

## POWER SUPPLY 3-PHASE, 24 V DC DIMENSION Q SERIES

QT20.241

POWER SUPPLY 24VDC 480W 20A

- Output current of 20 A
- 95% efficiency
- 65 mm wide
- 50% bonus power
- Maximum performance



### PRODUCT DESCRIPTION

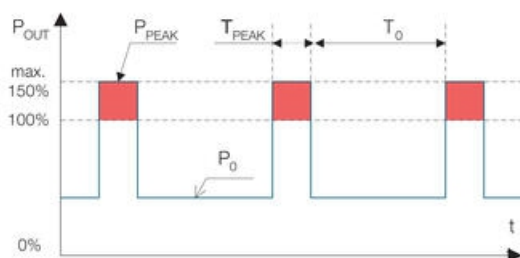
Puls Dimension Q is a new generation of power supply unit with very small construction dimensions and many technical benefits. The unit has low inrush current (even with warm starts), active PFC, which provides a power factor close to one, expanded temperature range and active protection against line transients. Furthermore, there is a relay output (DC OK) that is deactivated when the output voltage deviates more than 10% from the set value. The bonus power provides an extra 50% boost with retained 24 V, which is an advantage when connected loads have high starting currents. The unit also has a high short-circuit current that simplifies tripping of secondary fuses. Both the bonus power and short-circuit current are time-limited to 4 seconds to avoid constant overloading of the unit and wiring. High efficiency provides long lifetime and low temperatures. The power supply unit can be connected for 2-phase operation with  $I_{nom}$  up to 40°C. For higher temperatures, the load current must be reduced.

We recommend free space of 60 mm above/under the unit and 15 mm at the sides.

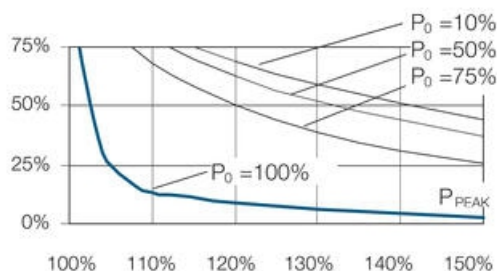
#### Bonus power

The power supply unit has bonus power that enables high power extraction with retained 24 V dc for 4 seconds, which is a major advantage when connected loads have high starting currents, such as the case with motors. How often bonus power can be utilised depends on the application. With the following diagram and formula, the repeat time can be calculated for each application. The bonus power is available as soon as the power supply unit is started and directly after a short circuit.

Bonus power



Operating characteristics



$P_0$

Nominal load current

Ppeak	Peak current
To	Time between bonus power
Tpeak	Peak current I time
Operating cycle	$T_{peak} / (T_{peak} + T_o)$
To	$T_{peak} - (\text{operating cycle} * T_{peak}) / \text{operating cycle}$

Example: Nominal load current (Po) is 15 A. Peak current (Ppeak) is 24 A = 120%. The peak time is 3 seconds. 15 A = 75% of  $I_{nom}$ . According to the diagram, the operating cycle is 50%.  $T_o = 3 - (0.5 * 3) / 0.5 = 3$  Maximum repeat time of bonus power is 3 seconds.

## SPECIFICATIONS

<b>Input voltage range</b>	Wide-range
<b>Number of phases</b>	3
<b>Input voltage AC</b>	380-480 V
<b>Input voltage ac min</b>	323 V AC
<b>Input voltage ac max</b>	552 V AC
<b>Inrush current at 400 V ac typical</b>	3 A
<b>Power Factor at 400 V AC, full load. Typical</b>	0.94
<b>Supply Frequency</b>	50-60 ±6 %
<b>Power consumption at 400 V ac</b>	0.79 A
<b>Type Power Supply</b>	AC-DC
<b>Output voltage</b>	24 V DC
<b>Output voltage min</b>	24 V DC
<b>Output voltage max</b>	28 V DC
<b>Output Current</b>	20 A
<b>Effect</b>	480 W
<b>Power Reduction Of 60 To 70 ° C</b>	12 W/°C
<b>Ripple. max</b>	100 mV pp
<b>Temperature Range Without Derating From</b>	-25 °C
<b>Temperature Range Without Derating To</b>	60 °C
<b>Efficiency At 400 V AC. Typical</b>	94.2 %
<b>Efficiency At 400 V AC, full load. Typical</b>	95 %
<b>Lifetime at 400 V ac, full load and +40 ° C</b>	105000 h
<b>MTBF (IEC 61709) 400 V ac, max loan, +40 °C</b>	690000 h

Width	65 mm
Height	124 mm
Depth	127 mm
Weight	0.87 kg
Clamp type	Spring-clamp
Series	Dimension Q
Approvals	CB, CE, CSA, CSA US, cRUus, cULus, GL
DC relay output	Yes
Material Protection	Aluminium
Hold-up time at 400 V AC, full load. Typical.	22 ms
IP Class	IP20
Active Transient	Yes

Fig. 6-1 Output voltage vs. output current, typ.

