

UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 3rd Ed, Issued: 2019-12-13 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, Issued: 2019-12-13 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	AZOT2, AZOT8 (Audio/video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	Industrial LAN Equipment
Model:	GRS103-aabGc where aa can 10 or 26 (port configuration), b can be S or C (pwb coating), c can be G or 9 (redundant psu), followed by any character considered not safety relevant
Rating:	Input: 100 - 240 VAC 0.5 - 0.2 A 50/60 Hz
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.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

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

Issue Date: 2022-04-12

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Report Reference #

E168643-A6013-UL

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Engineer

Reviewed By: Radoslaw Lukasiewicz /
Reviewer

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 GRS103 family provides you with a range of device variants. The device is designed for the special requirements of industrial automation. The device meets the relevant industry standards, provides very high operational reliability, even under extreme conditions, and also long-term reliability and flexibility.

The devices with software variant L2... allow you to set up switched industrial Ethernet networks that conform to the IEEE 802.3 standard. The devices with software variant L2... allow you to set up switched and routed industrial Ethernet networks that conform to the IEEE 802.3 standard.

The following installation options are available:

- 19" switch cabinet
- Flat surface mounting
- Vertical surface mounting

You have the option of choosing various media to connect to the end devices and other network components:

- Twisted pair cable
- Multimode F/O
- Singlemode F/O

The unit consists of a main frame with 2 slots for optional modules with additional network ports.

Main frame consists of following ports:

- 1x USB-C interface: V.24 management
- 1x Signal contact terminal block (2-pin terminal)
- 4x SFP slots for SFP modules (port group I + II)
- 2x Twisted Pair port (Ethernet, port group I)
- 8x Twisted Pair ports (Ethernet, port group II+III)

Model Differences

Optional the 2 module slot can be equipped with following modules:

- Media Module M1-8TP-RJ45 PoE
- Media Module M1-8TP-RJ45
- Media Module M1-8SM-SC
- Media Module M1-8MM-SC
- Media Module M1-8SFP

Optional equipment can be provided with redundant Internal power supply, see enclosure 07-01 (Model variants GRS103) for details.

Test Item Particulars

Product group	end product
Classification of use by	Instructed person
Supply Connection	AC Mains
Supply tolerance	+10%/-10%
Supply connection – type	pluggable equipment type A - For PoE mating connector (considered ES1)
Considered current rating of protective device	20 A; Location: building
Equipment mobility	stationary wall/ceiling-mounted SRME/rack-mounted
Over voltage category (OVC)	OVC II
Class of equipment	Class I
Special installation location	restricted access area
Pollution degree (PD)	PD 2
Manufacturer's specified T _{ma} (°C)	50° for configuration with module M1-8TP-RJ45 PoE with all 8 PoE ports loaded, 60° all configurations including module M1-8TP-RJ45 PoE with max. 4 ports loaded into PoE
IP protection class	IP considered IPX0 (manufacturer separately declared IP30)
Power systems	TN
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	max. 5 kg

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of : 50° for configuration with module M1-8TP-RJ45 PoE with all 8 PoE ports loaded, 60° all configurations including module M1-8TP-RJ45 PoE with max. 4 ports loaded into PoE
- The product is intended for use on the following power systems : TN, TT, IT
- Considered current rating of protective device as part of the building installation (A) : 20
- Mains supply tolerance (%) or absolute mains supply : +10%/-10%
- The equipment disconnect device is considered to be : Appliance inlet

- The following were investigated as part of the protective earthing/bonding : Appliance inlet PE quick connector with cable ending on metal chassis 6.4x0.8mm tab, additionally second cable from appliance inlet to PSU input connector.
- The class of laser product is : Class 1 (I) for optical SFP Transceiver modules, complies with: , For UL/Canada: category NWGQ2, NWGQ8 UL60950-1 2nd Ed or AZOT2, AZOT8 UL62368-1, Complies with 21 CFR 1040 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007; For CB: IEC/EN 60825-1:2007 or IEC/EN 60825-2:2004 - part of optional and certified SFP modules only
- The Risk Group of a lamp or lamp system (including LEDs) is : Exempt
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual
- The product was investigated to the following additional standard : EN IEC 62368-1:2020+A11:2020
- 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. This Laser Notice is only applicable when a CDRH Report of the Transceiver Module is already filed by the manufacturer of each SFP Transceiver Module (See appended table 4.1.2).
- Units are intended for installing into Restricted Access Areas only.
- Optional PoE module type M1-8TP-RJ45 PoE is considered LPS compliant as of usage of internal component IC PD69104B and input supply 48V up to 10A considered by testing within this project.

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following product-line tests are conducted for this product : Earthing Continuity, Electric Strength
- The following output circuits are at ES1 energy levels : all Outputs
- The following output circuits are at PS1 energy levels : USB-C connector. all I/O ports except PoE on optional module M1-8TP-RJ45 PoE
- The following output circuits are at PS2 energy levels : PoE outputs on optional module M1-8TP-RJ45 PoE (if installed)
- The maximum investigated branch circuit rating is : 20 A
- The investigated Pollution Degree is : 2
- The front bezel complies with the flame rating requirements for : V-1
- An investigation of the protective bonding terminals has : been conducted
- The following end-product enclosures are required : Fire, on bottom openings in vertical wall/ceiling mount position with top/bottom openings
- The equipment is suitable for direct connection to : AC mains supply
- The power supply was evaluated to be used at altitudes up to : 2,000 m
- This end product with Fiber optic Transceivers installed is required to comply with IEC/EN 60950-1 or IEC/EN 62368-1, IEC/EN60825-1 or IEC/EN 60825-2, including any declared national differences.
- Low voltage (LV) power supply on module M1-8TP-RJ45 PoE must be supplied from a secondary supply source that meet the requirements for ES1 acc. to IEC/EN/UL 62368-1 3rd Ed. or IEC/EN/UL 60950-1 2nd Ed. Am1+Am2.

Additional Information

Maximum Normal Load description:

All units require testing with two power supplies installed, considered redundant power supply except heating test.

Relay contact is loaded to 1 Amp limited current.

All lower ports are crosslinked to upper ports for RJ45 and optical ports except for module M1-8TP-RJ45 PoE which is loaded into resistive loads for PoE (15W).

USB port is considered for service purpose only and not loaded.

Two Unit configurations are used for testing:

Main unit with additional modules as configuration:

1) 1x M1-8TP-RJ45 PoE, 1x M1-8MM-SC

2) 2x M1-8SFP

Configuration 2 heating test is loaded into full 8 PoE ports with 150 ohm each for 60°C test and 4 PoE ports with 150 ohm load for 50°C testing.

HISTORY:

- 4789982641 Initial UL and CB report.

Tests have been performed on Model GRS103 equipped with

1) 1x module M1-8TP-RJ45, 1x module M1-8MM-SC


2) 2x module M1-8FP

and are considered representative for entire equipment configurations.

Additional Standards

The product fulfills the requirements of: BS EN IEC 62368-1:2020 + A11:2020

Markings and Instructions

Clause Title	Marking or Instruction Details
See Installation Instructions	The symbol 
Equipment identification marking – Manufacturer identification	Listee's or Recognized Company's name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	Input Ratings (voltage, frequency/dc, current/power) Output Ratings (voltage, frequency/dc, current/power)