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REPORT

ON

PROGRAMMABLE CONTROLLERS - NRAQ

HIRSCHMANN AUTOMATION AND CONTROL GMBH
NECKARTENZLINGEN, GERMANY

DESCRIPTION

PRODUCT COVERED:

        USL, CNL – Listed Open Type, Programmable Controllers –

        Cat. Nos. MSP, followed by 3, followed by 0 or 2, followed by dash,
followed by 08, 16 or 24, followed by 04, followed by 0, followed by S, T or
E, followed by C or P, may be followed by up to 16 numbers and/or letters.

Cat. Nos. MSP, followed by 4, followed by 0 or 2 , followed by dash, followed
by 00, followed by 12, 20 or 28 followed by 0, followed by S, T or E,
followed by C or P, may be followed by up to 16 numbers and/or letters.

        Cat. Nos. MSM, followed by 20, 24, 40 or 42, followed by dash, followed
by T1, M2, M4, S2, S4, L2, G2, C1, IO or 99, followed by T1, M2, M4, S2, S4,
L2, G2, C1, IO or 99, followed by T1, M2, M4, S2, S4, L2, G2, C1, IO or 99,
followed by T1, M2, M4, S2, S4, L2, G2, C1, IO or 99, followed by S, T or E,
may be followed by up to 14 numbers and/or letters.

        Cat. Nos. MSM, followed by 22, 46, 50, followed by dash, followed by
T1, T5, Q6, followed by T1, T5, Q6, followed by T1, T5, Q6, followed by T1,
T5, Q6, followed by S, T or E, may be followed by up to 14 numbers and/or
letters.

        **Cat. Nos. MSM, followed by 60, followed by dash, followed by Q6,
followed by Q6, followed by Q6, followed by Q6,followed by S, may be followed
by up to 14 numbers and/or letters.**

GENERAL:

        These devices (MSP/MSM-Family) are industrial control Ethernet LAN
devices for DIN-rail mounting and intended for use in industrial automation
applications. The MSP devices are capable to get equipped with MSM-Family
modular media modules. The system is microcomputer-based and communicates via
interfaces through wire or optical ports.

        These devices are intended for field wiring.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

        USL – Indicates investigation to United States Standard
              UL 508, 17-th edition (Industrial Control Equipment).
              UL 508, 18th edition (Industrial Control Equipment (MSM60 only).

        CNL - Indicates Investigated to Canadian National Standard
              C22.2 No. 142-1987.

        Note: USL = United States Standards - Listed
              CNL = Canadian National Standards – Listed

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE) (cont'd)_

Media Modules MSM60:

This end-product is for use with field installable Transceivers SFP+ modules which are not provided with the product when shipped from the original equipment manufacturer. The end product was evaluated with representative SFP+ modules during the tests.

An evaluation to CDRH 21CFR 1040 was not deemed necessary due to the fact that the optional SFP+ Transceiver Modules are considered to be OEM Modules with respect to CDRH Laser Notice No. 42.

ELECTRICAL RATINGS:

MSP MICE Switch Power Modules:

Cat. No.	Supply Voltage, V DC (#)	Input Current, A (#)
MSP3008..C..		1.5 – 0.8
MSP3016..C..	24–48	2.0 – 1.0
MSP3024..C..		**2.5 – 1.3**
MSP40-012..C..		**1.6 - 0.8**
MSP40-020..C..	**24–48**	**2.1 - 1.1**
MSP40-028..C..		**2.8 - 1.4**
MSP3208..P..	PoE: 48 (45–57 min/max limits)	3.3 – 2.9
MSP3216..P..	PoE+: 54 (51–57 min/max limits)	3.5 – 3.2
MSP3224..P..	(##)	3.8 – 3.3
MSP42-012..P..	PoE: 48 (45–57 min/max limits)	3.3-2.9
MSP42-020..P..	PoE+: 54 (51–57 min/max limits)	3.5-3.2
MSP42-028..P..	(##)	3.9-3.4

ELECTRICAL RATINGS (cont'd):

Notes:

(#) - The total power consumption is made up of the power of the MSP MICE
Switch Power Modules and the power of the MSM MICE Switch Media Modules.

