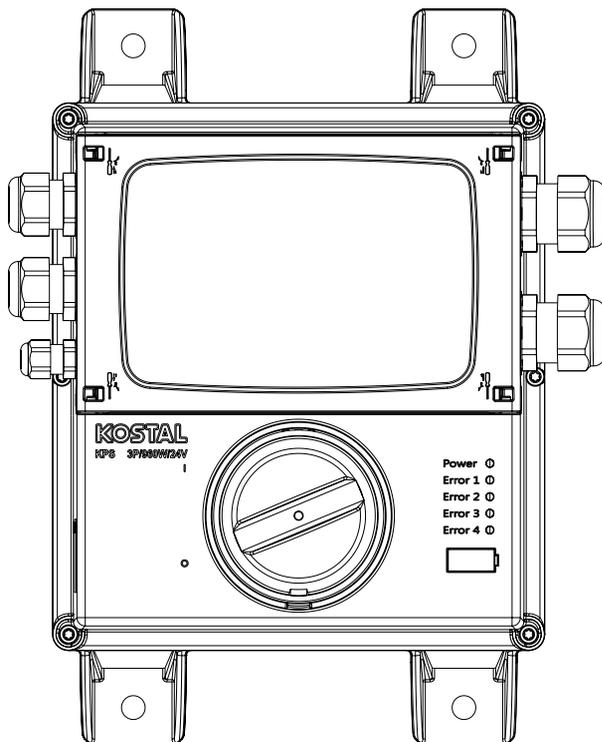


Short manual

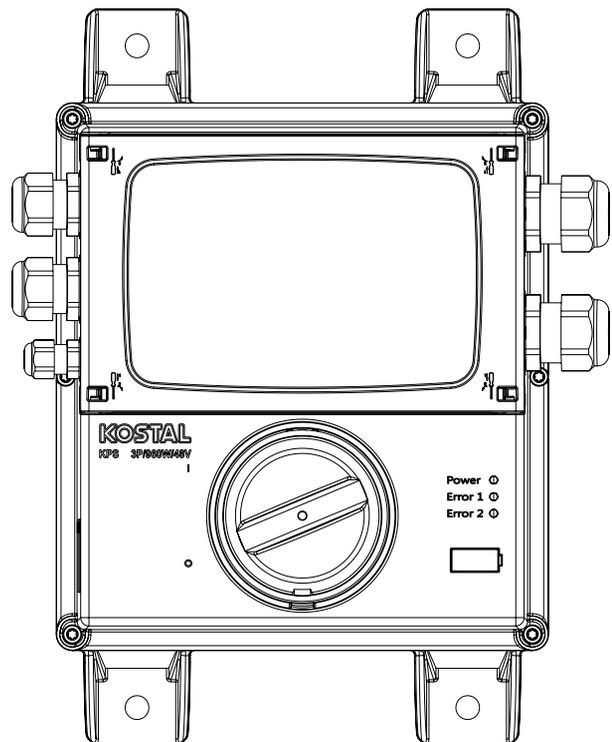
## KOSTAL POWER SUPPLY

# Short manual

More information about the KOSTAL POWER SUPPLY, such as a data sheet, can be found in the product download area at <https://www.kostal-electronic-solutions.com/en-gb/download/>



**KPS 3P/960W/24V**



**KPS 3P/960W/48V**

## Note



**DANGER!**

**RISK OF DEATH DUE TO ELECTRICAL SHOCK AND DISCHARGE**

Life-threatening voltages are present in the power supply unit. Only a qualified electrician may open and perform work on the device. Always de-energise the device during installation, maintenance and repairs, and secure it against being switched back on.

If a damaged device or cable is used, people may be seriously injured or killed as a result of electric shock. KOSTAL Industrie Elektrik GmbH & Co. KG hereby declares that the power supply unit described in this document complies with the basic requirements and other relevant conditions of the directives listed.

