USER MANUAL

Longo Motor Drive
LMD-2.U12

Version 2

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User Manual

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STANDARDS AND PROVISIONS: Standards, recommendations, regulations and provisions of the country in which the devices will operate, must be considered while planning and setting up electrical devices. Work on 230 VAC network is allowed for authorized personnel only.
DANGER WARNINGS: Devices or modules must be protected from moisture, dirt and damage during transport, storing and operation.
WARRANTY CONDITIONS: For all modules LONGO Motor Drive – if no modifications are performed upon and are correctly connected by authorized personnel – in consideration of maximum allowed connecting power, we offer warranty for 24 months from date of sale to end buyer. In case of claims within warranty time, which are based on material malfunctions the producer offers free replacement. The method of return of malfunctioned module, together with description, can be arranged with our authorized representative. Warranty does not include damage due to transport or because of unconsidered corresponding regulations of the country, where the module is installed.

This device must be connected properly by the provided connection scheme in this manual. Misconnections may result in device damage, fire or personal injury.
Hazardous voltage in the device can cause electric shock and may result in personal injury or death.
NEVER SERVICE THIS PRODUCT YOURSELF!
This device must not be installed in the systems critical for life (e.g. medical devices, aircrafts, etc.).
If the device is used in a manner not specified by the manufacturer, the degree of protection provided by the equipment may be impaired.

Waste electrical and electronic equipment (WEEE) must be collected separately!

LONGO Motor Drive complies to the following standards:

- EMC:EN 61000-6-2 (EN 50082), EN 61000-6-4 (EN 50081)
- LVD: IEC 61010-1
- Vibrations and climatic-mechanical: EN 60068-2-6, EN 60068-2-27, EN 60068-2-29

Smarteh d.o.o. operates a policy of continuous development. Therefore we reserve the right to make changes and improvements to any of the products described in this manual without any prior notice

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Longo Motor Drive LMD-2.U12

1 DESCRIPTION

LMD-2.U12 is a solution for controlling a mono phase motor speed or any AC load based on phase-angle adjusting with a TRIAC. TRIAC phase-angle control is possible locally with integrated potentiometers or remotely with a 0 to 10 V voltage control signal or with an external potentiometer.

The main usage of this product is in air preparation apparatus, where variable fan speed is needed. LMD-2 can also be used as a light dimmer for light bulbs that can be controlled by a TRIAC.

The minimum TRIAC phase-angle switching can be adjusted by the minimum reference adjustment trimmer potentiometer and operating TRIAC phase-angle switching can be adjusted by the main reference adjustment potentiometer or by a 0 to 10 V voltage control signal.

LMD-2.U12 is equipped with a 1m power supply connection cable and a 1 m input connection cable.

Please contact producer for other LMD-2 motor drive versions product selection and for further information.

Note: Please check the individual 1 phase motor's correct operation or light bulb dimming with the LMD-2.U12 motor drive before you use it in your planned installation.

2 FEATURES

Figure 1: LMD2.U12 module

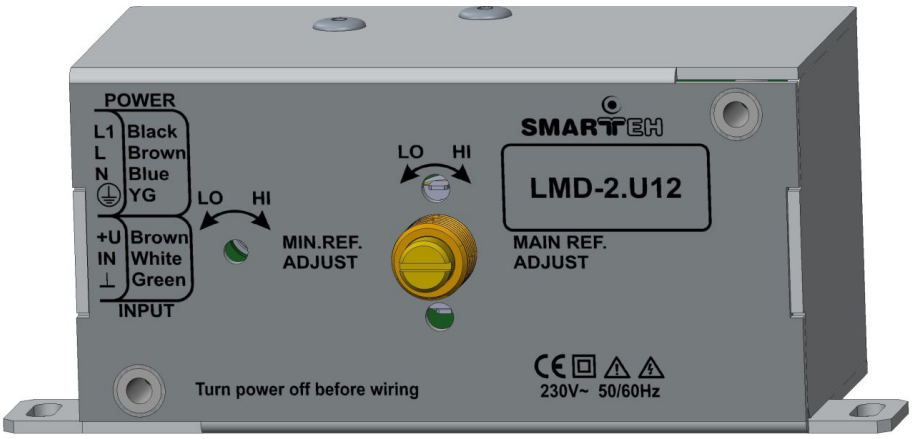


Table 1: Technical data

TRIAC variable voltage output
Load up to 300 VA
Equipped with 1 m power supply connection cable
Equipped with 1 m meter input connection cable
Integrated voltage trimmers, external potentiometer or 0..10 V DC control signal for TRIAC phase-angle switching reference set
0 % output power when TRIAC phase-angle switching set < 20 %, input voltage < 2 V DC
100 % output power when TRIAC phase-angle switching set > 90 %, input voltage > 9 V DC

