4	EN 60068-2-1	Test Ad, -40 °C
Trockene Wärme <i>High air temperature</i>	13.4.5	EN 60068-2-2	Test Be, +70 °C in rack Cycle B: T start-up +15 K, 10 min.
Feuchte Wärme <i>Humidity</i>	13.4.7	EN 60068-2-30	Test Db, 95 %
Low Temperature storage Low Temperature storage	13.4.8	EN 60068-2-1	Test Ab, -40 °C
Elektromagnetische Verträglichkeit <i>Electromagnetic compatibility</i>	13.4.8	EN 50121-3-2:2016	
Stehspannungsprüfung <i>Dielectric test</i>	13.4.9	-	U <sub>rated</sub> < 72 VDC: 750 VDC U <sub>rated</sub> ≥ 72 VDC ≤ 125 VDC: 1500 VDC
Isolationswiderstand Insulation test	13.4.9	-	Test voltage: 500 VDC Insulation resistance: > 20 MΩ *1)
Vibrationsprüfung <i>Vibration test</i>	13.4.11	IEC 61373	Category 1, Class B broadband noise 5-150 Hz <i>vertical axis:</i> 1,0 m/s <sup>2</sup> , life test: 5,72 m/s <sup>2</sup> <i>longitudinal / transverse axis:</i> 0,7 m/s <sup>2</sup> , life test: 3,96 m/s <sup>2</sup>
Schock <i>Shock</i>	13.4.11	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

\*1) Falls es hochohmige Ableitwiderstände zwischen den angrenzenden Äquipotenzialbereichen oder zwischen einem Äquipotenzialbereich und der Funktionserde gibt, muss die Wirkung dieser Widerstände herausgerechnet werden. (prEN50155:2019)

In case of high-impedance bleeder resistors between adjacent equipotential areas or between an equipotential area and functional earth, the effect of these resistors shall be deducted. (prEN50155:2019)

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

Prüfung Test description	EN 50121-3-2 Kapitel / Section	Prüfstandard Test Reference	Anforderungen Requirement
Elektromagnetisches HF-Feld <i>Radiated electromagnetic field</i>	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
Statische Entladung <i>Electrostatic discharge</i>	table 5.3	IEC 61000-4-2	±6 kV contact discharge ±8 kV air discharge
Leitungsgeführte HF-Störgrößen <i>Conducted disturbances</i>	table 3.1/ 4.1	IEC 61000-4-6	Signal ports, power ports: 10 V
Schnelle Transienten <i>Fast transient / burst</i>	table 3.2/ 4.2	IEC 61000-4-4	Signal ports, power ports: ±2 kV
Stoßspannungen <i>Surges 1,2/50µs</i>	table 3.3	IEC 61000-4-5	Signal ports, power ports: CM ±2 kV DM ±1 kV
Gestrahlte HF-Störaussendungen <i>Radiated Emission</i>	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)
Leitungsgebundene HF-Störaussendungen <i>Conducted Emission</i>	table 2.1	EN 55016-2-1	AC or DC power ports: 150...500 kHz: 99 dBµV qp. 500 kHz...30 MHz: 93 dBµV qp.

**EN 50121-4:2016 – Bahnanwendungen / Railway Applications**  
**– EMV – Signal und Telekommunikationseinrichtungen**  
**– EMC – Signalling and telecommunication apparatus**

Prüfung Test description	EN 50121-4 Kapitel / Section	Prüfstandard Test Reference	Anforderungen Requirement
Elektromagnetisches HF-Feld <i>Radiated electromagnetic field</i>	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
Magnetfelder mit energietechnischen Frequenzen <i>Power frequency magnetic field</i>	table 2.3	IEC 61000-4-8	16,7 Hz, 100 A/m 50 Hz, 100 A/m 0 Hz, 100 A/m No test required
Statische Entladung <i>Electrostatic Discharge</i>	table 2.4	IEC 61000-4-2	±6 kV contact discharge ±8 kV air discharge
Leitungsgeführte HF-Störgrößen <i>Conducted disturbances</i>	table 3.1/ 4.1/ 5.1/ 6.1	IEC 61000-4-6	Signal ports, power ports: 10 V
Schnelle Transiente <i>Burst</i>	table 3.2/ 4.2/ 5.2/ 6.2	IEC 61000-4-4	Signal ports, power ports: ±2kV

Prüfung Test description	EN 50121-4 Kapitel / Section	Prüfstandard Test Reference	Anforderungen Requirement
Stoßspannungen Surges 1,2/50µs	table 3.3/ 4.3/ 5.3	IEC 61000-4-5	Signal ports, power ports: CM ±2kV DM ±1kV
Gestrahlte HF-Störaussendungen 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)
Leitungsgebundene HF-Störaussendungen Conducted Emission on 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.



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