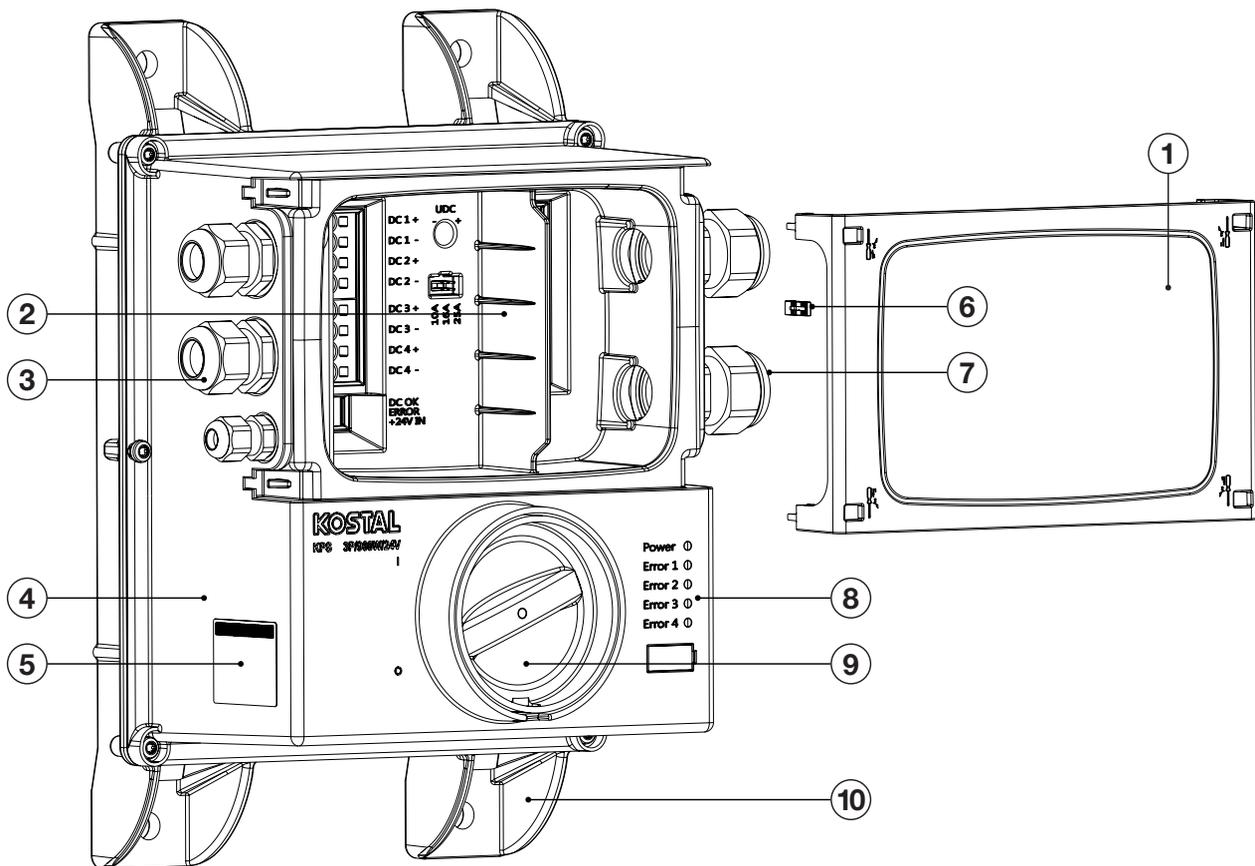
# Short manual

## Product description

The KOSTAL POWER SUPPLY (KPS) converts the 3-phase 400 V input AC voltage into 24 V (40 A) or 48 V (20 A) DC voltage, depending on the variant selected. The DC ON/OFF switch allows the DC output terminals to be de-energised. The switch can be secured in the off position to prevent it from being switched on again unintentionally (e.g. using a padlock). ATTENTION! The DC on/off switch is not a full disconnect switch; it only switches off the DC output terminals. When using regenerative loads, energy can be fed back into the KPS. This energy is converted into heat in the built-in brake resistor. This chopper becomes active if the output voltage set via the potentiometer is exceeded by 1 V due to energy being fed back. This prevents excessive voltages within the system.

