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REPORT

on

PROGRAMMABLE CONTROLLERS

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DESCRIPTION

PRODUCT COVERED:

      USL, CNL – Accessory, Listed Programmable Controller, open type,
Modular Ethernet Switch Media Module Cat No. MM4-2TX/SFP.
Cat. Nos. MM2 may be followed by –4TX1, 4FXM3, 2FXM3/2TX1, 2FXM2, 2FXS2 or
2FXP4, may be followed by -EEC.
Cat. Nos. MM3 may be followed by a dash and additional numbers, letters,
dashes or slashes.
Cat No. MM followed by two numbers and a dash,
followed by a T, M, S, F, A, L, G, O, P or Z followed by a number,
followed by a T, M, S, F, A, L, G, O, P or Z followed by a number,
followed by a T, M, S, F, A, L, G, O, P or Z followed by a number - or
alternatively followed by 99,
followed by a T, M, S, F, A, L, G, O, P or Z followed by a number - or
alternatively followed by 99,
followed by S or T or E,
followed by additional suffixes.

GENERAL

      These devices are for use in industrial automation applications. These
devices (Media Modules) are Industrial Control Ethernet LAN components for
mounting on modular Switches (MS family). They are supplied by a Class 2
power supply over the MS Modular Switch backplane. They communicate via
interfaces through wire or fiber optics.

ELECTRICAL RATINGS:

MM2, MM20, MM21 MM3, MM30, MM31 or MM4 Media Modules:
Class 2

Remark: No external Power Supply for MM2, MM20, MM21 MM3, MM30, MM31 or MM4
media modules. Class 2 supplied via MS Modular Switches.

Only MM22 or MM32 Media Modules:

Power over Ethernet Media Modules MM22 or MM32: 47 VDC … 52 VDC Class 2
                                                1.5 A

Max. surrounding air temperature:
                  MM4-2TX/SFP   * up to 60°C max.
                  MM2, MM3, MM4 Media Modules   * up to 60°C max.
                  with suffixes EEC   **up to 70°C max.**

                  MM Media Modules
                  type S: **up to 60°C max.**
                  types T or E: **up to 70°C max.**
                  (Note: types see item VII of nomenclature breakdown
              for MM modules.)

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE'S USE):

        CNL - Indicates investigation to Canadian National Standard(s)
              C22.2 No. 142-M1987.

        USL - Indicates investigation to United States Standard UL 508,
              (Industrial Control Equipment).

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

CONSTRUCTION DETAILS:

General - The details of construction are covered in the following photographs and accompanying descriptive pages and illustrations.

Corrosion Protection - All parts of corrosion resistant materials are painted or plated as corrosion protection.

Class 2 circuit - The investigation has been conducted under consideration of the Class 2 requirements. This allows for the investigation of spacings and components on the secondary to be waived.

Installation Instructions - Shall be provided and include a wiring diagram. It must include a statement "Only for connection with a Class 2 power supply" or equivalent.

Markings:

Warning Markings - See Section General for details.

Markings - Listed company name or trademark, model number and wiring diagram is required. Terminal identifications are also on the device.

"Class 2" or equivalent statement next to the voltage rating. This Marking
shall be visible when the device is mounted singularly. The Marking may be provided on the side of the device, and is not required to be visible when the device is mounted next to other devices.

The following markings are also provided on the device or as part of the
installation instructions:

"max. surrounding temperature *** xx**°C" or equivalent **- numerical values as**
noted under ELECTRICAL RATINGS.

* All media modules are intended for use with **Listed** Hirschmann MSxxxx-x Modular Switches.

Canadian Marking (CNL) - The month and year of manufacturer shall also be marked on the device. Bar coding, date coding, serial numbers, or equivalent means may be used.

NOMENCLATURE BREAKDOWN for MM2 and MM3 media modules

MM2	0-	M2	M2	T1	T1	S	A	H	H
I	II	III	IV	V	VI	VII	VIII	IX	X

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I:     Media type
       MM2     Fast Ethernet 10/100
       MM3     Gigabit Ethernet 10/100/1000
II:    Technology
       0-      Standard
       1-      Realtime
       2-      Power over Ethernet (PoE)
III:   Port type 1
       T1      twisted pair / RJ45 10/100/1000
       T5      twisted pair / M12 10/100
       M2      multimode / SC (100 Mbit)
       M3      multimode / MTRJ (100 Mbit)
       M4      multimode / ST (100 Mbit)
       S2      singlemode / SC (100 Mbit)
       S4      singlemode / ST (100 Mbit)
       F4      multimode  / ST (10 Mbit)
       A8      AUI / SUB-D (10 Mbit)
       L2      singlemode LH / SC (100 Mbit)
       G2      singlemode LH / SC (100 Mbit)/ 200 km
       O6      SFP slot / SFP (1000 Mbit)
       O7      SFP slot + RJ45 (1000 Mbit)
       P4      POF Polymere Optical Fiber / ST (100 Mbit)
       Z6      SFP slot /SFP (100 Mbit)
IV:    Port type 2
       same as under item III
V:     Port type 3
       same as under item III, aditional:
       99      port not mounted
VI:    Port type 4
       same as under item III, aditional:
       99      port not mounted
VII:   Surrounding air temperature range & coating
       S        0°C up to +60°C
       T       -40°C up to +70°C
       E       -40°C up to +70°C inclusive conformal coating of PCB´s
VIII:  Approvals / Qualification
       A       cUL508, Hazardous Locations Class 1 Div. 2
       H       same as under item A – additional German Lloyd, IEC61850
               Substations, Railway standard EN 50121-4 / IEEE 1613
       B       same as under item H – additional ATEX 95 (ATEX 100a) Zone 2
       C       same as under item H – additional Railway standard EN50155
IX     optional: OEM type
       H       Standard
       x       Customer specific (x – any suffix)
X:     optional: OEM type
       H       Standard
       x       Customer specific (x – any suffix)
```

NOMENCLATURE BREAKDOWN

For MM4 module:

MM4-	2	TX/SFP
I	II	III

I: Media module, Gigabit-ETHERNET uplinks

II: Number of concurrent usable uplink ports

III: available types of uplink ports
       TX   twisted pair
       SFP   optical

MM4-2TX/SFP   FIG.1
                                                                  FIG.2

        General – These figures show the media module and are for reference use
only. Due to the use of Class 2 Source, no evaluation of components was
considered necessary except of the following:

Housing – Consisting of plastic material, overall dimensions 38 mm by 110 mm
by 79 mm or 119 mm.

Any kind of (NWGQ2 or DUXR2) fiberoptic module (ports with SFP slot).

MM22-XXX…   FIG.3
                                                                  FIG.4

        General – These figures show the media module with Power over Ethernet
(PoE) technology. Due to the use of Class 2 Source, no evaluation of
components was considered necessary except the following:

1.   Housing – Consisting of plastic material, overall dimensions 38 mm by
        110 mm by 79 mm or 119 mm.

2.   PWB – R/C (ZPMV2/8) rated V0 Flame Class, 130°C or better.

3.   Terminal block – R/C (XCFR2/8), type 31330103, manufactured by RIA
        CONNECT INC, rated 300V, 15A, 105°C and type 313491, rated 300V, 16A,
        105°C.

4.   RJ45 sockets, **up to** four provided.