

PPU01 Operation Manual

Products User Manual Template – Issue 2



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PPU01 Operation Manual

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Operation Manual

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CHANGE HISTORY SHEET

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29/07/2019	2	10	2 nd issue – updated images

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Users should satisfy themselves that they are in possession of the most up to date version of this manual by calling +44 (0)330 430 3456, or alternatively by emailing enquiry@eurofins.com

Limited Warranty

Eurofins York warrants each PPU01 to be free from defects in material and workmanship for a period of one year from the date of shipment to the purchaser. This warranty extends to the original purchaser only. It does not apply to any product or parts subject to misuse, neglect, accident, unauthorised service or abnormal conditions of operation.

In the event a product covered by this warranty fails, Eurofins York, will, without charge, repair and recalibrate the instrument if returned to their test laboratory within one year of the original purchase – provided that Eurofins York examination discloses, to its satisfaction, that the product is defective. Eurofins York may, at its option, replace the product in lieu of repair. If the defect was caused by misuse, neglect, accident, unauthorised service or abnormal conditions of operation, repairs will be billed at a nominal cost. In such cases, an estimate will be provided before work is started, if requested by the purchaser.

For warranty service, contact Eurofins York. Provide the serial number of the equipment and complete details regarding the failure. You will then be given shipping instructions. Return the instrument to the factory. Repairs will be made and the equipment will be returned to you. Eurofins York assumes no responsibility for loss of, or damage to, products in transit.

DISCLAIMER

THE PPU01 HAS BEEN DESIGNED TO BE USED WITH COMPATIBLE EUROFINS YORK EQUIPMENT ONLY, IN THE MANNER DESCRIBED IN THIS MANUAL.

EUROFINS YORK ASSUMES NO LIABILITY FOR ANY DAMAGES THAT MAY RESULT FROM USE NOT IN ACCORDANCE WITH THE INSTRUCTIONS AND CONDITIONS GIVEN IN THIS MANUAL.

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1 INTRODUCTION

The Portable Power Unit 01 (PPU01) is a NiMH-based power supply with integrated charger, and is supplied with certain items of Eurofins York equipment.

The PPU01 recharges itself from an external +18 V_{DC} power supply. A depleted PPU01 can be fully recharged in 3.5 hours.

The PPU01 gives indication of the charging status, as well as errors detected in the PPU01 itself.

Once charging is complete, the PPU01 can remain connected to the +18 V_{DC} power supply. The PPU01 monitors the state of its internal charge and performs a “top-up” charge if necessary. This overcomes the self-discharge phenomena experienced by NiMH cells when left unused for long periods of time. (Note that for general safety considerations, the power supply should not be left connected to the mains for extended periods).

The +18 V_{DC} power supply is provided by a separate mains power adapter. It is recommended that only the mains power adapter provided by Eurofins York is used, as this will have been tested for correct operation and regulatory compliance. Use of alternative adapters is not recommended and may void the warranty of the PPU01.

2 SAFETY

2.1 Safety Recommendations

The PPU01 has been designed to meet the requirements of EN/IEC/UL 62133-1:2017 and has been supplied in a safe condition. This instruction manual contains information and warnings that need to be followed by the user to ensure safe operation and should be retained by the user.

Do not dismantle, open or physically damage the PPU01, or subject the PPU01 to mechanical shock.

The PPU01 has been designed for indoor use in an environment within the temperature range 5°C to 40°C. Do not expose the PPU01 to heat or fire. Avoid storage in direct sunlight.

Keep the PPU01 dry and do not immerse in liquid. The PPU01 has been designed for indoor use only within 20% to 80% Relative Humidity (non-condensing). Do not operate whilst condensation is present.

The contacts can be wiped with a clean dry cloth if they become dirty. Do not use a cleaning liquid or spray.

Do not attempt to replace the cells inside the PPU01. Contact your vendor or Eurofins York for information regarding cell replacement.

In the event of a cell inside the PPU01 leaking, do not allow the liquid to come into contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice.

Do not short-circuit the PPU01 contacts. Do not store the PPU01 in a manner that might allow other objects to short-circuit the PPU01 contacts.

Observe the (+) and (-) markings on the PPU01 and ensure correct use.

The PPU01 may need to be charged before use, or after extended periods of storage. Follow the instructions in this manual to recharge the PPU01. It may be necessary to charge and discharge the PPU01 several times to obtain maximum performance.

Do not use a power supply with the PPU01 other than the one provided by Eurofins York, without prior consultation with Eurofins York.

The power supply should not be left connected to the mains for extended periods

Use the PPU01 only in the application for which it was intended. Do not use the PPU01 with equipment other than that approved by Eurofins York.

Remove the equipment being powered by the PPU01 when not in use.

Dispose of the PPU01 properly and in accordance with local regulations.