(##) – PoE = Power over Ethernet; PoE+ = Power over Ethernet with increased
minimum supply voltage.

Digital Input: -32..+32 V DC, 15mA
Digital Output: 30 V DC, 1A Resistive (Relay Output)

MSM MICE Switch Media Modules:

        The MICE Switch Media Modules MSM have no separate power supply, they
are supplied via the backplane of the MSP modules, except model MSM46, which
can be supplied via separate power supply.

Digital Input: -32..+32 V DC, 15mA
Digital Output (4x):   Each 30 V DC, 1A Resistive (MSMx4-..IO.. only)

ENVIRONMENTAL RATINGS:

Pollution degree:	2
Overvoltage Category:	III
Max. surrounding air temperature:	60°C

NOMENCLATURE BREAKDOWN - MSP family (MICE Switch Power modules):

MSP	3	0	–	08	04	0	S	C	...
I	II	III	IV	V	VI	VII	VIII	IX	X–XVI

I   Product designation:
      MSP   - MICE Switch Power

II   Bit rate:
      3   - 10/100 and 10/100/1000 Mbit/s ports
      4   - 10/100/1000 and 1000/2500 Mbit/s ports

III   Hardware type:
      0   - Standard
      2   - Suitable for PoE/POE+ capable

IV   Dash

V   Number of 10/100 Mbit/s ports:

      00   - 0 x 10/100 Mbit/s Ethernet ports
      08   - 8 x 10/100 Mbit/s Ethernet ports
      16   - 16 x 10/100 Mbit/s Ethernet ports
      24   - 24 x 10/100 Mbit/s Ethernet ports

VI   Number of 10/100/1000 Mbit/s ports:

      04   - 4 x 10/100/1000 Mbit/s Ethernet ports
      12   - 8 x 10/100/1000 + 4 x 1000/2500 Mbit/s Ethernet ports
      20   - 16 x 10/100/1000 + 4 x 1000/2500 Mbit/s Ethernet ports
      28   - 24 x 10/100/1000 + 4 x 1000/2500 Mbit/s Ethernet ports

VII   Number of 10/100/1000/10000 Mbit/s ports:

      0   - 0 x 10/100/1000/10000 Mbit/s Ethernet ports

VIII Temperature range:

      S   - Standard   0°C up to 60°C
      T   - Extended -40°C up to 60°C
      E   - Extended -40°C up to 60°C inclusive conformal coating

*

IX   Voltage range:

      Options C and P each have 2 voltage inputs for redundant voltage supply.

      C   – 24-48 VDC – Only for MSP30 or MSP40
      P   – 48 VDC nominal (PoE) or 54 VDC nominal (PoE+) – Only for MSP32
            or MSP42

X-XVI For information only - Up to 16 numbers and/or letters:

      Represents:

      xx   - Other approvals/declarations (2 digits)
      xx   - Software package (2 digits)
      xx   - Customization (2 digits)
      x   - Software configuration (1 digit)
      xx   - Software level (2 digits)
      xxxxx - Software version (5 digits)
      xx   - Maintenance

NOMENCLATURE BREAKDOWN - MSM family (media modules):

MSM	2	0	–	T1	T1	T1	T1	S	...
I	II	III	IV	V	VI	VII	VIII	IX	X

I   Product designation:

      MSM   - MICE Switch Media Module

II   Bit rate:

      2   - 10/100 Mbit/s ports
      4   - 10/100/1000 Mbit/s ports
      5   - 1000/2500 Mbit/s ports
      6   - 10 Gbit/s ports

III   Hardware type:

      0   - Standard
      2   - PoE or POE+ capable
      4   - IO capable
      6   - PoE or PoE

IV   Dash

V   First port configuration:

      T1   - Twisted Pair (TX) / RJ45
      T5   - Twisted Pair (TX) / M12
      M2   - Multimode FX DSC (only 100 Mbps)
      M4   - Multimode FX ST (only 100 Mbps)
      S2   - Singlemode FX DSC (only 100 Mbps)
      S4   - Singlemode FX ST (only 100 Mbps)
      L2   - Singlemode Long Haul FX DSC (only 100 Mbps)
      G2   - Singlemode Long Haul FX DSC 200km (only 100 Mbps)
      C1   - Combo Port Twisted Pair (TX) / RJ45 and Fiber Optic SFP Cage
      IO   - Digital Input / Output
      Q6   - SFP Cage **(UL MSM60 is only available with suffix "Q6")**

      99   - None

VI   Second port configuration:

      Identical options as for first port in item V.