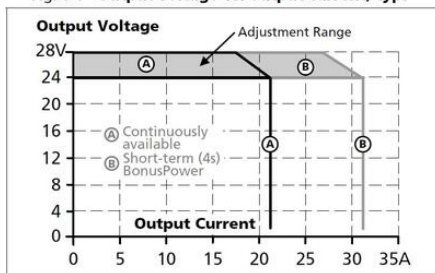


Fig. 15-1 Output current vs. ambient temp.

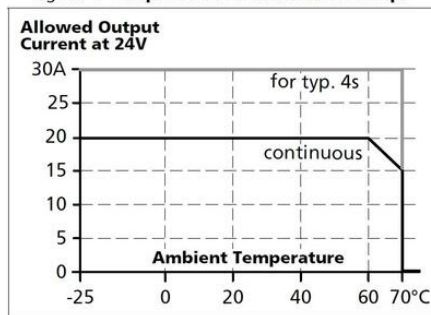


Fig. 6-2 Bonus time vs. output power

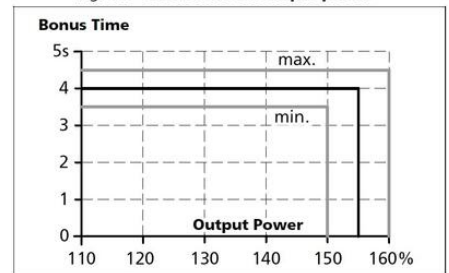


Fig. 9-1 Efficiency vs. output current at 24V, typ.

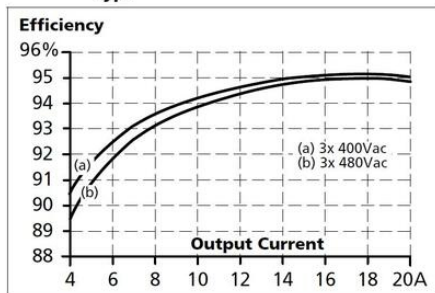
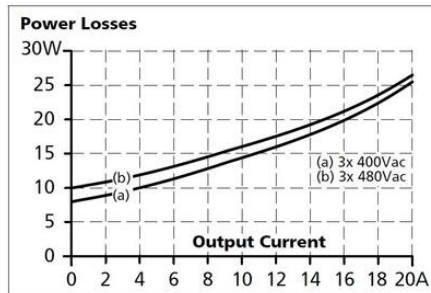


Fig. 9-2 Losses vs. output current at 24V, typ.



Maximal wire length<sup>1)</sup> for a fast (magnetic) tripping:

	0.75mm <sup>2</sup>	1.0mm <sup>2</sup>	1.5mm <sup>2</sup>	2.5mm <sup>2</sup>
C-2A	29m	39m	56m	86m
C-3A	26m	34m	49m	76m
C-4A	16m	21m	29m	46m
C-6A	3m	5m	7m	8m
C-8A	1m	2m	2m	3m
C-10A	1m	1m	1m	1m
B-6A	18m	23m	31m	54m
B-10A	4m	6m	7m	13m
B-13A	3m	5m	6m	11m
B-16A	1m	1m	1m	2m

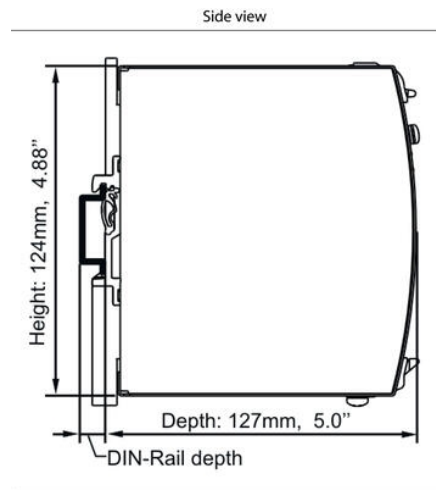
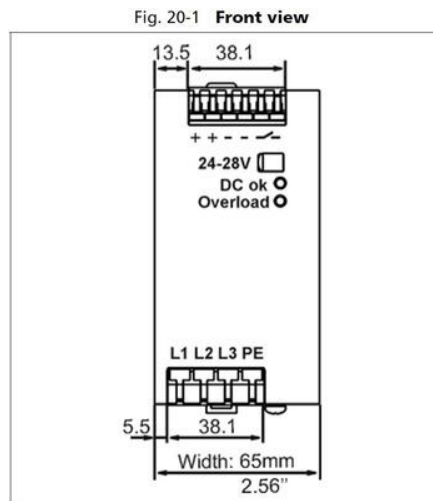
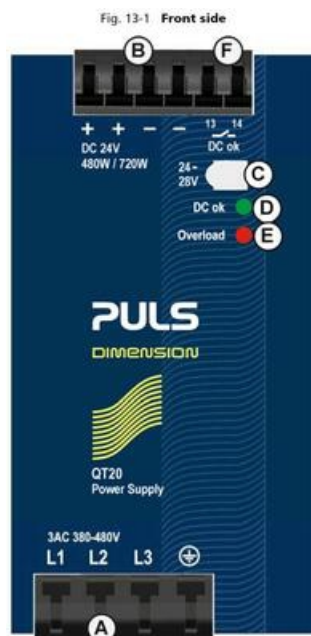