# Installation

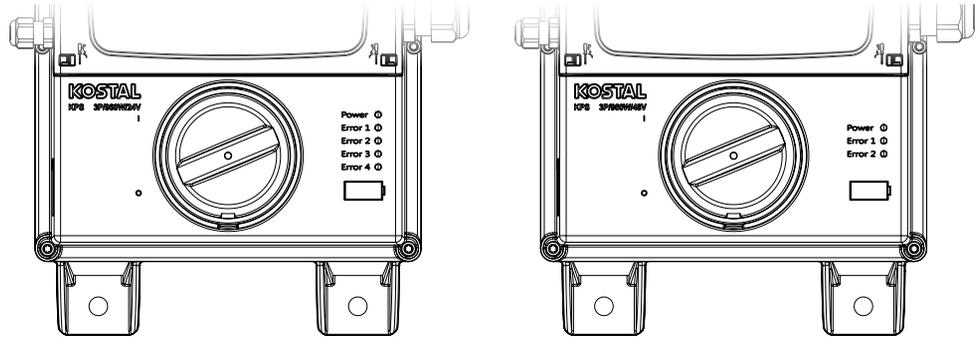
## Components



- |                              |  |
|------------------------------|--|
| 1 Terminal compartment cover | 6 Jumper for output current limitation |
| 2 Terminal compartment       | 7 M25 cable glands                     |
| 3 M20 / M12 cable glands     | 8 Status LED                           |
| 4 Housing cover              | 9 DC on/off switch (lockable)          |
| 5 Type plate                 | 10 Housing base with cooling elements  |

The terminal compartment cover can be opened using a suitable flat head screwdriver.

# Installation

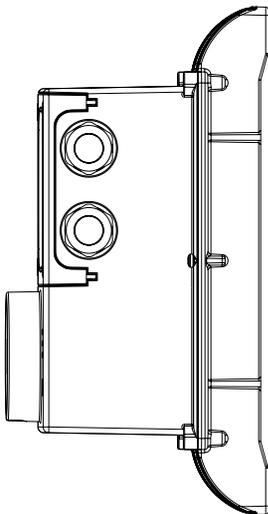


	KPS 3P/960W/24V					KPS 3P/960W/48V		
	Power	Error 1	Error 2	Error 3	Error 4	Power	Error 1	Error 2
Normal operation	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
DC output voltage switched off	1 Hz	OFF	OFF	OFF	OFF	1 Hz	OFF	OFF
Shutdown due to error condition	flashes n* times	ON	ON	ON	ON	flashes n* times	ON	ON
Warning (DC output remains active)	flashes n* times	OFF	OFF	OFF	OFF	flashes n* times	OFF	OFF
Overcurrent DC 1	flashes 7 times	ON	OFF	OFF	OFF	flashes 7 times	ON	OFF
Overcurrent DC 2	flashes 7 times	OFF	ON	OFF	OFF	flashes 7 times	OFF	ON
Overcurrent DC 3	flashes 7 times	OFF	OFF	ON	OFF			
Overcurrent DC 4	flashes 7 times	OFF	OFF	OFF	ON			
Overcurrent system error	flashes 7 times	ON	ON	ON	ON	flashes 7 times	ON	ON

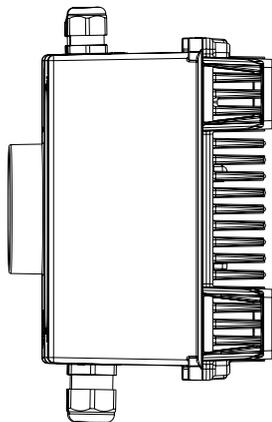
# Installation

Number of times (n) that power LED flashes	Description
1	Device protection: critical condition (e.g. overcurrent in the power stack)
2	Device protection: rated output exceeded for too long
3	Device protection: overload - 1.5 x rated output exceeded
4	Device protection: excess temperature
5	Failure of a phase detected
6	Device protection: overloading of chopper resistor
7	Overcurrent protection on the output side

