

## Assembly instruction / User manual

### 4-Q motor speed control unit digital, type DLR 24/xx-466



### 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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Geschäftsführer:

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Amtsgericht Stuttgart HRB301477  
Zertifiziert nach ISO 9001:2015

USt-IdNr.: DE145769572 | Steuer-Nr. 55001/11690  
Kreissparkasse Heilbronn 005 880 005 (BLZ 620 500 00)  
IBAN: DE 20 6205 0000 0005 8800 05 | SWIFT: HEIS DE 66

## Table of contents

1.	Safety instructions and Safeguarding.....	3
1.1.	Installation note.....	3
1.2.	ESD-Protection / Hazard note.....	3
2.	Getting started DLS24/xx-466 with 19-pole poliger spring clamp terminal .....	4
3.	Technical feature.....	5
4.	Technical data.....	5
5.	Connecting.....	6
5.1.	Control connections .....	6
5.2.	Connecting diagram.....	7
5.3.	Overview DIP switch.....	9
6.	CE Declaration of Conformity.....	9

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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 speed controller EPH 466. If this mains adapter is itself supplied with a voltage >50V DC or >75V AC 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 DLR24/xx-466 with 19-pole spring clamp terminal**

1. Select modes:
  - put jumper 1 on 1-2 for internal speed reference (potentiometer 1) or on 2-3 for external speed reference (for internal reference put jumper 2 on 1-2 for value max. 5V DC)
  - put jumper 2 on 1-2 for speed reference max. 5V or on 2-3 for max. 10V DC target value input.
  - put jumper 3 on 1-2 for 12V motor or on 2-3 for 24V motor.
  - put DIP switch 1 and 2 ON for inverted enables (no need of connecting terminal 15, 16 und 18)
  - put DIP switch 3 to 8 Off
  
2. Turn potentiometer 2 (I<sub>max</sub>) for current limitation to the right position.
  
3. Potentiometer 3 (I<sub>xR</sub>) compensation to left position.
  
4. Connection of the control wires see Connection diagram, page 7.
  
5. Connect DC motor to terminals 3 and 4.
  
6. Connect power supply: to terminal 1 Plus (ca. 10 – 36V DC), to terminal 2 GND.
  
7. Now turn on power supply.
  
8. LED green (power on) illuminates on the pcb.
  
9. With potentiometer 1 (n ref) the speed reference can be adjust from 0 to 100%, if jumper 1 is put on 1-2.
  
10. Motor direction can be changed witch a voltage (5 – 36V DC) on terminal 19 (e.g. bridge from clamp 17 to 19)



## 5. Connecting

### 5.1. Control connections

Speed reference value:	terminal 11:	5V DC
	terminal 12:	wiper external potentiometer (10kOhm)
	terminal 13:	GND
Controller enable 1:	terminal 15:	Input 5-36V DC
Controller enable 2:	terminal 16:	Input 5-36V DC
Speed reference enable:	terminal 18:	Input 5-36V DC
Motor direction:	terminal 19:	Input 5-36V DC
Output 1 (ready for operation)	terminal 9:	turns on voltage 10V-36V DC (<50mA), when the controller is ready
Output 2 (Overload):	terminal 10:	turns on voltage 10V-36V DC (<50mA), at the current is longer than 3 sec. at the current limit. Resetable by selecting 0V at speed reference value (terminal 12) or disable speed reference (terminal 18)