3 INSTALLATION

3.1 Connection scheme

Figure 2: Connection scheme

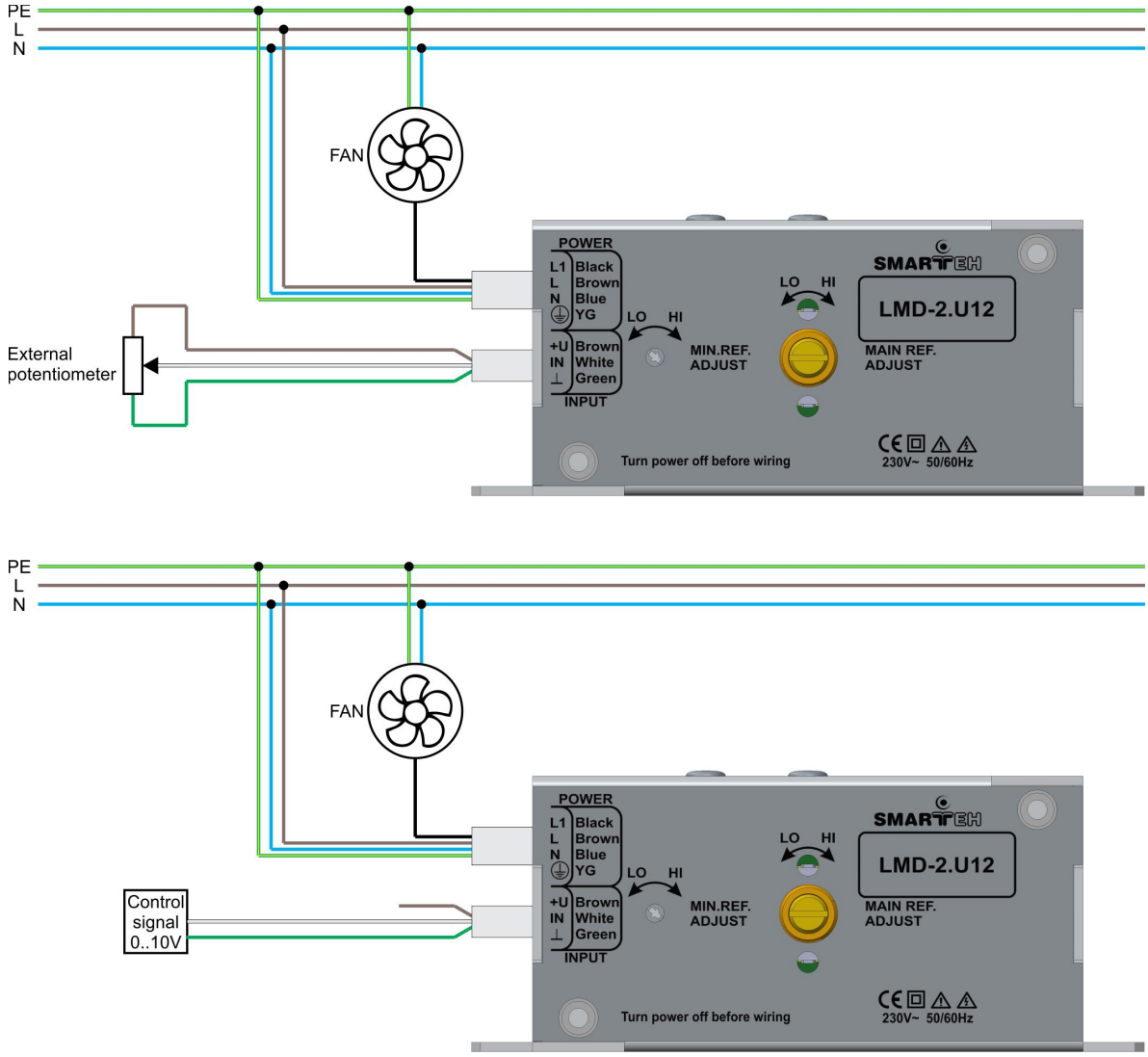


Table 2: Power cable[1]		
POWER: L	230 V AC	Phase line
POWER: N	230 V AC	Neutral line
POWER: L1	230 V AC	Phase line output
POWER: PE	PE	Protective earth

Table 3: Reference set potentiometers		
MIN. REF. ADJUST	Minimum reference adjustment trimmer potentiometer	Minimum TRIAC phase-angle switching adjustment LO = 0 .. HI = 50 %. Set main reference adjustment potentiometer to LO = 0 % while adjusting min. reference.
MAIN. REF. ADJUST	Operating reference adjustment potentiometer	Main TRIAC phase-angle switching adjustment, from LO = min. reference adjusted by minimum reference adjustment trimmer potentiometer up to HI = 100 %.

