

File E175531

Project 06CA29719

2007-05-23

REPORT

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on

LISTED

PROGRAMMABLE CONTROLLERS

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## DESCRIPTION

## PRODUCT COVERED:

USL, CNL - Listed Programmable Controller, Open Type,

## Modular Ethernet Switch

Power Module M4-S-AC/DC 300W,  
Power Module M4-S-48VDC 300W,  
Power Module M4-S-24VDC 300W,  
Power Module M4-P-AC/DC 300W,  
Power Module M4-P-48VDC 300W,  
Power Module M4-P-24VDC 300W,  
Media Module M4-8TP-RJ45,  
Media Module M4-FAST 8-SFP,  
**Media Module M4-GIGA 8-SFP**  
**Media Module M4-FAST 8TP-RJ45-PoE**

## Power Rack M4-Power

Can be provided with:

Power Module M4-P-AC/DC 300W and/or  
Power Module M4-P-48VDC 300W and/or  
Power Module M4-P-24VDC 300W.

Switch Rack MACH4002 48+4G-XXX  
Switch Rack MACH4002-24G-xxx  
Switch Rack MACH4002-24G+3X-xxx  
Switch Rack MACH4002-48G-xxx  
Switch Rack MACH4002-48G+3X-xxx

## Mandatory sub components for

Switch Rack Types MACH4002:

One of the following Switch Boards

MACH4002 48+4G or MACH4002 48G + 3X

Or MACH4002 48G or MACH4002 24G + 3X

Or MACH4002 24G,

Fan Unit M4-AIR (with max. surrounding temperature of 60°C)

Or M4-AIR-L (with max. surrounding temperature of 40°C)

## Optional sub components for

Switch Rack Types MACH4002:

Power Module M4-S-AC/DC 300W

Power Module M4-S-48VDC 300W

Power Module M4-S-24VDC 300W

Media Module M4-8TP-RJ45,

Media Module M4-FAST 8-SFP.

Media Module M4-GIGA 8-SFP

Media Module M4-FAST 8TP-RJ45-PoE,

(Supplied with any kind of (NWGQ2 or DUXR2) fiberoptic module SFP or XFP).

The XXX in the model designation of Switch Rack MACH4002 can be numbers from 0 until 9 or characters from A until Z and indicate non-safety differences like e.g. software.

## GENERAL

These devices are for use in Industrial Automation Applications and Industrial Control Ethernet LAN components, which receive data may be change it and sends it out again. The EUT can be configured with a Power Rack and a Switch Rack or a Switch Rack alone. The below power supplies (P- types and S- types) can be used variable in type and amounts. They communicate via interfaces through wire or fiber optics.

## ELECTRICAL RATINGS:

Power Rack or Switch Rack provided with  
Power Modul M4-P(S)-AC/DC 300W:  
110- 230V, 50Hz/60Hz, 1.8- 4.2A

\* Power Rack or Switch Rack provided with  
Power Modul M4-P(S)- **24VDC** 300W:  
24V, 16.0A

\* Power Rack or Switch Rack provided with  
Power Modul M4-P(S)- **48VDC** 300W:  
48V, 8.0A

\*Maximum surrounding air, Fan Unit M4-AIR: 0°C up to 60°C max.  
Maximum surrounding air, Fan Unit M4-AIR-L: 0°C up to 40°C max.

## 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 the United States Standard UL 508, 17<sup>th</sup>  
Edition (Industrial Control Equipment).

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

The equipment is: for building in, with AC/DC- power supply: Class I  
(earthed) and Appliance Inlet. With DC/DC- converter: Class III and  
permanently connected (field wired). TN power system.

## CONSTRUCTION DETAILS:

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

Printed Wiring Boards - Recognized Component printed wiring board (ZPMV2/8) suitable for support of live parts according to UL 796 or with a CTI greater than 175, rated 105°C min., unless specified elsewhere in this report, may be coated with any coating.

Markings - Listee's name, Model number and Electrical ratings.  
**Additional marking for the switch racks only:**  
Only for use with fans as follows:  
- Fan Unit M4-AIR: 60°C  
- Fan Unit M4-AIR-L: 40°C

Marking in the instruction manual:

\*

Do not use without fan. Only for use with the following maximum surrounding temperature depend on the used Fan unit as followed:

Fan Unit M4-AIR: 60°C  
Fan Unit M4-AIR-L: 40°C

Tightening Torque 7 lb in." for input terminal blocks and tightening Torque 11 lb in." for all field wiring terminal blocks.

"Use cooper conductors 75°C only."

Installation Instructions - Shall be provided and include a wiring diagram.

Warning Markings - See Section General for details.

Corrosion Protection - All ferrous metal parts are suitably protected against corrosion by painting, plating or the equivalent.

Internal Wiring - All wiring is Recognized Component - Appliance Wiring Material (AVLV2/8), rated minimum 80°C, 300 V. All wiring routed away from sharp edges. All wiring shall be PVC, TFE, PTFE, FEP or marked VW-1.

Spacings - The minimum spacings are determined based on pollution degree 2 in accordance with UL 508, 17th edition (no grounded metal parts), with respect to Section 39 of UL 508. Spacings are not specified for secondary circuits with respect to table 32.0 of UL 508, Limited Voltage Circuits.

Spacings between any un-insulated live parts of opposite polarity, un-insulated grounded parts or exposed metal parts for the potential mentioned below are:

Clearance 300V	Creepage PWB 300Vac
1.6 mm	3.2 mm

CONSTRUCTION DETAILS (Cont'd):

\*

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.