



L3HARRIS

narda 
Safety Test Solutions

NARDA
Safety
Test
Solutions
S.r.l. Socio Unico

Sales & Support:
Via Rimini, 22
20142 - Milano (MI)
Tel.: +39 02 581881
Fax: +39 02 58188273

Manufacturing Plant:
Via Benessea, 29/B
17035 - Cisano sul Neva (SV)
Tel.: +39 0182 58641
Fax: +39 0182 586400



<http://www.narda-sts.it>

User's Manual

PMM PL-01

PULSE LIMITER

SERIAL NUMBER OF THE INSTRUMENT

You can find the Serial Number in a side of the box.

Serial Number is in the form : 0000X00000.

The first four digits and the letter are the Serial Number prefix, the last five digits are the Serial Number suffix. The prefix is the same for identical instruments, it changes only when a configuration change is made to the instrument.

The suffix is different for each instrument.

Document PL01EN-00708 – Copyright © NARDA 2020

NOTE:

If the instrument is used in any other way than as described in this Users Manual, it may become unsafe



Before using this product, the related documentation must be read with great care and fully understood to familiarize with all the safety prescriptions.

To ensure the correct use and the maximum safety level, the User shall know all the instructions and recommendations contained in this document.

This product has a **Pollution Degree II** normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected.



The information contained in this document is subject to change without notice.

KEY TO THE ELECTRIC AND SAFETY SYMBOLS:

 You now own a high-quality instrument that will give you many years of reliable service. Nevertheless, even this product will eventually become obsolete. When that time comes, please remember that electronic equipment must be disposed of in accordance with local regulations. This product conforms to the WEEE Directive of the European Union (2002/96/EC) and belongs to Category 9 (Monitoring and Control Instruments). You can return the instrument to us free of charge for proper environment friendly disposal. You can obtain further information from your local NARDA Sales Partner or by visiting our website at www.narda-sts.it.



Warning, danger of electric shock



Earth



Read carefully the Operating Manual and its instructions, pay attention to the safety symbols.



Unit Earth Connection



Earth Protection



Equipotential

KEY TO THE SYMBOLS USED IN THIS DOCUMENT:



DANGER

The DANGER sign draws attention to a potential risk to a person's safety. All the precautions must be fully understood and applied before proceeding.



WARNING

The WARNING sign draws attention to a potential risk of damage to the apparatus or loss of data. All the precautions must be fully understood and applied before proceeding.



CAUTION

The CAUTION sign draws attention against unsafe practices for the apparatus functionality.



NOTE:

The NOTE draw attention to important information.

Contents

Safety recommendations and instructions.....	Page
EC Declaration of Conformity	V
	VI
1 General Information	Page
1.1 Documentation.....	1-1
1.2 Introduction to PL01 Pulse Limiter.....	1-1
1.3 Insertion loss.....	1-2
1.4 Environment.....	1-2
1.5 Return for service.....	1-2
2 Main Specification	Page
2.1 Main Specification	2-1
3 Preparation for use	Page
3.1 Introduction.....	3-1
3.2 Packing unpacking.....	3-1
3.3 Initial inspection.....	3-1
3.4 Preparation for use.....	3-2
3.5 Equipment cleaning	3-2

Figures

Figure		Page
1-1	PMM PL01 Typical frequency response.....	1-1

Tables

Table		Page
2-1	Main Specification.....	2-1



SAFETY RECOMMENDATIONS AND INSTRUCTIONS

This product has been designed, produced and tested in Italy, and it left the factory in conditions fully complying with the current safety standards. To maintain it in safe conditions and ensure correct use, these general instructions must be fully understood and applied before the product is used.

- When the device must be connected permanently, first provide effective grounding;
- If the device must be connected to other equipment or accessories, make sure they are all safely grounded;
- In case of devices permanently connected to the power supply, and lacking any fuses or other devices of mains protection, the power line must be equipped with adequate protection commensurate to the consumption of all the devices connected to it;
- In case of connection of the device to the power mains, make sure before connection that the voltage selected on the voltage switch and the fuses are adequate for the voltage of the actual mains;
- Devices in Safety Class I, equipped with connection to the power mains by means of cord and plug, can only be plugged into a socket equipped with a ground wire;
- Any interruption or loosening of the ground wire or of a connecting power cable, inside or outside the device, will cause a potential risk for the safety of the personnel;
- Ground connections must not be interrupted intentionally;
- To prevent the possible danger of electrocution, do not remove any covers, panels or guards installed on the device, and refer only to NARDA Service Centers if maintenance should be necessary;
- To maintain adequate protection from fire hazards, replace fuses only with others of the same type and rating;
- Follow the safety regulations and any additional instructions in this manual to prevent accidents and damages.