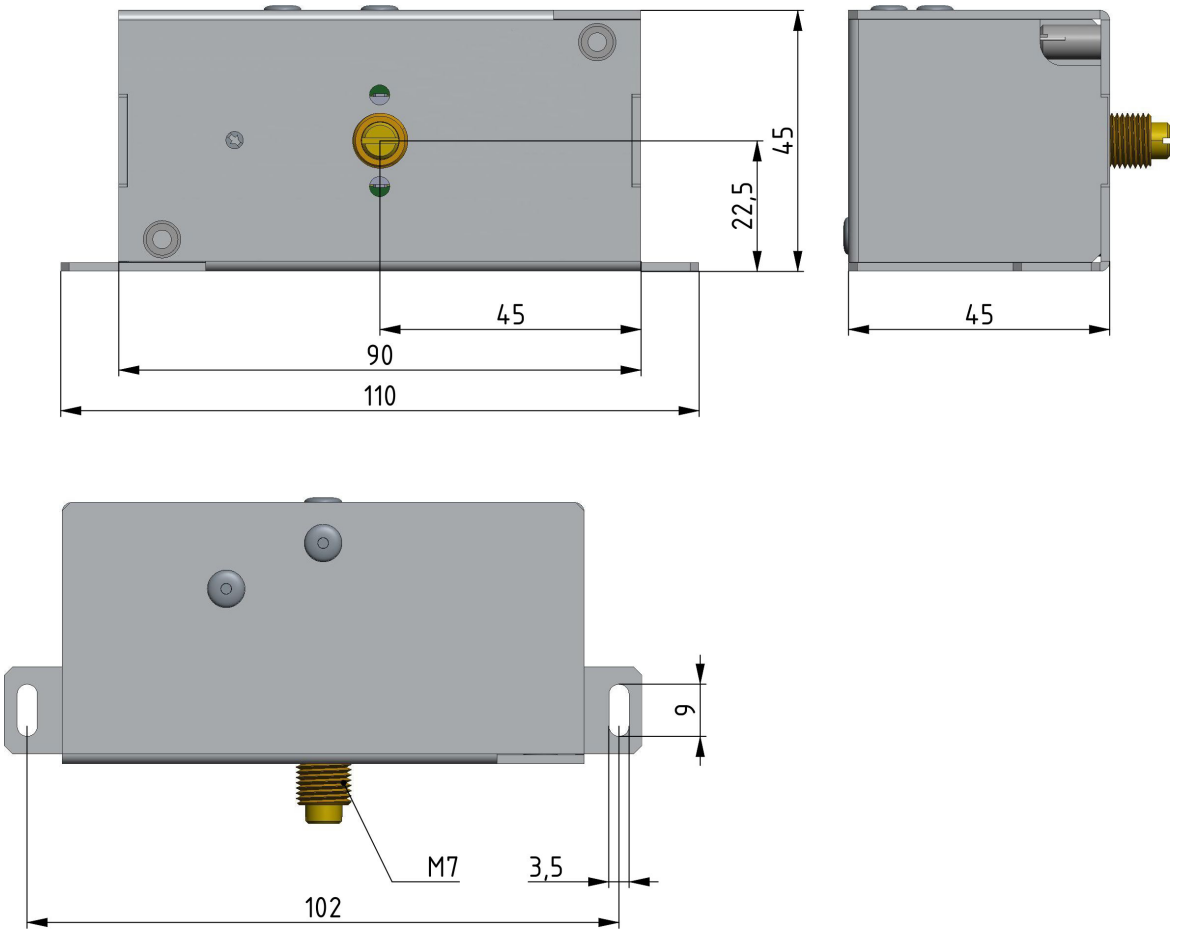
Table 4: Input cable[2]		
INPUT: +U	+ 10 V DC, max. 1 mA	Voltage output, for 10 kΩ up to 100 kΩ external potentiometer supply.
INPUT: IN[3]	0 ..10 V DC, Rin = 50 kΩ	Voltage input for main TRIAC phase-angle switching reference
INPUT: ⊥	GND	Input reference point

Table 5: Diagnose LED		
Diagnose LED	Diagnose green LED inside the housing	LED Off: No main power supply or LMD-2.U12 error LED On: LMD-2.U12 is powered. Lower LED intensity corresponds to lower output voltage or lower motor speed and higher LED intensity corresponds to higher output voltage or higher motor speed.

1 Power supply cable is 1 m long with 4 wires and cross section 0.75 mm^2. Wire ends are equipped with ferrules.
2 Input cable cable is 1 m long with 3 wires and cross section 0.5 mm^2. Wire ends are equipped with ferrules.
3 When an external 0..10 V DC input reference signal or an external reference potentiometer is used for setting of TRIAC phase-angle switching, set MIN. REF. ADJUST trimmer potentiometer and MAIN. REF. ADJUST potentiometer to minimum. In case a minimum TRIAC phase-angle switching adjustment is required MIN. REF. ADJUST trimmer potentiometer can be used and the TRIAC phase-angle switching reference will not drop below this set value even if the input voltage drops below this set level.

3.2 Mounting instructions

Figure 3: Housing dimensions



Dimensions in millimeters.

EXTERNAL SWITCH OR CIRCUIT-BREAKER AND EXTERNAL OVERCURRENT PROTECTION: The unit is allowed to be connected to installation with over current protection that has nominal value of 2 A up to 10 A.

RECOMMENDATION ON SWITCH OR CIRCUIT-BREAKER PROTECTION: There should be two poles main switch in the installation in order to switch off the unit. The switch should meet the requirements of standard IEC60947 and have a nominal value at least 10 A. The switch or circuit-breaker should be within easy reach of the operator. It should be marked as the disconnecting device for the equipment.

All connections, module attachments and assembling must be done while module is not connected to the main power supply.

Mounting instructions:

1. Switch OFF main power supply.
2. Mount LMD-2.U12 to the provided place.
3. Connect wires according to the connection scheme in Figure 2.
4. **ATTENTION: Check again that the connected load power does not exceed 300 VA !**
5. Switch ON main power supply.

Dismount in reverse order.

For good heat transfer from the unit it should be mounted on a metal surface or adequate air cooling should be provided.

The unit must be connected to the protective earthing of the mains supply installation.

Unit wiring must be accomplished with wires with a temperature range of 105°C.

3.3 Module labeling

Figure 3: Label

Label (sample):

XXX-N.ZZZ
P/N: AAABBBCCDDDEEE
S/N: SSS-RR-YYXXXXXXXXX
D/C: WW/YY

Label description:

1. **XXX-N.ZZZ** - full product name.
   - **XXX-N** - Product family
   - **ZZZ** - product
2. **P/N: AAABBBCCDDDEEE -** part number.
   - **AAA** - general code for product family,
   - **BBB** - short product name,
   - **CCDDD** - sequence code,
     - **CC** - year of code opening,
     - **DDD** - derivation code,
   - **EEE** – version code (reserved for future HW and/or SW firmware upgrades).
3. **S/N: SSS-RR-YYXXXXXXXXX -** serial number.
   - **SSS** – short product name,
   - **RR** – user code (test procedure, e.g. Smarteh person xxx),
   - **YY** – year,
   - **XXXXXXXXX**– current stack number.
4. **D/C: WW/YY -** date code.
   - **WW** – week and
   - **YY** – year of production.

Optional

1. ***MAC***
2. ***Symbols***
3. ***WAMP***
4. ***Other***

4 TECHNICAL SPECIFICATIONS

Table 5: Technical specifications	
Power supply	230 V AC, ±10 %, 50/60 Hz
Maximum load	300 VA
Rated load voltage	230 VAC, 50/60 Hz
Rated load current	1.5 A
Power connection type	4 wires 0.75 mm^2
Input connection type	3 wires 0.5 mm^2
Dimensions (L x W x H)	110 x 45 x 45 mm
Weight	400 g
Ambient temperature	0 to 50 °C
Ambient humidity	max. 95 %, no condensation
Transport and storage temperature	-20 to 60 °C
Pollution degree	2
Over voltage category	II

5 CHANGES

The following table describes all the changes to the document.

Date	V.	Description
04.08.2025	2	Revision, connection cables additional description.
01.07.2025	1	The initial version, issued as LMD-2.U12 *UserManual*.

6 NOTES