Keep the PPU01 out of the reach of children.

The warranty does not cover any damage caused to the PPU01 through inappropriate use, charging methods or physical abuse.

2.2 Description of Symbols

Symbols displayed on the PPU01 are listed below:




 <p>positive polarity</p>	DC connector polarity
	Direct current
	Separate collection for WEEE- Waste Electrical and Electronic Equipment (Batteries)
NiMH	Cell chemistry: Nickel-Metal Hydride

Figure 1. PPU01 safety symbols

3 SPECIFICATION

3.1 PPU01

Input rating	+18 V _{DC} , 1.2 A (typical maximum)
Input connector	2/2.1 mm DC power jack
Output rating	9.6 V _{DC} (nominal), 1 A (maximum)
Output connector	Terminal contacts (Eurofins equipment compatible)
Cell chemistry	Nickel-Metal Hydride (NiMH)
Capacity	2 Ah
Indications given	see Operation for details

3.2 Mains Power Adapter

The model of mains power adapter supplied may be subject to change by Eurofins York. Therefore the following specifications are typical values only and may also be subject to change.

Input rating	100 V _{AC} to 240 V _{AC} , 60 Hz or 50 Hz
Input connector	UK, EU, US style interchangeable
Output rating	+18 V _{DC} , 2.8 A (maximum)
Output connector	1 m lead 2/2.1 mm DC power plug

3.3 PPU01 Dimensions

Diameter	80 mm (maximum diameter)
Height	65 mm
Weight:	0.55 kg
Construction	Aluminium machined box

3.4 Compliance

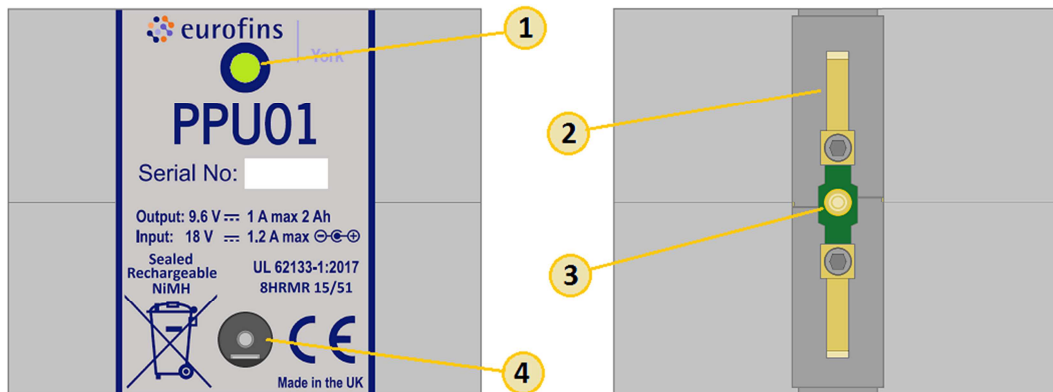
Safety	General Product Safety Directive, 2014/35/EU
EMC	EMC Directive, 2014/30/EU

3.5 Environment

Operating Temperature Range	
Recommended Ambient	10°C to 30°C
Maximum Ambient	5°C to 40°C
Humidity	
Relative humidity:	20% to 80% (non-condensing)
Protection	
IP rating	IP10

4 OPERATION

4.1 PPU01 details



Identifier	Description
1	Status indicator
2	Output power connector
3	Output power connector
4	Charging input connector

Figure 2. PPU01 Location of key points

Referring to Figure 2, the STATUS indicator and +18 V_{DC} input supply connector are located at the rear of the PPU01 with the information label. Details of the status indications are given in the operation flowchart (Figure 3).

The output connector terminals are recessed within the aperture provided for the equipment to be powered (e.g. Eurofins York CGE series reference generators). A safety interlock disables the +9.6 V_{DC} output terminal unless such equipment is present. The output contacts are arranged symmetrically so that equipment can be fitted either way round, unless otherwise stated in the equipment's instructions.

To use the PPU01, slot the equipment to be powered into the aperture until it engages with the magnetic clips.

Once the equipment is in place, the safety interlock is released and the supply to the equipment is enabled.

To disengage the equipment, pull it free from the magnetic clips and remove it fully from the PPU01.

CAUTION: The magnetic clips are designed to hold the equipment in place only, do not attempt to pick up the assembled unit by the generator part alone as it may disengage from the PPU01.

4.2 Instructions for charging the PPU01 Portable Power Unit

The PPU01 has a built-in charge management system and only requires a power supply of +18 V_{DC} in order to charge the internal NiMH cells. The charging process is engaged automatically when the supply is connected, and requires minimal involvement of the user.

Equipment should be removed from the PPU01 before attempting to recharge it. If equipment is still engaged it may interfere with the charging process and end-of-charge detection.

