

Ratings of Electrical Options

series	input						output							
	L	Q	H	HE	P/N	IE	D/K	E	R	C	U	IA	X	Y
PC5200	60A	60A	40A	•	•	•	•	250A	250A	•	250A	•	•	•
PC5300	100A	100A	40A	•	•	•	•	250A	250A	•	250A	•	•	•
PC5400	120A	120A	40A	•	•	•	•	250A	250A	•	250A	•	•	•
PC5600	150A	150A	40A	•	•	•	•	250A	250A	•	400A	•	•	•
PC5700	150A	230A	40A	•	•	•	•	250A	250A	•	400A	•	•	•
PC5800	150A	200A	40A	•	•	•	•	300A	300A	•	400A	•	•	•

- Option is possible with all the types of this series.

xxA Option is possible up to given current value.

It may not be possible to build in all the options in one unit. There may also be reductions in the output current necessary if the options **E** or **R** are used simultaneously together with **L** or **LA**.

These tables are only a guide-line. They are not complete or compulsory. In case of doubt, please contact Powertronic.

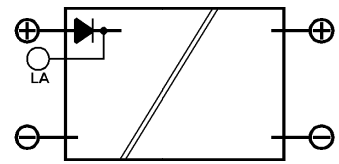
Internal Options – DC Input

L Polarity / Feed-Back Protection

The input circuitry of the unit is protected against wrong polarity through a series diode. However, this also causes extra losses and reduces the overall efficiency.

LA Option L with cathode led out

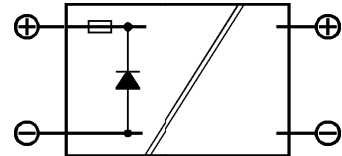
Additional external buffer-capacitors can be connected to the cathode. Due to higher inrush current it may only be possible in combination with Option H/HE - ask Powertronic.



calculation formula ($I_{Diode}=2 \times P_{out \max} / U_{in \min}$)

Q Polarity Protection

To avoid the losses caused by a series diode (Option L / LA), a diode with opposite polarity is connected in parallel to the input. This blows an internal (<63A possible) or external fuse if the input is connected to a supply of wrong polarity.



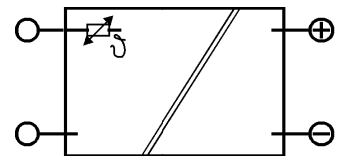
calculation formula ($I_{Diode}=3 \times P_{out \max} / U_{in \min}$)

H Inrush Current Limiting

A thermistor is connected in series with the input lines which changes its resistance from high to low when it gets hot. It does not reduce the current surge if the input power is interrupted for a short period of time not allowing the thermistor to cool down.

Technical Data

NTC-rating from 0,5Ω / 40A to 5Ω / 20A



HE Inrush Current Limiting

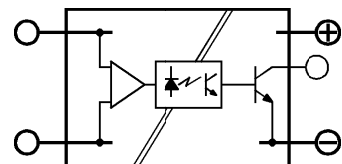
An electronic circuit limits the high inrush current caused by built-in capacitors. Switch- on time may increase to 5s.

P Powerfail Alarm

An open collector of a transistor signals if the input voltage drops below a specified limit. At low voltage the transistor is blocked.

Technical Data

Standard setting DC app. 70% of nominal input
AC app. 85% of nominal input
Reference potential negative output
Transistor data 24VDC / 20mA max.

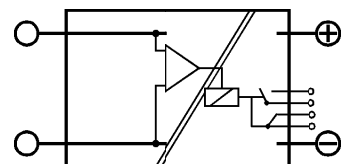


N Powerfail Alarm

Potential- free relay contacts signal if the input voltage drops below a specified limit. The relay is without current at low voltage (NOC=open, NCC=closed) .

Technical Data

Standard setting DC app. 70% of nominal input
AC app. 85% of nominal input
Contact ratings 250VDC / 1 A / 40W
Operating temperature up to +55°C for relay

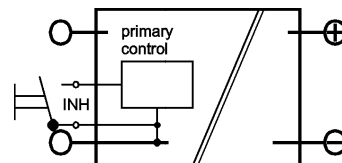


IE Inhibit

Through the connection of the INH to the (rectified) negative input, the unit is shut off (oscillator is stopped) and no output voltage is available.

Technical Data

External trip/ switch element 30VDC/20mA, caution for isolation =primary potential

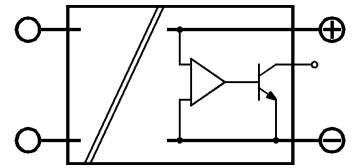


D DC OK- Logic

The output is controlled against low voltage. An open collector of a transistor signals when the output voltage drops below a specified limit. At low voltage the transistor is blocked.

Technical Data

Standard setting app. 85% nominal (see Table below)
 Reference potential negative output
 Transistor data 24VDC / 20mA max.

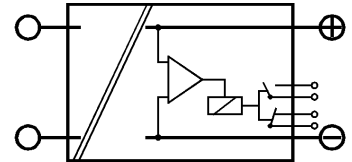


K DC OK- Relay

In this version potential-free contacts signal if the output voltage drops below a specified limit. At low voltage the relay is without current (NOC=open, NCC=closed).