VII   Third port configuration:

      Identical options as for first port in item V.

VIII Fourth port configuration:

      Identical options as for first port in item V.

IX   Temperature range:

       S   – Standard   0°C up to 60°C
       **T   – Extended –40°C up to 60°C (Extended temperature range is not
              valid for Media Modules MSM 60)**
       E   - Extended –40°C up to 60°C inclusive conformal coating
                (Extended temperature range not valid for Media Modules MSM 60)

X-XV   For information only - Up to 14 numbers and/or letters:

       Represent:

       xx   - Other approvals/declarations (2 digits)
       xx   - Customization (2 digits)
       x   - Configuration (1 digit)
       x   - Software configuration (1 digit)
       xxxxx - Software version (5 digits)
       xxx   - Maintenance

Combination options for the MSP MICE Switch Power Modules:

I	II+III	IV	V	VI	VII	VIII	IX	X-XVI
MSP	30	–	08, 16, 24	04	0	S	C	...
MSP	32	–	08, 16, 24	04	0	S	P	...
MSP	**40**	**–**	**00**	**12, 20, 28**	**0**	**S,T,E**	**C**	**...**
MSP	**42**	**–**	**00**	**12, 20, 28**	**0**	**S,T,E**	**P**	**...**

Number of ports and connections for the MSP MICE Switch Power Modules:

Basic Module	Total No. of MSM slots	No. of slots for 10/100 **Mbit/s**	No. of slots for 1000 **Mbit/s**	Max. No. of connectable network 10/100 Mbit/s segments	Max. No. of connectable network 10/100 Mbit/s segments
MSP30-08.. MSP32-08..	3	2	1	12	4
MSP30-16.. MSP32-16..	5	4	1	20	4
MSP30-24.. MSP32-24..	7	6	1	28	4

Basic Module	**Total No. of MSM slots**	**No. of slots for 10/100/1000 Mbit/s**	**No. of slots for 10/100/1000 Mbit/s**	**Max. No. of connectable network 10/100/1000 Mbit/s segments**	**Max. No. of connectable network 1000/2500 Mbit/s segments**
MSP40-0012.. MSP42-0012..	**3**	**2**	**1**	**8**	**4**
MSP40-0020.. MSP42-0020..	**5**	**4**	**1**	**16**	**4**
MSP40-0028.. MSP42-0028..	**7**	**6**	**1**	**24**	**4**

Combination options for the MSM MICE Switch Media Modules:

I	II+III	IV	V	VI	VII	VIII	IX	X-XV
MSM	40		T1	T1	T1	T1		
MSM	42							
MSM	40		C1	C1	C1	C1		
MSM			M2					
MSM			S2					
MSM			M4	T1				
MSM			S4					
MSM			L2					
MSM			G2					
MSM			M2	M2	T1	T1		
MSM	20	–	S2	S2			S,T,E	...
MSM			M4	M4				
MSM			S4	S4				
MSM			L2	L2				
MSM			G2	G2				
MSM			M2	M2	M2	M2		
MSM			S2	S2	S2	S2		
MSM			M4	M4	M4	M4		
MSM			S4	S4	S4	S4		
MSM			L2	L2	L2	L2		
MSM			G2	G2	G2	G2		
MSM	22		T5	T5	T5	T5		
MSM	24		IO	IO	IO	IO		
MSM	46		T1	T1	T1	T1		
MSM	50		Q6	Q6	Q6	Q6		
MSM	**60**		**Q6**	**Q6**	**99**	**99**	**S**	