A detailed description of the charging process is as follows.

- 1 Connect the +18 V_{DC} mains power adapter to the PPU01 input.
- 2 The PPU01 will first check that the supply and that the internal cells are in good condition. If OK, "Fast" charging will start. The STATUS indicator should be **STEADY BLUE** to indicate that the cells are being charged.
- 3 If the cells have become depleted the PPU01 will provide a preliminary "Precharge" at a reduced rate for up to 11 minutes. This is also shown by a **STEADY BLUE** STATUS indicator.

If the battery pack still shows a depleted charge at the end of the "Precharge" period, the STATUS indicator changes to **STEADY RED** to indicate a fault and further charging is stopped.

If an acceptable level of charge has been achieved, "Fast" charge starts.

- 4 "Fast" charging will take between 11 and 145 minutes depending on the charge state of the cells. The cells are monitored to determine when "Fast" charge is complete, at which time a reduced "Top-Up" charge is applied for a further 45 minutes.

Please note: During "Fast" charging, the battery pack will become warm. Temperatures up to 40°C are normal. A temperature higher than 50°C could indicate a fault with the battery pack or the charger and charging should be stopped immediately.

- 5 Once the PPU01 has been fully charged, the STATUS indicator changes to **STEADY GREEN**. The PPU01 is now in "Automatic Recharge" mode, and as long as it is connected to the power supply it will continue to monitor the internal cells and provide a Fast/Top-Up recharge when necessary.
- 6 Disconnecting the +18 V_{DC} supply from the input will reset the PPU01 and a new charge cycle will be started when it is reconnected.
- 7 If an error occurs during charging, then the STATUS indicator changes to **STEADY RED** to indicate a fault and further charging is stopped.

Error indications can be cleared by removing the power supply input. However, repeat indications of a fault condition mean further attempts to charge the PPU01 should be stopped and the equipment should be returned to Eurofins York for evaluation/repair.

The operation of the PPU01 is further described in the flowchart (Figure 3).

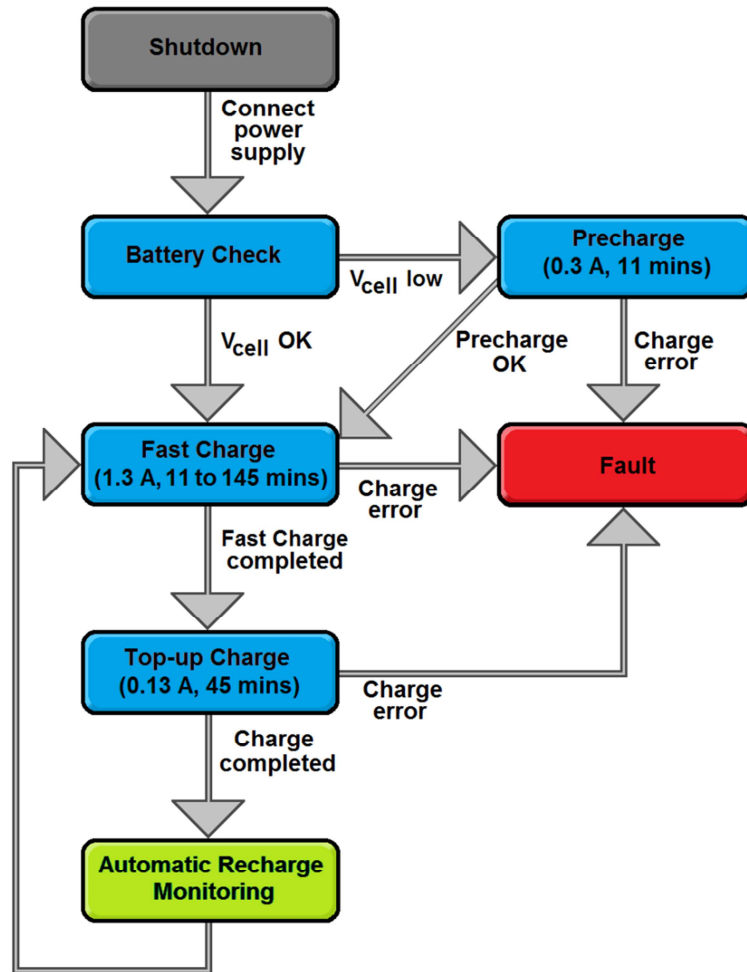


Figure 3. PPU01 operation flowchart, showing STATUS indicator colours

5 ELECTROMAGNETIC COMPATIBILITY

5.1 General

The PPU01 has been designed to meet the requirements of EU Directive 2014/30/EU. Compliance was demonstrated by testing to the requirements of the following standards: -

5.2 Emissions

EN61326-1 (2013) consisting of

- EN55011 (2016) + A1 (2017) Radiated RF emissions (PPU01) and Conducted RF emissions (DC supply adapter), Class A