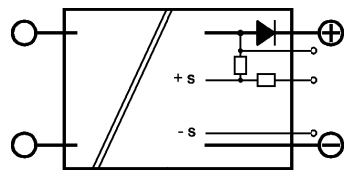
Technical Data

Standard setting app. 85% nominal (see Table below)
 Contact ratings 250VDC / 1A / 40W
 Operating temperature up to +55°C for relay



E Decoupling Diode

A series diode built into the units output allows infinite paralleling of the units for redundancy or higher power. For control purposes the anode of the diode is led out. It cannot be loaded $\geq 0.5A$. The sense signal is taken partially from the anode and partially from the load/cathode of the decoupling diode. This guarantees starting and operating under all conditions, but it also effects the regulation accuracy of 2% or 1V (whichever is less). In this way it gives a load sharing of 15-30% between the paralleled units.



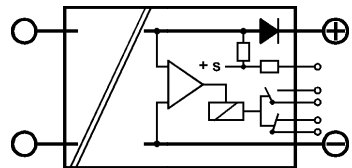
calculation formula ($I_{Diode}=1 \times I_{out}$)

R Decoupling Diode with DC OK-Relay

This is a combination between Option E and Option K. The difference is that the anode is not led out. At low voltage the relay is without current (NOC=open, NCC=closed).

Technical Data

Standard setting app. 85 % nominal (see Table below)
 Contact ratings 250 VDC / 1 A / 40 W
 Operating temperature up to +55°C for relay



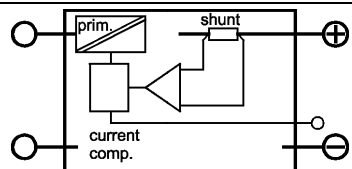
calculation formula ($I_{Diode}=1 \times I_{out}$)

Standard Settings for the Alarm in Options D, K und R

nominal VDC	alarm \leq VDC	nominal VDC	alarm \leq VDC
12	10	48	41
15	13	60	51
24	20	110	95
28	24	220	190

C Active Current Sharing

Through the use of an additional interconnecting wire between the parallel operating units, a control circuit provides active current sharing of 5% by changing the output voltage accordingly (2% or 1V whichever is lower). A connected unit not supplying an output voltage may reduce the load voltage up to 8%.



Ci Active Current Sharing

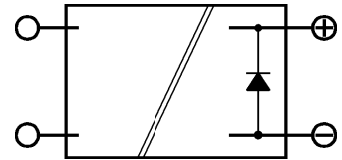
Same as option c but "fault tolerant". If a connected unit is not supplying an output voltage its current sharing signal is removed and the load voltage is not effected by this condition.

Internal Options - Output

U Polarity Protection

A diode connected with opposite polarity in the output prevents damages to the unit if an external voltage with the wrong polarity is applied. This option is necessary, if the unit outputs are connected in series. The diode can carry the nominal output current of the unit.

calculation formula ($I_{\text{Diode}}=1 \times I_{\text{out}}$)

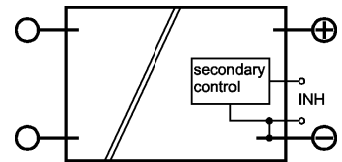


IA Inhibit

The operation of the unit is inhibited when a voltage signal is applied in reference to the negative line of the output. This can also be used in combination with a thermal trip, which shuts the unit down. A galvanically isolated version is available upon request.

Technical Data

Shut off 5VDC, max. 20mA, ref. to negative output
Turn on open input



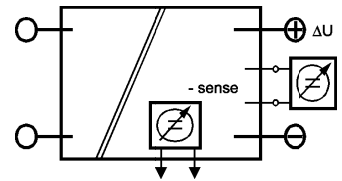
XS External Programming

An external signal applied in reference to the negative output line programs the output voltage or/and output current.

XSR additional actual value return signal

Technical Data

External signal 0-10VDC/4-20mA
Value return signal 0-10VDC/4-20mA
Reference potential negative sense of output
 ΔU_{out} 0-100%
 ΔI_{out} 0-100%



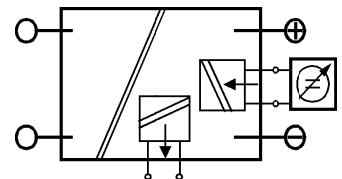
XI External Programming

The programming signal is isolated by an internal circuitry.

XIR additional isolated actual value return signal

Technical Data

External signal 0-10VDC/4-20mA
Value return signal 0-10VDC/4-20mA
 ΔU_{out} 0-100%
 ΔI_{out} 0-100%



XP External Programming

By a 10-turn potentiometer located on the front side. Output voltage and/or output current can be adjusted.

Technical Data

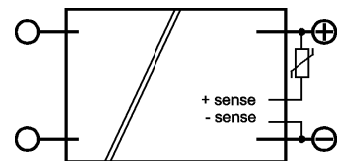
ΔU_{out} 0-100%
 ΔI_{out} 0-100%

Y Programmable by External Resistor

By using an additional external resistor, NTC or PTC connected to a sense line of the unit, the output voltage can be programmed. e. g. for temperature controlled charging of batteries.

Technical Data

Programming resistor factory fixed – including sense resistor
Current app. 1mA
 ΔU_{out} setting range of the unit



A Meters

3¹/₂ digit panel meters on the front side

input voltage and/or input current
output voltage and/or output current

Internal Options - Environmental

V Increased Mechanical Strength

For special applications, e. g. in motorized vehicles, vessels and earthquake areas, the DC/DC and AC/DC supplies can be modified for higher vibration/shock resistance. In this case, larger components as elcaps, magnetics etc. are additionally fixed. To be specified individually.

T Tropical Protection

In the units all of the PCB's and most of the components are coated with clear tropical protection varnish.