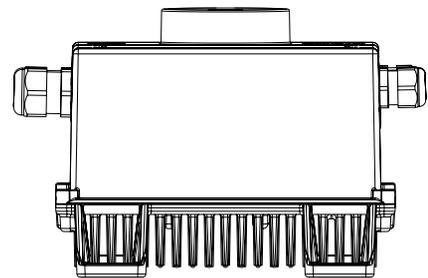
**Installing the KPS - the following installation positions are permissible:**



Preferred installation position



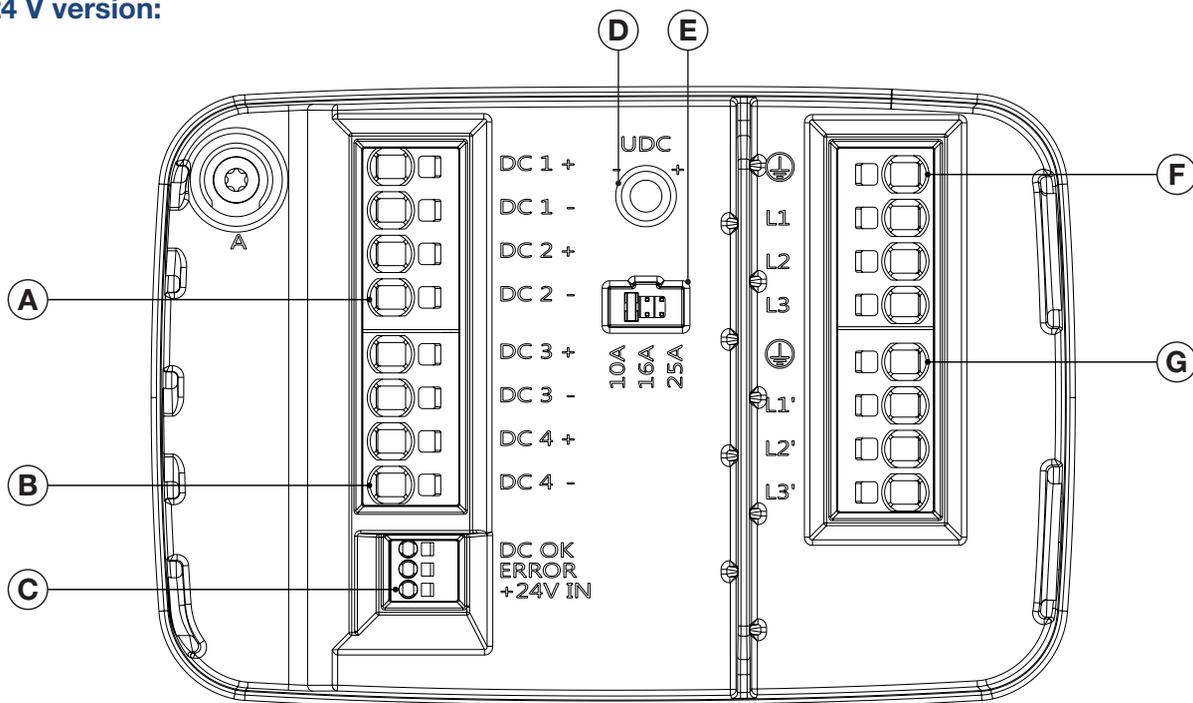
Alternative installation positions (derating possible / not UL tested)