5.3 Immunity

PPU01:

EN61326-1 (2013) consisting of:

- EN61000-4-2 (2009) Electrostatic Discharge immunity, 4 kV Air & Contact Discharge.
- EN61000-4-3 (2006) + A1 (2008) + A2 (2010) Radiated RF immunity (enclosure), 3 V/m

AC power:

These apply to the DC power supply adapter only:

EN61326-1 (2013) consisting of:

- EN61000-4-11 (2004) + A1:2017 Voltage dips/short interruptions
- EN61000-4-4 (2012) Fast Transient common mode (AC mains port)
- EN61000-4-5 (2014) + A1:2017 Surge (AC mains port)
- EN61000-4-6 (2014) Conducted RF immunity (AC mains port)

5.4 Non-applicability

EN61326-1 (2013) consisting of

- EN61000-4-4 (2004) Fast Transient common mode (signal ports)
- EN61000-4-5 (2006) Surge (signal ports)
- EN61000-4-6 (2009) Conducted RF immunity (signal ports)

These phenomena are deemed non applicable on the basis that the PPU01 has no relevant signal ports.

Tests relating to AC ports are only applicable to the DC power supply adapter used for the PPU01 supply input.

6 MAINTENANCE

For all maintenance procedures, the PPU01 should be returned to Eurofins York for servicing by authorized personnel.

This equipment cannot be repaired by the user. DO NOT attempt to open the case or disassemble the equipment. Only Eurofins York trained service personnel with knowledge of fire and shock hazards should service this equipment.

7 DISPOSAL

Should the equipment require disposal, please contact your supplier for details on returning the equipment for disposal/recycling.

Date of manufacture is stated in the serial number for each item:

Serial Number Date of Manufacture

XXXX DD

Year			Month											
2019	2020	2021	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A	B	C	A	B	C	D	E	F	G	H	I	J	K	L

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General Information

Ordering Information

Standard Order Kits are listed for each product in the Eurofins York Products Brochure. Please refer to the appropriate part number when requesting a quote for a test instrument or accessory.

If you require a non-standard instrument kit or accessory, or if you would like further information before making your choice, please contact our Sales or Test Instrumentation team, or your local representative.

Hire of Test Instruments

Hire of our test instruments can be arranged, subject to availability. Hire terms are typically on a two-weekly basis. Please contact our Sales staff or your local representative for details on pricing and availability.

Test and repair service

Where applicable, test instruments are shipped with performance test results. Details of the tests performed are listed with each product. No expiry date is issued with these results. Eurofins York provides a retest service, if the customer requires updated performance data. Please refer to the order codes when requesting a quotation for this service.

A repair service covering faulty or damaged Eurofins York test instruments is available. Each case is examined individually, with quotations for repair and retest issued as appropriate. Please contact our Sales or Test Instrumentation team or your local representative in the first instance.

Sales Office Hours

Our UK head office hours are 9:00 – 17:00 Monday to Thursday, 9:00 – 16:00 Friday.
Tel: +44 (0)330 430 3456

Email: enquiry.york@eurofins.com

A current list of Eurofins York representatives around the world can be found on the Test Instrumentation pages of our website:

<https://www.eurofins.co.uk/york>

Please see your nearest representative for details of their opening times.

Quotations

All quotations issued directly by Eurofins York are in GBP.

Unless otherwise stated, our quotations are valid for 30 days.

VAT will be charged at the standard rate applicable at the time of invoice.

Orders

Orders are accepted with an accompanying Purchase Order Number.

Stocks

Stock availability and delivery times may fluctuate with market conditions, production capacity and any additional test results requirements. Please check with our sales team for an update.

Delivery

Standard delivery is 28 days from receipt of order unless otherwise specified.

Orders are normally shipped by courier at the rate stated on the quotation. Alternatively the customer may arrange for their own pick-up service.

Payment Methods

We can accept payment in GBP, US dollars or Euros by bank transfer, UK-drawn cheque or credit card. New customers may be asked for payment in advance. Existing customers may be eligible for credit terms.

Warranty

All products are supplied with a one-year return-to-base warranty as standard, unless otherwise stated.

Extended warranty terms may be arranged. Please ask our sales team for details.

Terms and Conditions

All our orders are subject to our terms and conditions. Please ask our sales team for details.

Technical Data

We have endeavoured to ensure the information in this manual is accurate at the time of publication. However, in the interests of product advancement, we reserve the right to improve, refine and otherwise modify specifications without notice. E&OE.

Online Brochure

Our website is the definitive source for information regarding new products, updated specifications, application notes and more. Please visit <https://www.eurofins.co.uk/york> for further information regarding our Test Instrumentation, as well as for details of our accredited EMC Test laboratories, Expert Services and Training courses.