Operating Instructions

TÜNKERS Erfindergeist serienmäßig.

TÜNKERS® Maschinenbau GmbH Am Rosenkothen 8 • D-40880 Ratingen Tel. 02102 4517-0 • Fax 02102 445808 Internet www.tuenkers.de

Contents

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1. Safety instructions

Caution, danger to life!
Opening the device and touching the components may cause an electric shock! The power supply must not be changed, opened, disassembled or rebuilt! Any other use than described here will damage the Power Supply Module and can lead to dangers such as short circuit, fire, etc.!

Damage caused by non-observance of these operating instructions invalidates the guarantee. We do not accept liability for further damages! We assume no liability in case of property damage or personal injury caused by improper handling or non-observance of the safety instructions. Any warranty claim expires!

1.1 Intended use

The Tünkers supply module is used for the power supply of Tünkers Power Modules. Installation may only be carried out by a specialist.

1.2 Technical data

Be sure to read these operating instructions carefully before using the Tünkers Power Supply Module. Here you will find important information such as input voltage, output power, ambient temperature, connection of the protective conductor and further information. The power supply module must not be operated outside these technical data.

1.3 Installation and commissioning

The installation may only be carried out by a specialist. Make sure that the relevant electrical safety standards and standard EN 60950 are observed when installing. The Power Supply Module must be disconnected from the power supply during installation.

The Power Supply Module is a product according to protection class I. During installation make sure, that the protective conductor connection of the power cable is as assigned as described in these operating instructions.

Lay the cables clean and straight, making sure that the cables are not squashed or damaged. Protect the cables from sharp edges, secure them with cable ties if necessary and provide sharp edges with edge protection.

1.4 Operation

The operation of the Power Supply Module is only permitted in dry indoor areas. Avoid the contact with water, including condensing air humidity, at all costs. Also, the operation in extreme cold or heat, in dusty environment and close to combustible gases, vapors or solvents is not allowed.

2. Product overview

- High-performance SELV/PELV switch power supply 400VAC/2x48VDC
- High efficiency 91%
- 1000 W output power
- Voltage supply for 2xTMI8 (8-16 E Clamps EK 63)
- DC OK status display LED (yellow)
- Potential free changeover relay contact (PLC)
- Construction in solid aluminum housing/IP54

3. Operating conditions

Characteristics	Value	achieved level
MTBF	>500.000h	classification:
PFHD	5E5	

Climate

Operation at	0° … +50° C
Storage at	-20° … +70° C

Relative humidity up to 80%, no condensation

Protection class

IP54
Protected against dust in damaging amounts, complete protection against contact and protection against splashes of water from all sides**.**

Standards

EN 61326-1:2013 " Electrical equipment for measurement, control and laboratory use. EMC requirements - part 1: General requirements (IEC 61326-1:2012)“

EN 55011:2009 + A1:2010 " Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement (IEC/CISPR 11:2009, modified + A1:2010)"

4. Product description

The TVM8 is a high-performance load voltage supply module for the motor control of Tünkers power modules.
The input voltage of 400 VAC is connected to the connector "XS3". The internal SELV / PELV power supply generates an output voltage of 48 V DC from the mains input voltage.

The output voltage is fed to the separate connectors "XS1 and XS2". The current operating status of the TVM8 is visually displayed to the outside via 2 LEDs.

Status AC OK - LED yellow
Status DC OK - LED green

In addition, the current operating status of the TVM8 can be interrogated and recognized by a suitable external device (e.g., a PLC) on the separate connector "XE1" via a floating relay changeover contact.

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5. Housing and mechanics

Dimensions: 400 x 230 x 110 mm (B x L x H) without brackets
Material: Aluminum housing
Colour: Silver gray anodized
Protection class: IP 54 after EN 60529

Attention: To achieve protection class IP54 it is necessary to close up unused plugs and sockets.

6. Pin assignment and status display

Load voltage/XS1 M23/Intercontec/series 923 6pole socket

Pin no.	Description	
1	+48V U_{L+}	Load voltage +
2	-0V U	Load voltage -
3,4,5	not used	not used
	PE	Protective conductor

Load voltage/XS2 M23/Intercontec/series 923 6pole socket

Pin no.	Description	
1	+48V U_{L+}	Load voltage +
2	-0V U	Load voltage -
3,4,5	not used	not used
	PE	Protective conductor

Power input 400V~/XS23 M17/Bega/series 917/4pole socket

Pin no.	Description	
1	N	Neutral conductor
2	not used	not used
3	L	Conductor
	PE	Protective conductor

DC status floating changeover contact/ XE1 M12 A cod. 4pole plug

Pin no.	Description	
1	Root opener / closer	Feed-in +24VDC relay changeover connection
2	Closer	DC OK status query
3	not used	not used
4	Opener	DC not ready/error

6.1 Status display

Status: DC OK = LED left (green)

After switching on the 400 VAC supply voltage of the device, the LED lights green for DC OK status display after a short delay time of max. 3 sec. The device is ready for operation when the green LED is lit.

7. Technical data

Input data:
Input: min. 400 VAC/max.: 500 VAC~, connection description: XS3
Current consumption: min.:350 mA/max.:2.4 A
Fuse protection: 3x 10 A (internal)

Output data:
Supply voltage load: 48 VDC ± 2%, connection description: XS1 and XS2
Pulse current load: max. 20 A pulse = Ton/Toff = 1.75 s/13.25 s
Standing current: max. 10 A
Current limitation: approx. 30 A
Fuse protection: current and temperature limiting, timeout

Standards and directive conformity

IEC 62061:2015

EN 50178:1997

Characteristics	Value	Achieved level
MTBF	> 500.000 h	on request
PFHD	5E5	on request

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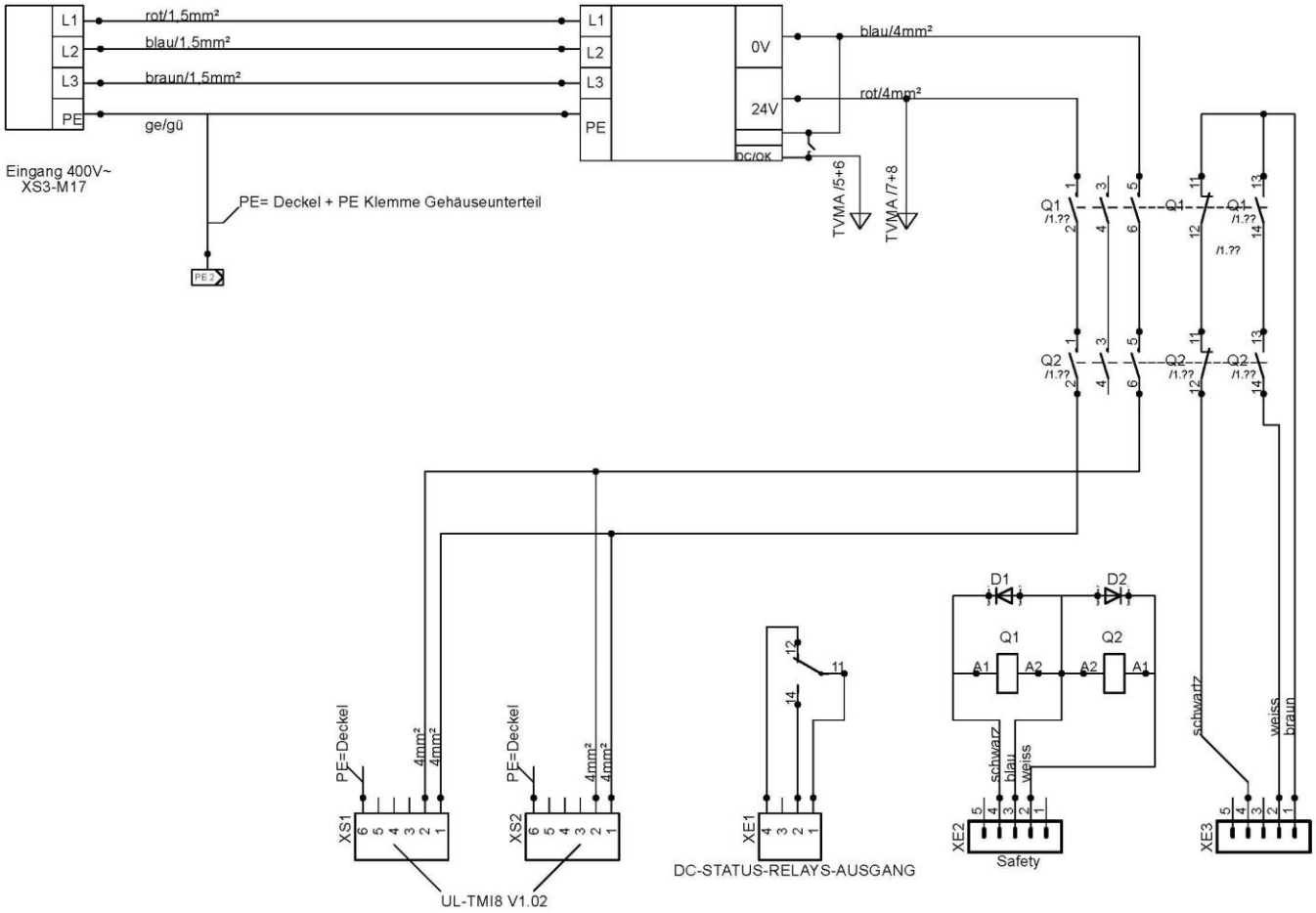
8. Wiring diagram



AC/DCstatus analysis	Function/ logic	Plug	Pin no.
Input +24 Vdc	normal closed	XE1	1
DC status OK	normal opened	XE1	2
	normal closed	XE1	4

9. TVM8 versions and ordering codes

Type/version	Article no.	Dimensions (mm)	Operating temperature standing current 20A	Operating temperature pulse load 40A	Protection class	Fastening fixing brackets
TVM8 230Vac/24Vdc	397008	230x401x110	0° - +40°	-0° - +50°	IP54	4x M6
TVM8 230Vac/48Vdc	1202288	230x401x110	0° - +40°	-0° - +50°	IP54	4x M6
TVM8 400Vac/24Vdc	on request	230x401x110	0° - +40°	-0° - +50°	IP54	4x M6
TVM8 400Vac/48Vdc	on request	230x401x110	0° - +40°	-0° - +50°	IP54	4x M6

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