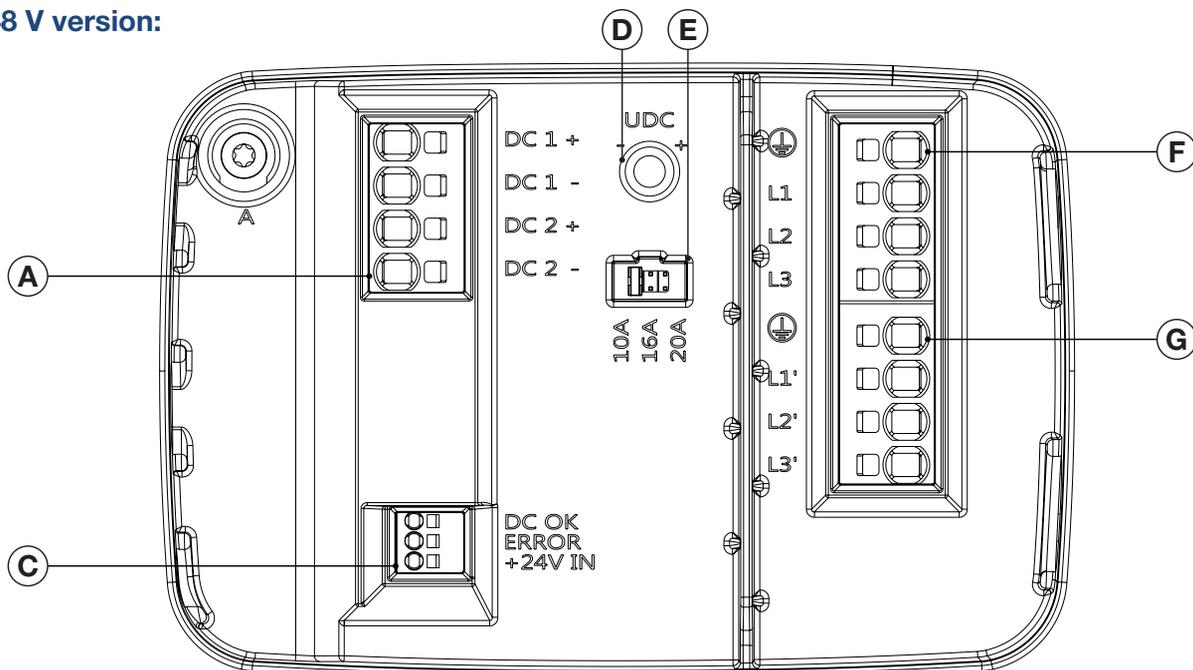
# Installation

## Connections and settings

24 V version:



48 V version:



# Installation

## (A) Connection block 1 - 24/48 V DC

	KPS 3P/960W/24V	KPS 3P/960W/48V
DC 1 +	+ 24 V DC	+ 48 V DC
DC 1 -	0 V	0 V
DC 2 +	+ 24 V DC	+ 48 V DC
DC 2 -	0 V	0 V

## (B) Connection block 2 - 24 V DC

	KPS 3P/960W/24V
DC3 +	+ 24 V DC
DC 3 -	0 V
DC 4 +	+ 24 V DC
DC 4 -	0 V

## (C) Signal connection (transistor outputs)

Signal outputs for readiness of the DC voltage supply and a collective error signal.

	DC OK	ERROR
DC off; no error; (no supply if applicable)	L	H
DC on; no error	H	H
DC on; warning (e.g. mains phase failure) ... )	H	L
DC off; error (e.g. overcurrent, overload) ... )	L	L

## (D) UDC adjustment potentiometer

Fine adjustment of the DC output voltage.

Setting range	24 V - 28 V DC	48 V - 54 V DC
---------------	----------------	----------------

## (E) Jumper setting for DC line protection

The DC line protection is set according to the connected loads.

Setting range	10 A* / 16 A / 25 A	10 A* / 16 A / 20 A
---------------	---------------------	---------------------

\*Factory setting

# Note

## Overload of the connected DC outputs!

**Observe the correct setting of the DC line protection.**



The DC line protection has a common shutdown element for all outputs.

If one single output experiences overcurrent or overloaded, all outputs are shut down.

## (F) Connection block 3 - 400 V AC

Input terminals for the 400 V voltage supply.



A four-core connection cable without a neutral conductor is sufficient for connecting the KPS power supply units.

## (G) Connection block 4 - 400 V AC

Output terminals for looping through the 400 V voltage supply to another KPS power supply unit.



A divider is installed in the terminal compartment to prevent incorrect routing between the DC and AC voltage ranges.