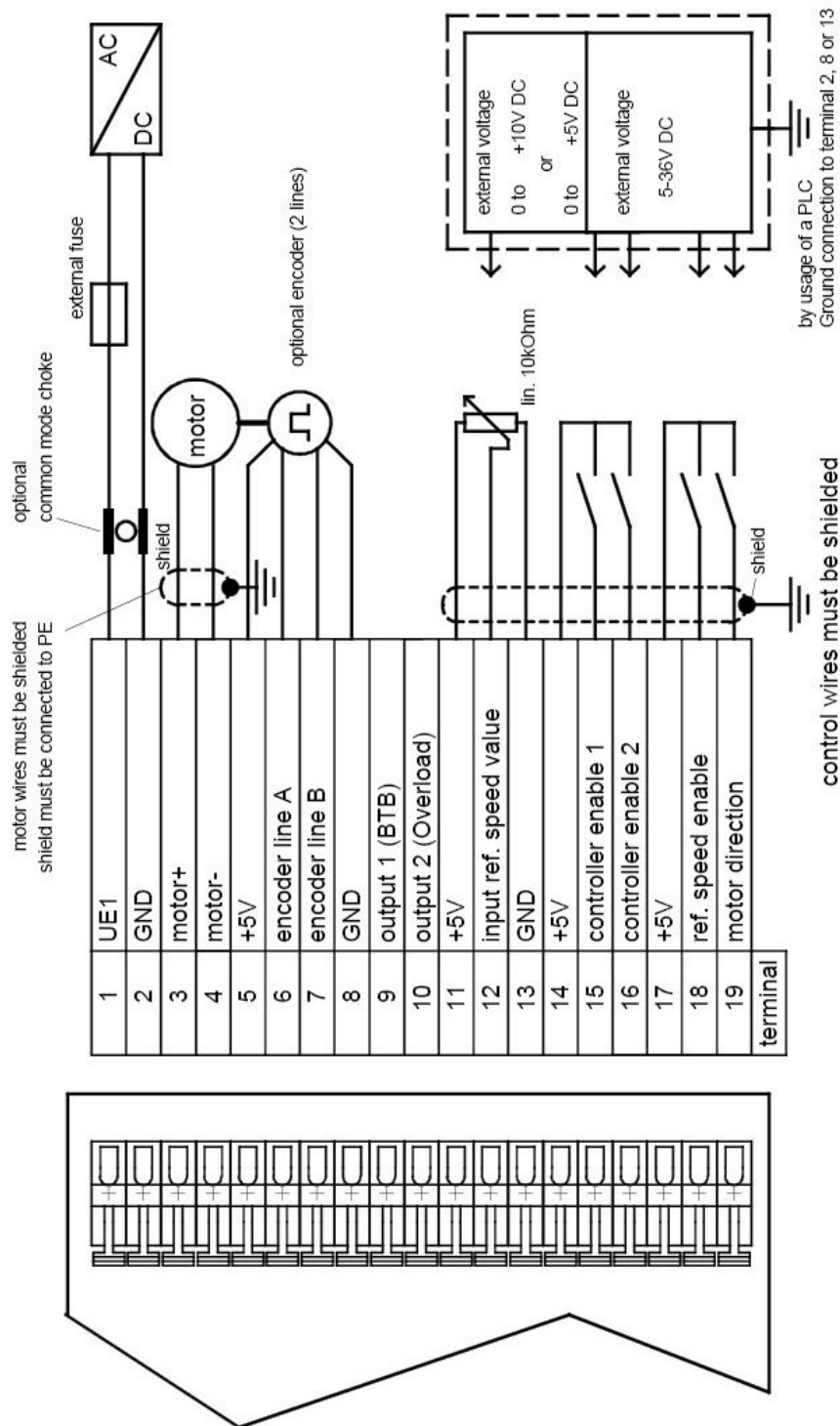
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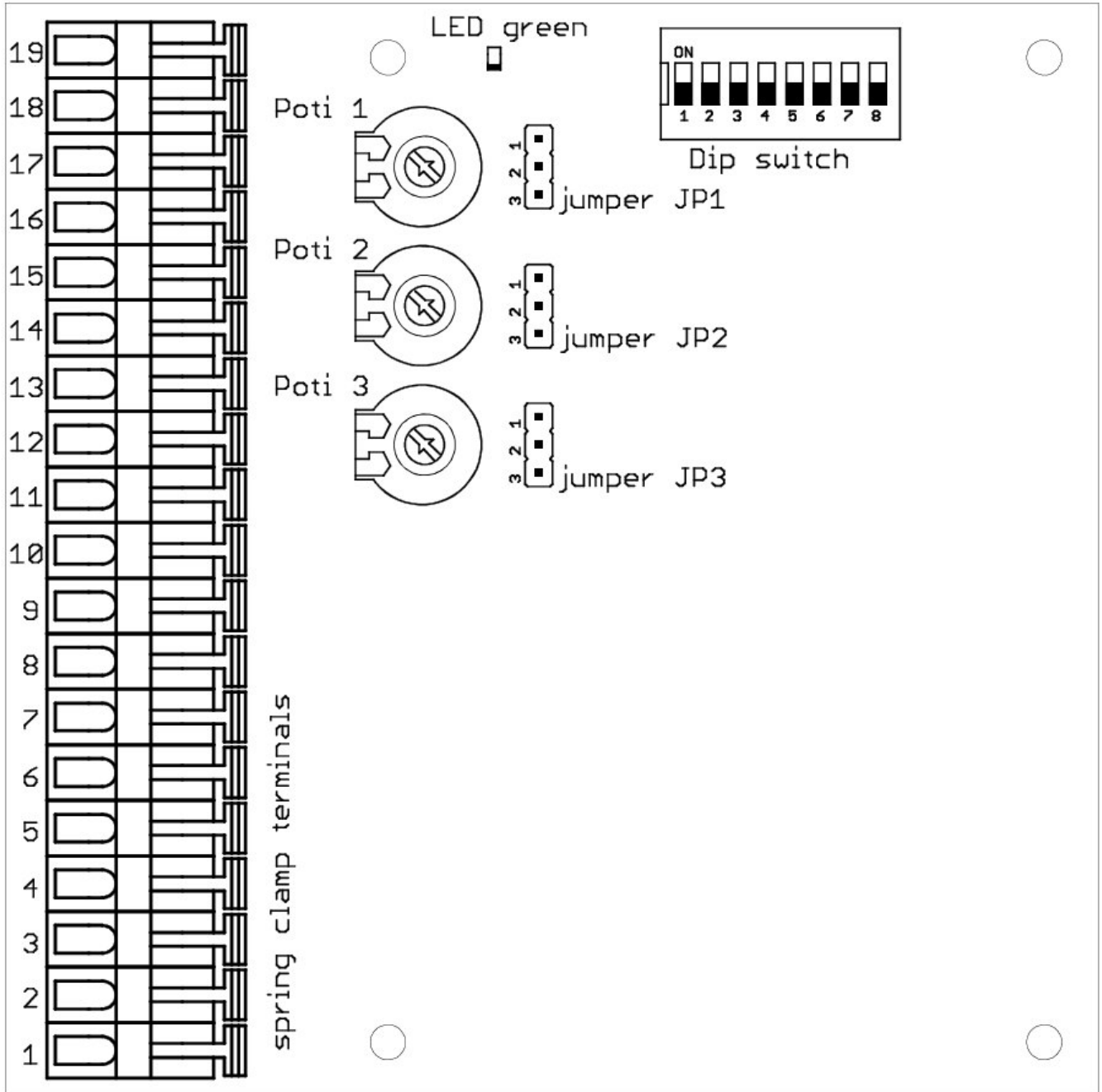
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## 5.2 Connecting diagram