EC Declaration of Conformity

In accordance with the Decision 768/2008/EC
Compliant to the Directives: EMC 2014/30/EU, Low Voltage 2014/35/EU, RoHS 2011/65/EU
Also compliant to the ISO/IEC standards 17050-1 and 17050-2

The manufacturer,

NARDA Safety Test Solutions s.r.l.
via Benessea 29/B
17035 Cisano sul Neva (SV) – ITALY

based on the following harmonized European Standards, successfully applied:

Safety: EN 61010-1 (undated reference, applies to all editions)
EMC: EN 61326-1 (undated reference, applies to all editions)

declares, under its sole responsibility, that the product: **PMM PL-01 Pulse Limiter**
conforms with the essential requirements of the Low Voltage Directive 2014/35/EU, of the EMC Directive
EMC 2014/30/EU and of the RoHS directive 2011/65/EU.



Cisano sul Neva, 24/08/2016

Egon Stocca, General Manager

1 - General Information

1.1 Documentation

Enclosed with this manual are a service questionnaire to send back to NARDA in case that equipment service is needed.

1.2 Introduction to PL01 Pulse Limiter

The Pulse Limiter PL01 is an accessory designed to protect the input circuit of a Receiver against high energy interfering voltage pulses. The Pulse Limiter does not cause any significant change of the measured signal and loss in sensitivity on the measuring receiver. Its main function is to suppress the transients that can occur when the test item, connected to an artificial mains network LISN, is switched on or off. When operating the receiver from artificial mains network LISN, the Pulse Limiter PL01 must be used particularly when very strong interfering signal is suspected. The precision input attenuator and the input mixer of the receiver are therefore protected from being damaged. On the other hand if the disturbance signal and spikes do not exceed the maximum input voltage permissible for the receiver, the use of the Pulse Limiter can be omitted.

Designed according to criteria of cheaply and compactness it can be used together with PMM 9010F for conducted interferences measurement, or any other RF receiver.

The following figure shows the Pulse Limiter typical frequency response.

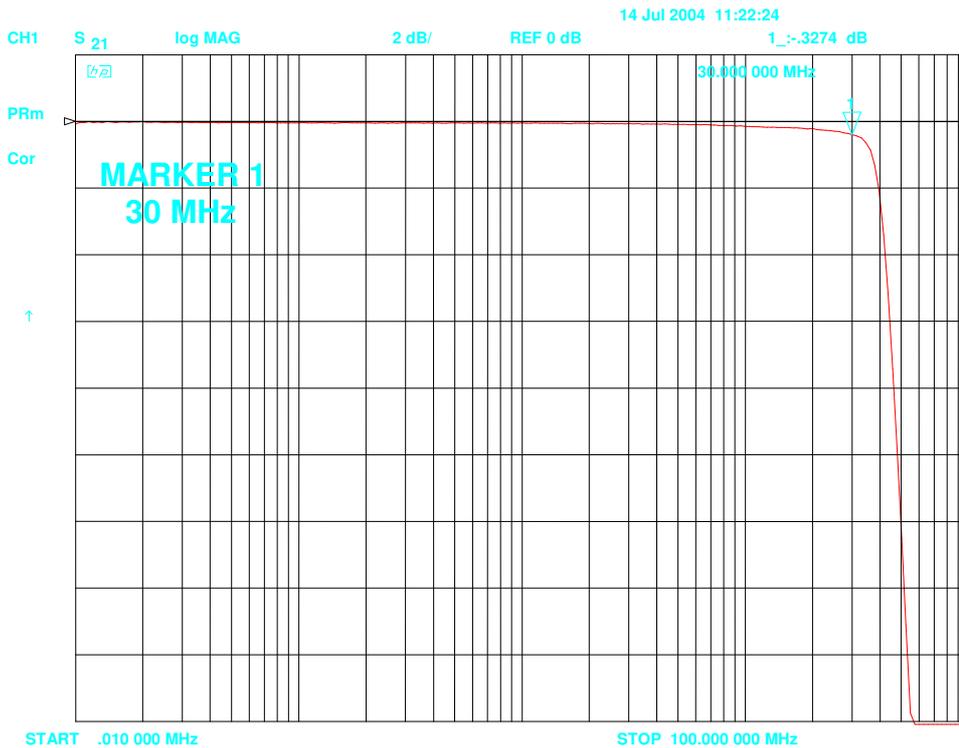


Fig. 1-1 Pulse Limiter typical frequency response

1.3 Insertion loss

The insertion loss of the Pulse Limiter is calibrated in a 50 ohm system over the frequency range of 9 kHz to 30 MHz, and is 0.4 dB maximum.