## Connection and protection on the grid side

The KPS power supply unit does not contain any internal device fuses. Due to the operating principle of the power supply unit, overloads on the load side are not transferred to the grid connection. Protective devices on the grid side would therefore be ineffective.

The dimensioning of the fuse(s) on the grid side can focus on line protection.

**The supply cable may loop through a maximum of eight power supply units!**

**ATTENTION! The terminal compartment cover must be closed before the supply voltage is switched on!**

# Installation

## Connection and protection on the load side

The power supply unit is equipped with electronic DC line protection.

According to the jumper setting for output current limitation (see "Connections and settings"), the output currents and the total current are evaluated and a shutdown is triggered if they are exceeded.

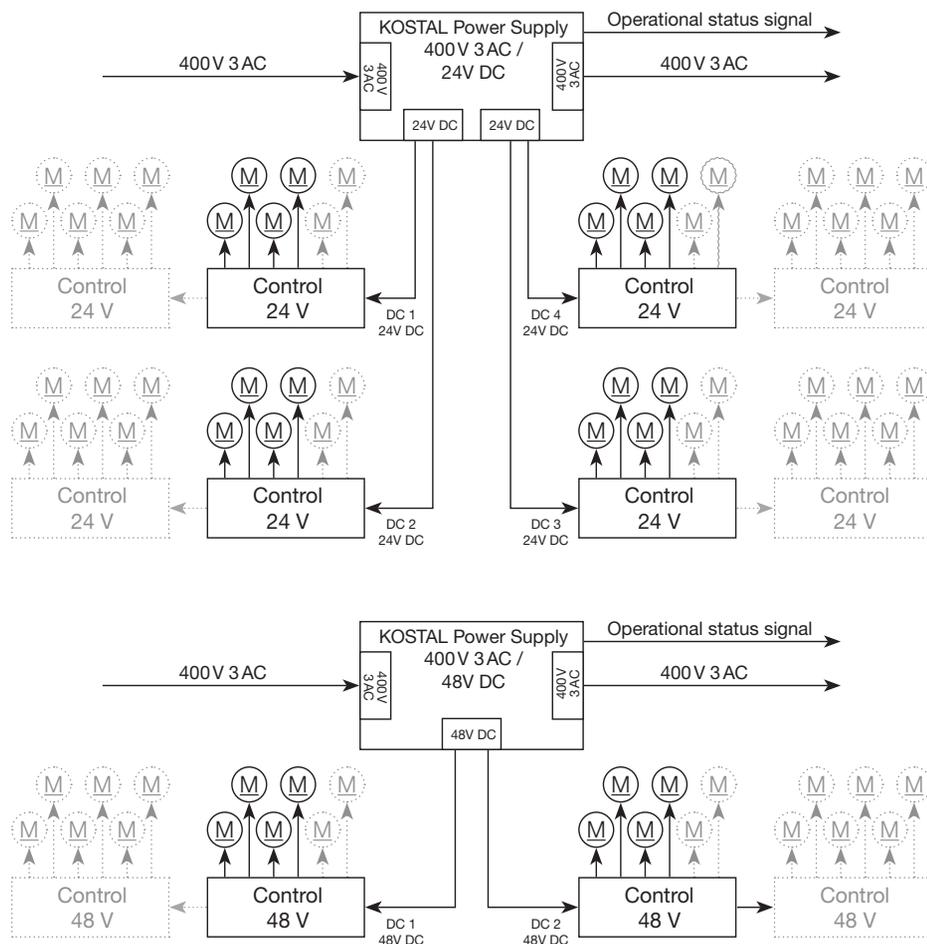
The total output of 1 kW or an overload of 1.5 kW for 4 seconds is also monitored independently. The shutdown interrupts the flow of energy.

The shutdown is monitored in the built-in controller. If the energy flow on the secondary side is not stopped within the expected response time, a forced shutdown is triggered. This ensures that the defined response time of the safety function is never exceeded.



By switching the DC on/off switch off and on again, the error is reset.

## System overview



## **Legal notice**

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