



Pushing Performance

HARTING

Ethernet switches for the maritime industry



People | Power | Partnership



HARTING Ethernet switches for international maritime transport

Ethernet switches from HARTING have now gained DNV ship certification. DNV stands for Det Norske Veritas, an independent, worldwide leading authority for certifications in the maritime area. The type approval certificate is granted according to special guidelines that have been developed for international shipping.

Type certification to DNV involves an examination of temperature, air humidity, vibration and EMC characteristics. The subsequent product approval applies to areas such as the machine room, deck and bridge. In addition to the guidelines and demands stipulated by DNV, the requirements of the standard for maritime navigation and radiocommunication equipment and systems (DIN EN 60945:2003-07) were also confirmed for the respective products.

Parameters	Class	Location
Temperature	B (+5°C to +70°C)	Machinery spaces, Control rooms, Accommodation Bridge Inside cubicles, Desk
	D (-25°C to +70°C)	Machinery spaces, Control rooms, Accommodation, Bridge Inside cubicles, Desk Pump rooms, Holds, rooms with no heating, open deck, masts
Humidity	B	All locations, relative humidity up to 100% at all relevant
Vibration	A	On bulkheads, Beams, Deck Bridge
EMC	B	All locations including bridge and open deck

Compass safe distance measurement

The German Federal Maritime and Hydrographic Agency (BSH) conducts tests and certifications for navigational and radiocommunication equipment, which also includes measurement of the compass safe distance. The influence of electrical components on the standard magnetic compass and the magnetic steering compass are examined here.

The measurement of the safe distances from the magnetic standard compass and magnetic steering compass is performed in accordance with ISO R 694 and DIN EN 60945 Paragraph 11.2. The measured values for the HARTING switches, with their very low EMC emission and high resistance to EMC interference, were outstanding.

The safe distance measurement produced the following values for the Ethernet switches:


	eCon 2030 eCon 2040 eCon 2050	eCon 3080-A eCon 3080-A1 eCon 3080-A4	sCon 3100-AA mCon 3100-AAV	mCon 3082-ADV mCon 3082-AEV
Safe distance from: standard magnetic compass	0.30 m	0.75 m	1.25 m	0.80 m
Safe distance from: standard magnetic compass	0.30 m	0.45 m	0.60 m	0.40 m
Reduced safe distances from: standard magnetic compass	0.30 m	0.45 m	0.75 m	0.50 m
Reduced safe distances from: standard magnetic compass	0.30 m	0.30 m	0.40 m	0.30 m





BUNDESAMT FÜR
SEESCHIFFFAHRT
UND
HYDROGRAPHIE





DNV


	eCon 2030-A eCon 2040-A eCon 2050-A Number of ports Input voltage U_N Protection class Operating temperature MTBF	20 76 103 3000 20 76 104 3000 20 76 105 3000 3x/4x/5x 10/100 Base T(X) 24 V DC IP 30 -10°C ... +70°C 1 020 000h	<table border="1"> <thead> <tr> <th colspan="5">Location classes by DNV</th> </tr> <tr> <th>Parameters</th> <th>Temperature</th> <th>Humidity</th> <th>Vibration</th> <th>EMC</th> </tr> </thead> <tbody> <tr> <td>Product</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>eCon 2030-A</td> <td>B</td> <td>B</td> <td>A</td> <td>B</td> </tr> <tr> <td>eCon 2040-A</td> <td>B</td> <td>B</td> <td>A</td> <td>B</td> </tr> <tr> <td>eCon 2050-A</td> <td>B</td> <td>B</td> <td>A</td> <td>B</td> </tr> </tbody> </table>	Location classes by DNV					Parameters	Temperature	Humidity	Vibration	EMC	Product					eCon 2030-A	B	B	A	B	eCon 2040-A	B	B	A	B	eCon 2050-A	B	B	A	B
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	eCon 3080-A eCon 3080-A1 Number of ports Input voltage U_N Protection class Operating temperature MTBF	20 76 108 3000 20 76 108 3001 8x 10/100 BaseT(X) 24 V DC IP 30 -10°C ... +70°C 548 000h	<table border="1"> <thead> <tr> <th colspan="5">Location classes by DNV</th> </tr> <tr> <th>Parameters</th> <th>Temperature</th> <th>Humidity</th> <th>Vibration</th> <th>EMC</th> </tr> </thead> <tbody> <tr> <td>Product</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>eCon 3080-A</td> <td>B</td> <td>B</td> <td>A</td> <td>B</td> </tr> <tr> <td>eCon 3080-A1</td> <td>B</td> <td>B</td> <td>A</td> <td>B</td> </tr> </tbody> </table>	Location classes by DNV					Parameters	Temperature	Humidity	Vibration	EMC	Product					eCon 3080-A	B	B	A	B	eCon 3080-A1	B	B	A	B
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	sCon 3100-AA Number of ports Input voltage U_N Protection class Operating temperature MTBF	20 76 110 1001 8x 10/100 Base-T(X) 2x 10/100/1000 Base-T(X) 24 V DC IP 30 -40°C ... +70°C 670 000h	<table border="1"> <thead> <tr> <th colspan="5">Location classes by DNV</th> </tr> <tr> <th>Parameters</th> <th>Temperature</th> <th>Humidity</th> <th>Vibration</th> <th>EMC</th> </tr> </thead> <tbody> <tr> <td>Product</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>sCon 3100-AA</td> <td>D</td> <td>B</td> <td>A</td> <td>B</td> </tr> </tbody> </table>	Location classes by DNV					Parameters	Temperature	Humidity	Vibration	EMC	Product					sCon 3100-AA	D	B	A	B
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	mCon 3100-AAV Number of ports Input voltage U_N Protection class Operating temperature MTBF	20 76 110 4003 8x 10/100 Base-T(X) 2x 10/100/1000 Base-T(X) 24 V DC IP 30 -40°C ... +70°C 720 000h	<table border="1"> <thead> <tr> <th colspan="5">Location classes by DNV</th> </tr> <tr> <th>Parameters</th> <th>Temperature</th> <th>Humidity</th> <th>Vibration</th> <th>EMC</th> </tr> </thead> <tbody> <tr> <td>Product</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>mCon 3100-AAV</td> <td>D</td> <td>B</td> <td>A</td> <td>B</td> </tr> </tbody> </table>	Location classes by DNV					Parameters	Temperature	Humidity	Vibration	EMC	Product					mCon 3100-AAV	D	B	A	B
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	mCon 3082-ADV mCon 3082-AEV Number of ports Input voltage U_N Protection class Operating temperature MTBF	20 76 110 4101 20 76 110 4201 8x 10/100 Base-T(X) 2x 100 Base-F(X) 24 V DC IP 30 -10°C ... +70°C 560 000h	<table border="1"> <thead> <tr> <th colspan="5">Location classes by DNV</th> </tr> <tr> <th>Parameters</th> <th>Temperature</th> <th>Humidity</th> <th>Vibration</th> <th>EMC</th> </tr> </thead> <tbody> <tr> <td>Product</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>mCon 3082-ADV</td> <td>B</td> <td>B</td> <td>A</td> <td>B</td> </tr> <tr> <td>mCon 3082-AEV</td> <td>B</td> <td>B</td> <td>A</td> <td>B</td> </tr> </tbody> </table>	Location classes by DNV					Parameters	Temperature	Humidity	Vibration	EMC	Product					mCon 3082-ADV	B	B	A	B	mCon 3082-AEV	B	B	A	B
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