1.4 Environment

The operating environment is specified to be within the following limitations:

- Temperature 0° to +45° C
- Humidity < 90% relative

The instrument should be stored in a clean, dry environment

The storage and shipping environment is specified to be within the following limitations :

- Temperature -25° to + 70° C
- Humidity < 95% relative

1.5 Return for service

If the instrument should be returned to NARDA for service, please complete the service questionnaire enclosed with the Operating Manual and attach it to the instrument.

To minimize the repair time, be as specific as possible when describing the failure. If the failure only occurs under certain conditions, explain how to duplicate the failure.

If possible, reuse of the original packaging to ship the equipment is preferable.

In case other package should be used ensure to wrap the instrument in heavy paper or plastic.

Use a strong shipping container and use enough shock absorbing material around all sides of the equipment to provide a firm cushion and prevent movement in the container.

Seal the shipping container securely with shipment tape.

Mark the shipping container FRAGILE to encourage careful handling.

2 - Main specifications

2.1 Main specifications

Table 2-1 lists the PMM PL01 Pulse Limiter performance specifications. The following conditions apply to all specifications :

- The ambient temperature must be 0° to 45°.

TABLE 2-1 Main specifications	
Electrical characteristics	Performance Limits
Insertion loss max:	0.4 dB
Input impedance:	50 Ohm
VSWR with 50 Ohm termination:	< 1.25
Frequency response:	9 kHz ÷ 30 MHz
Max permissible input power:	0,5 W
RF input:	BNC female connector
RF output:	BNC male connector
Rated temperature:	0 to + 45 C
Storage temperature:	- 25 to + 70 C

This page has been intentionally left blank

3 - Preparation for use

3.1 Introduction

This section provides the information needed to install and use the Pulse Limiter PMM PL01.

Included is information pertinent to initial inspection, interconnections, environment, cleaning and shipment.

3.2 Packing Unpacking

Inspect the shipping container for damage.

If the shipping container or cushion material is damaged, it should be kept until the contents of the shipment have been checked for completeness and the instrument has been checked mechanically and electrically.

Verify the accessories availability in the shipping container referring to the accessories check list enclosed with the Operating Manual.

Notify any damage to the carrier as well as the NARDA Representative.

3.3 Initial inspection

Inspect the Pulse Limiter for damage before use.



WARNING

To avoid hazardous electrical shock, do not use the Pulse Limiter when there are signs of shipping damage to any portion of it.

3.4 Preparation for use The male BNC plug of the Pulse Limiter must be connected to the RF input socket of the EMI test receiver.

 **NOTE** **Pulse Limiter usage under some condition may affect the measurement result in respect to test signal characteristics.**

 **NOTE** **When test signal has very high pulses the Pulse Limiter may reach saturation and affect measurement accuracy.**

 **NOTE** **When very strong test signal is suspected the usage of a 10 dB or more 50 Ω attenuator in front of the Pulse Limiter is strongly recommended.**

A verify if Pulse Limiter is reaching saturation can be carried out simply performing two measurement of the suspected strong signal, respectively with and without a 10 dB, or more, 50 Ω attenuator connected between test signal and Pulse Limiter.

The measured test signal difference must match the attenuation introduced: if the difference between the two measured signals is lower than attenuator value it means that without using attenuator the Pulse Limiter is reaching saturation, affecting therefore measurement accuracy. In this case the final measurement must be carried out with attenuator inserted taking into account the attenuator value in the test signal reading.

 **WARNING** **Before connecting Pulse Limiter to the associated test instrument, ensure that an uninterruptible safety earth ground is provided from the main power source to the EMI test receiver protective earth connection.**

 **WARNING** **To avoid hazardous electrical shock, prior to energizing either unit and prior Pulse Limiter connection, verify that a common ground exists between EMI test receiver and the equipment under test.**

 **WARNING** **Any interruption or loosening of the protective earth ground conductor, either inside or outside the units or in an extension cable will cause a potential shock hazard that could result in personal injury.**

 **WARNING** **Verify the safety earth ground functionality before operation.**

3.5 Equipment cleaning Use a clean, dry non abrasive cloth for external cleaning of the Pulse Limiter.

 **CAUTION** **To clean the equipment do not use any solvent, thinner, turpentine, acid, acetone or similar matter to avoid damage to external plastic and surfaces.**