### 5.3. Overview DIP switch

Different modes are selectable by using the DIP-switch (mode changes work only, when the power supply is turned off and on).

DIP 1	Off	Controller enable not inverted (terminals 15 and 16 must be connected, for working motor in the wanted direction)
DIP 1	ON	Controller enable inverted (terminals 15 and 16 must not be connected, for working motor in the wanted direction)
DIP 2	Off	Speed ref. enable not inverted (terminal 18 must be connected, for a working ref. Speed value)
DIP 2	ON	Speed ref. enable inverted (terminal 18 must not be connected, for a working ref. Speed value)
DIP 3	Off	Speed ref. value 0 to 5V/10V means motor voltage: 0 to + +12V/+24V (motor voltage)
DIP 3	ON	Speed ref. value 0 to 5V/10V means motor voltage: -12V/-24V to +12V/+24V (half speed value -> motor voltage=0VDC)
DIP 4	Off	Ramp for motor voltage 1 sec., when DIP5 and DIP 6 are Off
DIP 4	ON	Ramp for motor voltage 2 sec., when DIP5 and DIP6 are Off
DIP 5	Off	Ramp for motor voltage 1 sec., when DIP4 and DIP6 are Off
DIP 5	ON	Ramp for motor voltage 3 sec., when DIP4 and DIP6 are Off
DIP 6	Off	Ramp for motor voltage 1 sec., when DIP4 and DIP5 are Off
DIP 6	ON	Ramp for motor voltage 5 sec., when DIP4 and DIP5 are Off
DIP 7	Off	Motor turns not off after 3 sec. on current limit (motor overload)
DIP 7	ON	Motor turns off after 3 sec. on current limit (motor overload)
DIP 8	Off	No function
DIP 8	ON	No function

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## 6. CE Declaration of Conformity

The manufacturer

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:	4-Q motor control unit digital
Type	DLR 24/xx/P – 466
	DLR 24/xx/M – 466
	DLR 24/xx/G - 466

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 55011 VDE 0875-11:2011-04	EMI emission
DIN EN 61000-6-2 VDE 0839-6-2:2006-03	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
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Professional Competence:	manager development
Date:	30 <sup>th</sup> June 2017