Operating Manual

Intelligent Power Supply for Lambda Probe

NTV 44P

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About the contents

The user manual NTV 44P documents structure, measuring technique, function, and installation of the device as well as error diagnostics.
The instructions address all users (owners) and operators of the NTV44P. It must be accessible to these persons and must be read through carefully before using the device.

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1. INTRODUCTION

The NTV 44P is a unique power supply which allows controlling the working temperature of L-Probe to a constant value. Thus error due to cooling by different gases or ambient temperature changes is completely compensated.

The NTV 44P is available on market in the following versions:

Basic Version:

- L-Probe input
- Control of working temperature of L-Probe
- Non isolated analogue output 0…1300 mV

Options for Basic Version:

- Calculation of O2 % in a customer defined range
- Dew Point calculation for fixed process parameters
- Time flushing modus with fix flushing cycle
- Isolated universal output module with 0 …1300 mV ; 0 ... 10V;
  0 … 20 mA; 4 … 20 mA

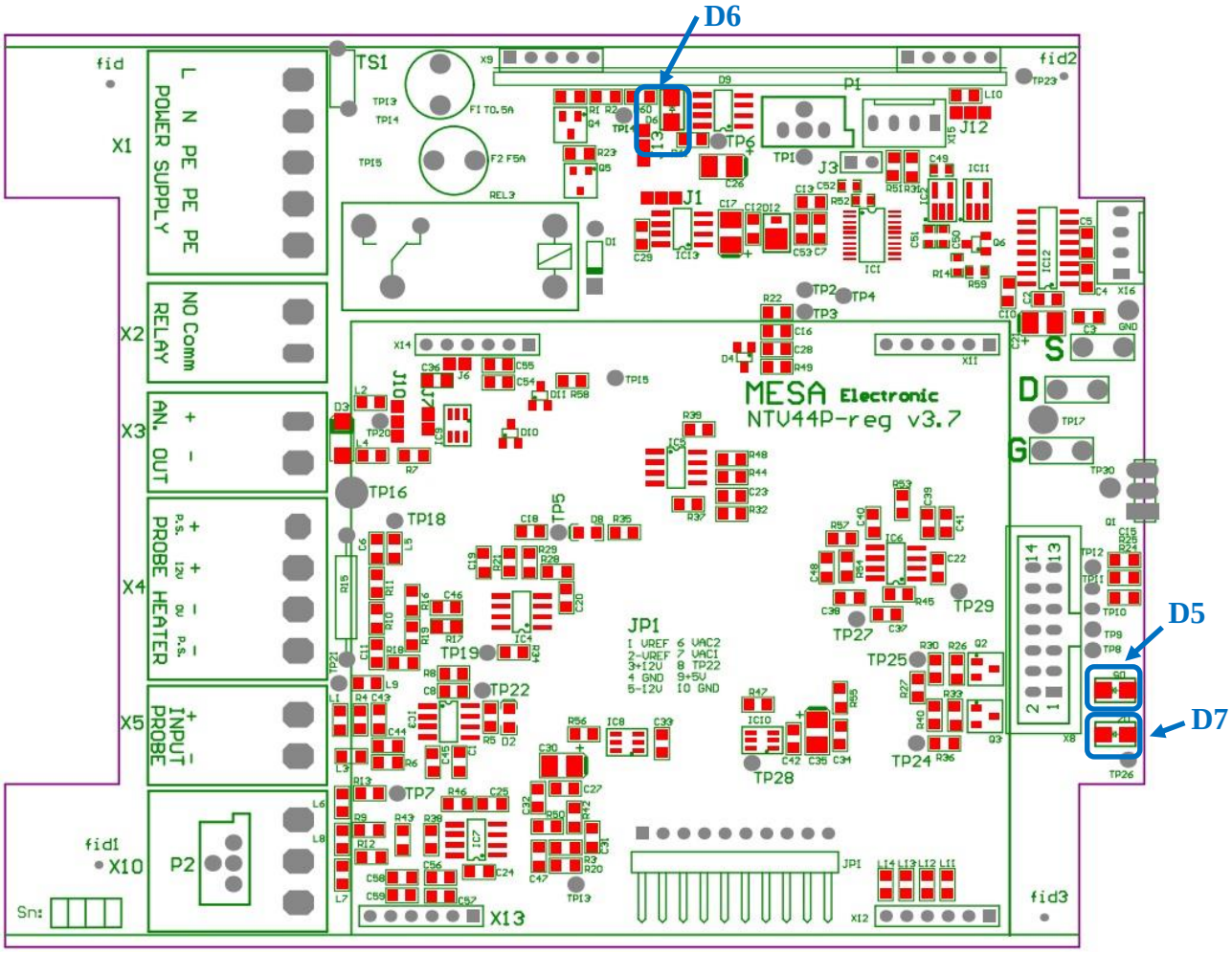
Advanced Version:

- L-Probe or O_2-Probe input
- Control of working temperature of L-Probe
- Isolated Thermocouple input
- Isolated universal output module with 0 …1300 mV ; 0 ... 10V;
  0 …(4)… 20 mA
- One implemented mathematical function like %O2 or Dew Point or
  L-Probe / O_2-Probe conversion
- Two point correction on above mentioned mathematical function
- Four Flushing modes Time flushing, Temperature flushing, mV flushing
  and flushing via digital input

Optional you need one T300 Terminal to configure all mentioned functions of all your devices.

2. MAIN BOARD

2.1 Main board overview



2.2 Pin assignments of Main board:

X1 **Supply**
1. L ~230V/50Hz or ~115V/50Hz
2. N
3. PE
3. PE
3. PE

X2 **Relay -** optional for flushing
4. Relay output N.O.
5. Relay output Comm. (fuse 5A F)

X3 **Analogue output**
6. **+** analog output
7. **-** analog output

X4 **Probe heater**
8. +Power Sense
9. +12V
10. 0V
11. -Power Sense

X5 **Input from probe**
12. +Input of probe
13. -Input of probe

P2/X10 **Potentiometer**
14,15,16, - Optional external offset potentiometer

2.3 Important LED indication and mode setting jumper

LED D5/D7 (see picture main board) indicates that the power supply is in the following range:

230 V ac	115 V ac	D5	D7
150V – 180V	75V – 90V	OFF	ON
180V – 210V	90V – 105V	OFF	OFF
210V – 230V	105V – 115V	ON	ON
230V – 250V	115V – 125V	ON	OFF

LED D6 (see picture main board) indicates the status of the flushing relay:

Green means flushing is active and contact connector X2 Pins 4/5 is closed.
Not green means flushing is inactive and contact connector X2 Pins 4/5 is opened.

2.4 Activation and deactivation of temperature control on L-probe

With the jumper J3 the temperature control of L-probe can be activated and deactivated.

- When J3 is closed, the temperature control is activated.
- When J3 is open, the temperature control is deactivated. The L-Probe will be supplied with constant 12V DC.

3. INPUT / OUTPUT SPECIFICATION

In the NTV44P version, the power supply can be fitted with optional isolated output module. In contrast to the Advanced version the output range should be defined when ordering:

- 0 …1300 mV or
- 0 ... 10V or
- 0 … 20 mA or
- 4 … 20 mA

Later upgrade of this function is possible.

4. OPTIONAL MATHEMETICAL FUNCTIONS

Optional simplified L-Probe to %O_2 calculator.

The range chosen by ordering will be internal spitted in to 32 mathematical nodes and link the results to the selected output.

Optional simplified L-Probe to Dew Point calculator.

This simplified Dew Point calculator will calculate the Dew Point from -20 °C to +20°C. The H2 concentration in [%] must be defined while ordering. The result will be linked to the selected output.

Time flushing :

In the NTV 44P version you can order a simplified Time flushing function as option.