L3HARRIS



NARDA
Safety
Test
Solutions
S.r.l. Socio Unico

Sales & Support:
Via Rimini, 22
20142 - Milano (MI)
Tel.: +39 02 581881
Fax: +39 02 58188273

Manufacturing Plant:
Via Benessea, 29/B
17035 - Cisano sul Neva (SV)
Tel.: +39 0182 58641
Fax: +39 0182 586400



<http://www.narda-sts.it>

Mod. 18-1

Caro cliente

grazie per aver acquistato un prodotto NARDA! Sei in possesso di uno strumento che per molti anni ti garantirà un'alta qualità di servizio. NARDA riconosce l'importanza del Cliente come ragione di esistenza; ciascun commento e suggerimento, sottoposto all'attenzione della nostra organizzazione, è tenuto in grande considerazione. La nostra qualità è alla ricerca del miglioramento continuo. Se uno dei Suoi strumenti NARDA necessita di riparazione o calibrazione, può aiutarci a servirla più efficacemente compilando questa scheda e accludendola all'apparecchio.

Tuttavia, anche questo prodotto diventerà obsoleto. In questo caso, ti ricordiamo che lo smaltimento dell'apparecchiatura deve essere fatto in conformità con i regolamenti locali. Questo prodotto è conforme alle direttive WEEE dell'Unione Europea (2002/96/EC) ed appartiene alla categoria 9 (strumenti di controllo). Lo smaltimento, in un ambiente adeguato, può avvenire anche attraverso la restituzione del prodotto alla NARDA senza sostenere alcuna spesa. Può ottenere ulteriori informazioni contattando i venditori NARDA o visitando il nostro sito Web www.narda-sts.it.

Dear Customer

thank you for purchasing a NARDA product! You now own a high-quality instrument that will give you many years of reliable service. NARDA recognizes the importance of the Customer as reason of existence; in this view, any comment and suggestion you would like to submit to the attention of our service organization is kept in great consideration. Moreover, we are continuously improving our quality, but we know this is a never ending process. We would be glad if our present efforts are pleasing you. Should one of your pieces of NARDA equipment need servicing you can help us serve you more effectively filling out this card and enclosing it with the product.

Nevertheless, even this product will become obsolete. When that time comes, please remember that electronic equipment must be disposed of in accordance with local regulations. This product conforms to the WEEE Directive of the European Union (2002/96/EC) and belongs to Category 9 (Monitoring and Control Instruments). You can return the instrument to us free of charge for proper environment friendly disposal. You can obtain further information from your local NARDA Sales Partner or by visiting our website at www.narda-sts.it.

Servizio richiesto: *Service needed:*

- | | | | | |
|---|--------------------------------------|---|--|---------------------------------|
| <input type="checkbox"/> Solo taratura | <input type="checkbox"/> Riparazione | <input type="checkbox"/> Riparazione & Taratura | <input type="checkbox"/> Taratura SIT | <input type="checkbox"/> Altro: |
| <input type="checkbox"/> Calibration only | <input type="checkbox"/> Repair | <input type="checkbox"/> Repair & Calibration | <input type="checkbox"/> Certified Calibration | <input type="checkbox"/> Other: |

Ditta:

Company:

Indirizzo:

Address:

Persona da contattare:

Technical contact person:

Telefono:

Phone n.

Modello:

Equipment model:

Numero di serie:

Serial n.

- Accessori ritornati con l'apparecchiatura:** **Nessuno** **Cavo(i)** **Cavo di alimentazione** **Altro:**
- Accessories returned with unit:* *None* *Cable(s)* *Power cable* *Other:*

Sintomi o problemi osservati: *Observed symptoms / problems:*

- | | |
|---|---|
| <input checked="" type="checkbox"/> Guasto: <input type="checkbox"/> Fisso <input type="checkbox"/> Intermittente | Sensibile a: <input type="checkbox"/> Freddo <input type="checkbox"/> Caldo <input type="checkbox"/> Vibrazioni <input type="checkbox"/> Altro |
| <input checked="" type="checkbox"/> <i>Failure:</i> <input type="checkbox"/> <i>Continuous</i> <input type="checkbox"/> <i>Intermittent</i> | <i>Sensitive to:</i> <input type="checkbox"/> <i>Cold</i> <input type="checkbox"/> <i>Heat</i> <input type="checkbox"/> <i>Vibration</i> <input type="checkbox"/> <i>Other</i> |

Descrizione del guasto/condizioni di funzionamento:

Failure symptoms/special control settings description:

Se l'unità è parte di un sistema descriverne la configurazione:

If unit is part of system please list other interconnected equipment and system set up:
