

## Assembly instruction / User manual

### Chopper controller for DC motors type GS 24 S - 360



### Technical data under reserve technical changes

Please read these instruction before using and please keep safe for future.  
You may download further technical advice under [www.eph-elektronik.de](http://www.eph-elektronik.de).



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## 1. Safety Instructions and Safeguarding

### 1.1. Installation note

An external mains adapter is required for the electrical supply of the controller EPH 360. If this mains adapter is itself supplied with a voltage >75V AC or >50V DC the following points have to be considered:

The unit should only be installed by qualified specialist personnel. Installation and operation of the unit should comply with the local regulations for electrical installations as well as health and safety regulations. The protection of people and property must be warranted by applying the currently applicable safety regulations (VDE, electrical safety regulations, IEC, etc.). High start-up currents can occur at the moment of tuning on a controller device / mains adapter due to charging process of the intermediate circuit. An effective safeguard is therefore required on the mains input side (e.g. a C-Rated 16A line circuit breaker). The use of RCD circuit breakers before control unit / mains adapter is not recommended because of the leakage currents generated by EMC interference suppressing devices. The regulator card / mains adapter must not be operated without an effective connection to earth! The connection to earth must comply with local regulations.

### 1.2. ESD-protection / Hazard note

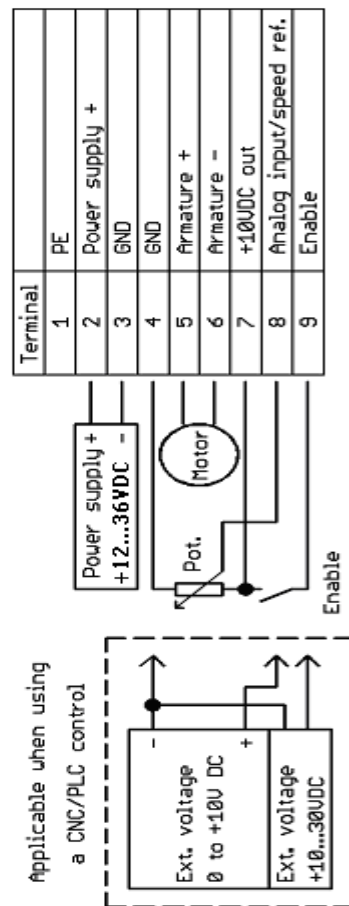
<b>Attention during installation of the electronic board!</b>	<b>Danger to burn - Beware!</b>	<b>Danger to fire- Beware!</b>	<b>Danger to life-Beware!</b>
<p>It must be warranted on your part that there is sufficient ESD-protection.</p> 	<p>Parts of this controller card can be reach a temperature up to 80°C. Increased risk at controller cards without protective cover.</p>	<p>Unprofessional handling and installation can cause a fire.</p>	<p>Parts of this controller card are under intermediate circuit voltage and remain energised &gt;50VAC respectively 75VDC after turning main power off. Coming into contact with the terminals, lines and unit parts can cause serious injuries or result in death!</p>

## **2. Getting started guide GS24S/xx-360 with 9-pole screw terminal block**

1. Select operating mode:  
  
Jumper 1: I – speed reference internal (default mode),  
          E- speed reference external  
Jumper 2: I – enable (RF) internal (default mode),  
          E– enable (RF) external
2. Connect the following digital input, when enable is external  
(connect terminal 7 to terminal 9).
3. Connect the following analogue inputs, when speed reference external  
Input N set point (terminal 8) voltage 0 to + 10 V or potentiometer (10kOhm):  
Between terminal 4 (GND), terminal 7 (+10V) and terminal 8 (taper from  
potentiometer).
4. Connect DC motor to terminals 5 and 6.
5. Connect power supply to terminal 3 (GND) and terminal 2 (power supply +)  
(approx.. 12-36V DC)
6. Switch on the power supply.
7. LED (power on) lights up on circuit board.
8. The motor turns and the rotation speed can be adjusted with the voltage on  
terminal 8 (n speed-reference), when set value is external mode.  
You can adjust the rotation speed with the internal potentiometer N,  
when set value is internal mode (jumper 1).

### 3. Connecting

#### 3.1. Connection diagram



#### 4. Option change of rotating direction – Type:393

##### 4.1. General information / Operation

The additional circuit board 393 provides the facility to change the rotating direction of a permanent magnet motor with a transistor chopper controller type **GS24S/xx-360** at low voltage between 12 to 48V DV and a nominal current of max. 6A (10A\*).

Rotation in the left or right direction can be pre-select **at standstill** via a 12V to 48V control signal.

Dimensions:     Circuit board 100 x 88 (72) mm

Connection:     7-pole Screw terminal block  
                    (see connection drawing)

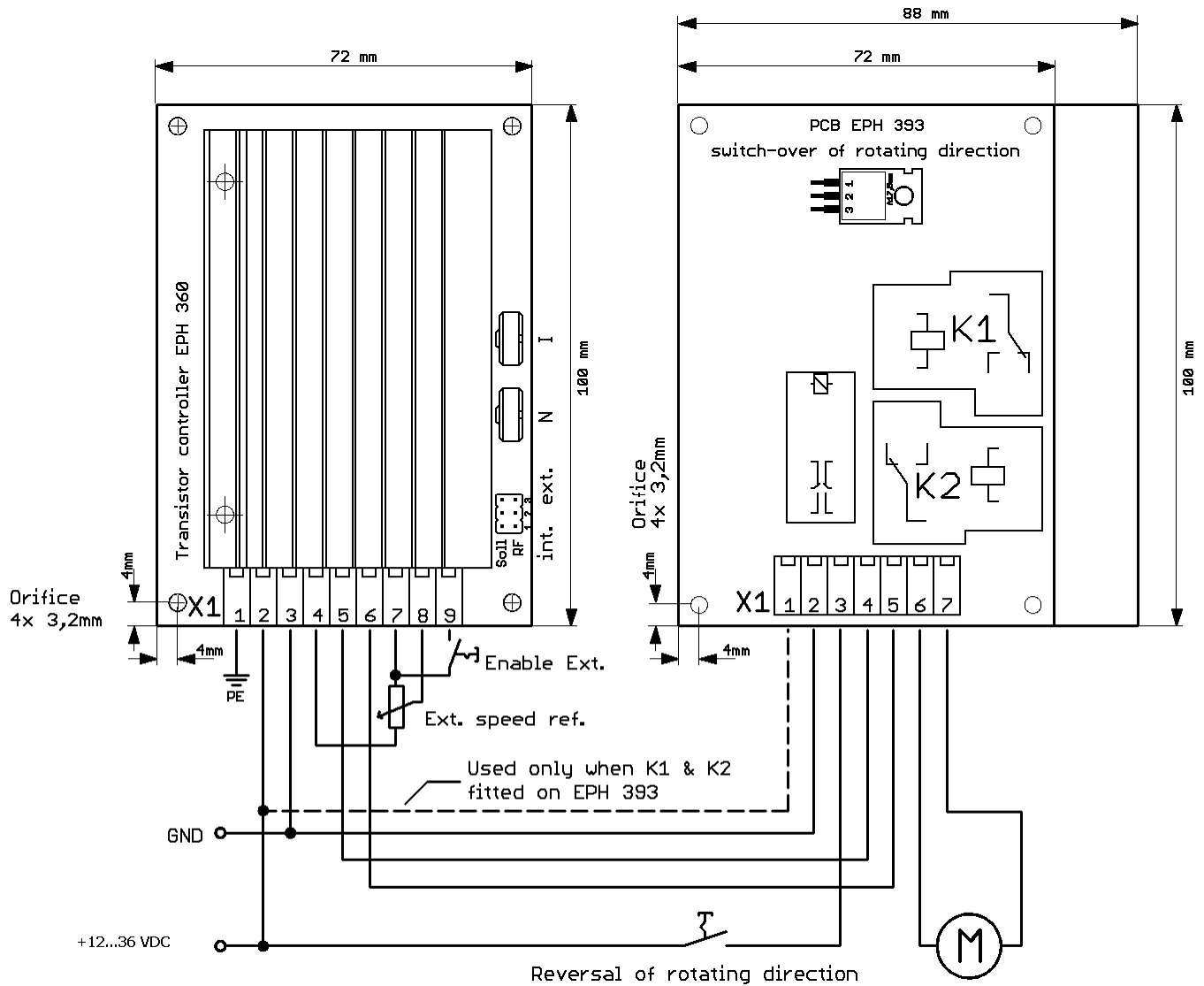
Optional:        Module carrier for 35mm standard rail or mounting plate  
                    attachment can be supplied.

\*available as a special version, the 393-1 can operate with up to 10A nominal current (additional relays K1 and K2 required)

#### **4.2. Terminal block layout x1: Type 393**

Terminal 1:	Only used with special version 10A type 393-1	
Terminal 2:	GND	
Terminal 3:	+12 to 48V DC	digital input “change rotating direction”
Terminal 4:	lead wire GS 24S/xx (armature +)	motor outlet
Terminal 5:	lead wire GS 24S/xx (armature -)	motor outlet
Terminal 6:	motor connection (armature)	
Terminal 7:	motor connection (armature)	

### 4.3. Connection for change of rotating direction option





## 5. Declaration of Conformity

The manufacture:

EPH elektronik Produktions- und Handelsgesellschaft mbH  
Rudolf-Diesel-Straße 18  
DE-74354 Besigheim-Ottmarsheim  
Tel.: +49(0)7143/81 52 - 0

herewith declares that the product:

Product:	Transistor D.C. Chopper Controller
Type	GS24S/xx-360

is conform to the mentioned EC-regulation in connection with the test peripheral devices:

### **Regulation 2014/30/EU – (EMC-directive)**

The following harmonised standards are applied:

DIN EN 61000-6-4:2007 +A1:2011	EMI emission
DIN EN 61000-6-2:2006-03	EMI immunity

The transistor controller`s conformity to the mentioned standards doesn` t concern the complete system. An extra EMC-test would be necessary to get the conformity for the complete system.

If the transistor controller is integrated in a machine, the machine has to comply with regulation 2006/42/EG (machines directive). If not, operating is not allowed.  
If the supply voltage of the machine is > 50V AC respectively 75V DC, the regulation 2014/35/EC (low voltage directive) is to be observed.

Name authorised person:	Reiner Mannsperger
Adress authorised person:	see address of the manufacture

30 <sup>th</sup> June 2017	Reiner Mannsperger, manager development
Date	signee and data to signee