Fig. 6-1 Output voltage vs. output current, typ.

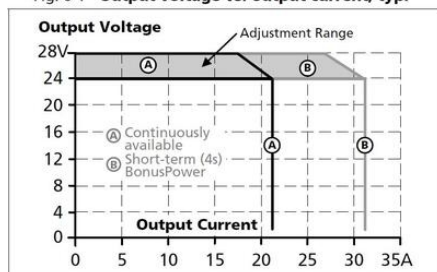


Fig. 15-1 Output current vs. ambient temp.

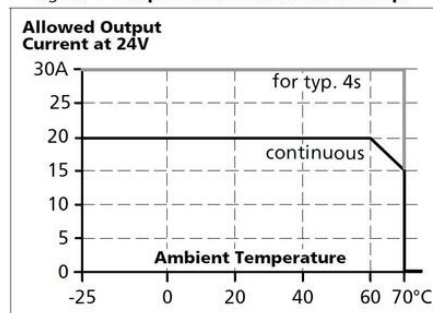


Fig. 6-2 Bonus time vs. output power

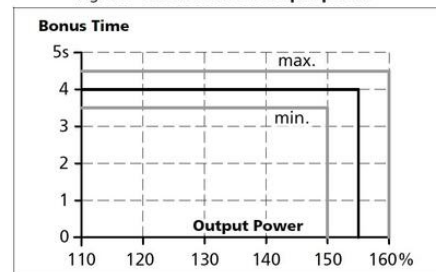


Fig. 9-1 Efficiency vs. output current at 24V, typ.

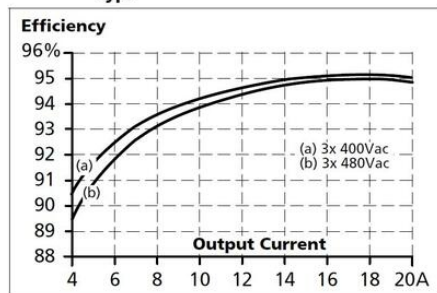
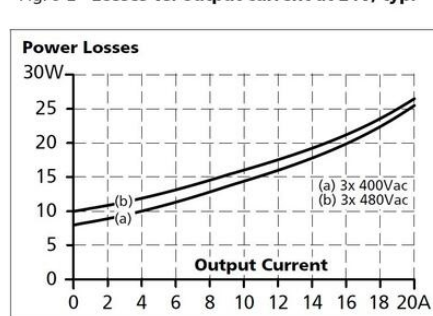


Fig. 9-2 Losses vs. output current at 24V, typ.



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Fig. 13-1 Front side

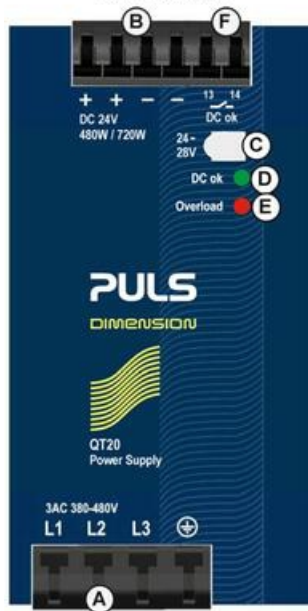
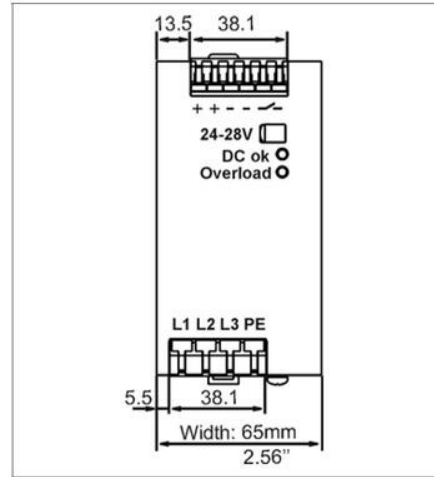


Fig. 20-1 Front view



Side view