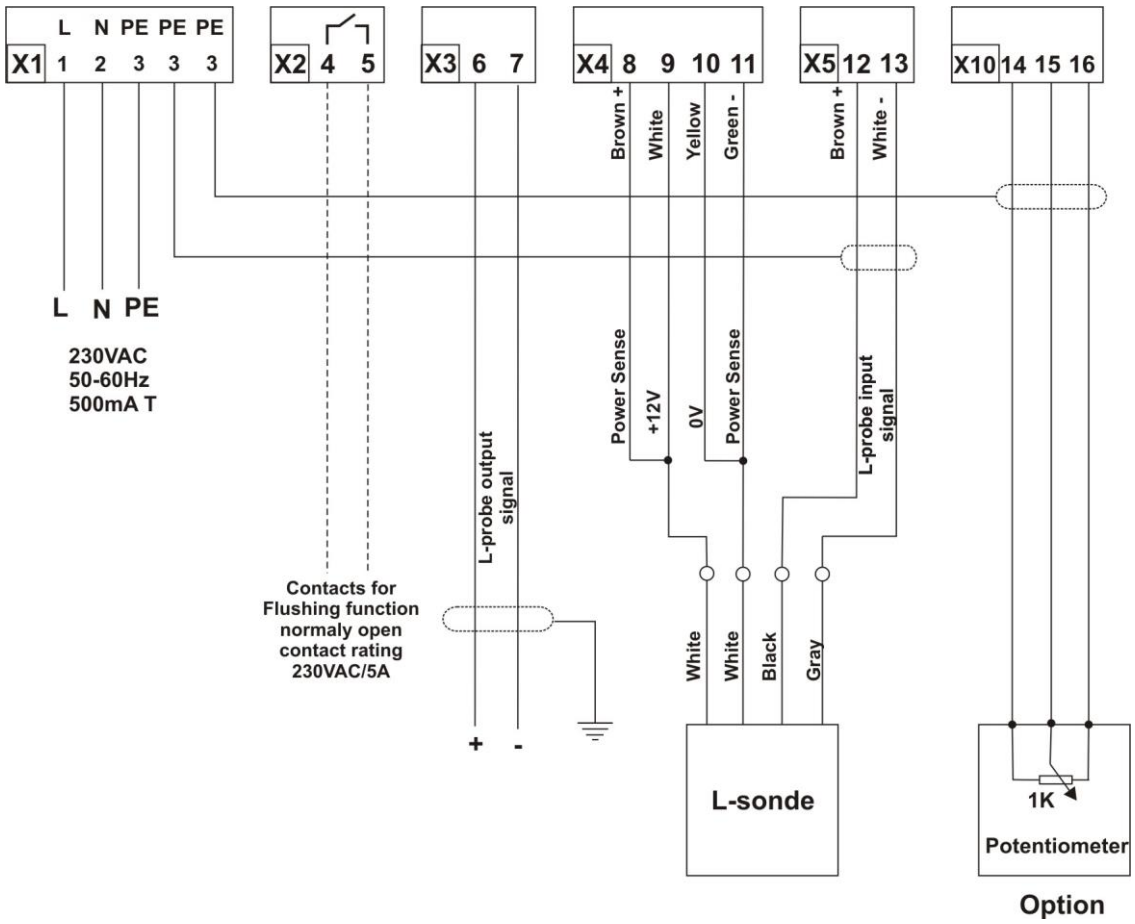
The following parameters are standard if not ordered with customer specific parameters.

Flushing cycle in [min] = 300
Flushing time in [sec] = 10
Recovery Time in [sec] = 240

Note:

- The Flushing pressure for L-Probe Flushing should be between 2–3 bar to clean the L-Probe from dirt particles. An optional flushing valve can be ordered.
- Before flushing the mV of L-probe input will be frozen. That means that the mV on the Output connector X3 Pin 6/7 will continuously show the mV signal before flushing until the flushing time + recovery time is not finished.
- L-Probe must always be flushed with Nitrogen (N_2)!!!

5. CONNECTION DIAGRAM



6. TECHNICAL DATA

Construction:

Macrolon housing for wall mounting

Dimensions / Weight:

160 x 120 x 90 mm / 2.5kg

Protection type:

IP64 according to DIN40050

Connection:

Pluggable terminal blocks
Wire cross section max 2.5mm^2

L-probe connection:

1m connection cable with plug and coupler

Input measuring probe:

-20 …1300mV DC

Output supply unit:
Heating voltage for L-probe

- 12 V DC in constant voltage mode
- max 15V DC in temperature mode

Limited current to 2.3A max

Output measuring signal:
- Voltage output 0…1300mV DC or 0 … 10V DC
- Current output 0…20mA or 4…20mA

Operating conditions:
Operating temperature 0°C…+50°C

Storage temperature -10°C…+70°C

5…95% relative humidity, non-condensing

Auxiliary voltage:
- 230 VAC ±10%; 50…50 Hz or
- 115 VAC ±10%; 50…50 Hz

Power consumption:
Approx. 60VA

Fuse:
- Main power – “European” fuse 500mA, slow blow
- Flushing relay –“European” fuse 5A, fast blow