

UL TEST REPORT AND PROCEDURE

Standard:	UL 60950-1, 1st Edition, 2007-10-31 (Information Technology Equipment - Safety - Part 1: General Requirements) CAN/CSA C22.2 No. 60950-1-03, 1st Edition, 2006-07 (Information Technology Equipment - Safety - Part 1: General Requirements)
Certification Type:	Listing
CCN:	NWGG, NWGQ7 (Information Technology Equipment Including Electrical Business Equipment)
Product:	Managed Workgroup Ethernet Switch
Model:	Modular switch MACH102-8TP and MACH102-8TP-R, can be provided with: M1-8TP-RJ45 and/or M1-8MM-SC and/or M1-8SM-SC and/or M1-8SFP. Compact switch MACH102-8TP-F, MACH102-8TP-FR, MACH102-24TP-F, MACH102-24TP-FR. Mandatory sub components for Modular switch MACH102-8TP and MACH102-8TP-R: None. Optional sub components for Modular switch MACH102-8TP and MACH102-8TP-R: M1-8TP-RJ45, M1-8MM-SC, M1-8SM-SC, M1-8SFP.
Rating:	100-240 VAC, 50/60 Hz, 0.4 - 0.2 A
Applicant Name and Address:	HIRSCHMANN AUTOMATION AND CONTROL GMBH STUTTGARTER STR 45-51 72654 NECKARTENZLINGEN GERMANY

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

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Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared by: Pawel Ciuba

Reviewed by: Sebastian Cichocki

Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

- A. Authorization - The Authorization page may include additional Factory Identification Code markings.
- B. Generic Inspection Instructions -
 - i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
 - ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
 - iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

The MACH100 devices are managed Workgroup switches with up to 24 Fast Ethernet and 2 Gigabit Ethernet ports. They consist of a basic device and - depending on the device variant - up to 2 pluggable media modules.

The MACH100 devices allow you to construct switched industrial ETHERNET networks that conform to the IEEE 802.3 and 802.3u standards using copper wires or optical fibers in a bus or ring topology. You can connect terminal devices and other infrastructure components via twisted pair cables, multi-mode LWL and single mode LWL. The auto polarity.

Model Differences

All models are equipped with the integrated basic module 8xFE TP and one power supply. Some models are equipped with additional modules and a backup power supply, which is only operated, when the main power supply breakdowns.

MACH102-8TP: is equipped with the basic model with one power supply, integrated 8xFE TP, M1-8TP-RJ45, M1-8MM-SC and M1-8SFP

MACH102-8TP-R: same as MACH102-8TP, except equipped with two power supplies.

MACH102-8TP-F: is equipped with the basic model with one power supply and the integrated 8xFE TP only.

MACH102-8TP-FR: Same as MACH102-8TP-F, except equipped with two power supplies.

MACH102-24TP-F: is equipped with the basic module only and one power supply.

MACH102-24TP-FR: same as MACH102-24TP-F, except equipped with two power supplies.

Technical Considerations

- Equipment mobility : stationary
- Operating condition : continuous
- Mains supply tolerance (%) : +10%, -10%
- Tested for IT power systems : No
- IT testing, phase-phase voltage (V) : N/A
- Class of equipment : Class I (earthed) with AC/DC- power supply and Class III with DC/DC-converters
- Mass of equipment (kg) : Power Rack M4-Power : 13.1kg, Switch Racks MACH4002 48+4G-XXX: 11.8 kg

- Protection against ingress of water : IP X0
- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: 50°C
- The means of connection to the mains supply is: Detachable power cord , Pluggable A ,
- The product is intended for use on the following power systems: TN
- The equipment disconnect device is considered to be: Appliance inlet for AC/DC- power supply
- The class of laser product is: Incorporates previously certified Class I laser source(laser module optional)
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): USB, Ethernet and V.24 connectors.

Additional Information

Unit was tested in fully equipped modules and with redundant power supply and loaded with signals to simulate the worst case configuration.

Additional Standards

The product fulfills the requirements of: -

Markings and instructions

Clause Title	Marking or Instruction Details
Safety Instructions - Rack Mount	"Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions: A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer. B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading. D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern. E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips)."
Power rating - Company identification	Listee's or Recognized company's name, Trade Name, Trademark or File Number
Power rating - Ratings	Ratings (voltage, frequency/dc, current)
Power rating - Model	Model Number

Special Instructions to UL Representative

N/A

Production-Line Testing Requirements

Electric Strength Test Special Constructions - Refer to Generic Inspection Instructions, Part AC for further information.

Model	Component	Removable Parts	Test probe location	V rms	V dc	Test Time, s
N/A						

Earthing Continuity Test Exemptions - This test is not required for the following models:

Electric Strength Test Exemptions - This test is not required for the following models:

Electric Strength Test Component Exemptions - The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test:

Sample and Test Specifics for Follow-Up Tests at UL

Model	Component	Material	Test	Sample(s)	Test Specifics
N/A					