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POWER SUPPLY 3-PHASE, 24 V DC DIMENSION Q, 20A

QT20.241
PSU 3PH 380-480V ac I/P 24V dc 20A 480W O/P



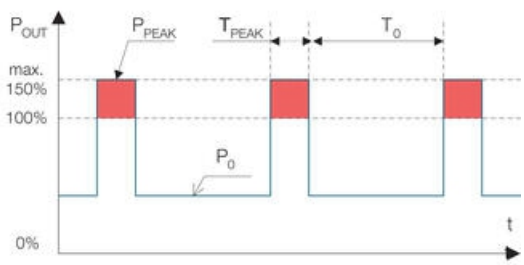
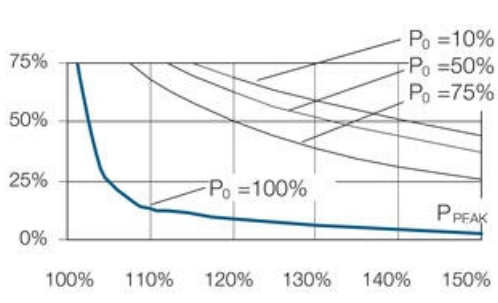
- Output current of 20 A
- 95% efficiency
- 65 mm wide
- 50% bonus power
- Maximum performance

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 Inom 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
	

Po	Nominal load current

Ppeak	Peak current
To	Time between bonus power
Tpeak	Peak current I time
Operating cycle	Tpeak / (Tpeak + To)
To	Tpeak - (operating cycle * Tpeak) / 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%. To = 3 - (0.5 * 3) / 0.5 = 3 Maximum repeat time of bonus power is 3 seconds.

TECHNICAL DATA

INPUT DATA

Input voltage ac	380-480 V
Input voltage ac min	323 V AC
Input voltage ac max	552 V AC
Inrush current at 400 V ac typical	3 A
Input voltage range	Wide-range
Power factor at 400 V ac, full load. Typical	0.94
Number of phases	3

OUTPUT DATA

Output voltage	24 V DC
Output voltage min	24 V DC
Output voltage max	28 V DC
Output current	20 A
Power	480 W

EFFICIENCY / LIFETIME / MTBF

Efficiency at 400 V ac, typical	94.2 %
Efficiency at 400 V ac, full load, typical	95 %
Lifetime at 400 V ac, full load and +40 ° C	105000 h
MTBF (IEC 61709) 400 V ac, max loan, +40 °C	690000 h

DIMENSIONS

Width	65 mm
Height	124 mm
Depth	127 mm
Weight	0.87 kg

OTHER

Approvals	CB, CE, CSA, CSA US, cRUus, cULus, GL
Hold time at 400 V ac, typical full load	22 ms
IP class	IP20
Clamp type	Spring-clamp
Material protection	Aluminium
Supply frequency	50-60 ±6 %
Ripple max	100 mV pp
Series	Dimension Q
Power consumption at 400 V ac	0.79 A
Power drop from +60 °C to + 70 °C	12 W/°C
Temperature min without derating	-25 °C
Temperature max without derating	60 °C

Type Power Supply	AC-DC
Active Transient	Yes
DC relay output	Yes

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

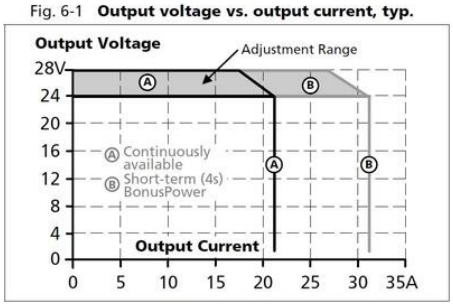


Fig. 15-1 **Output current vs. ambient temp.**

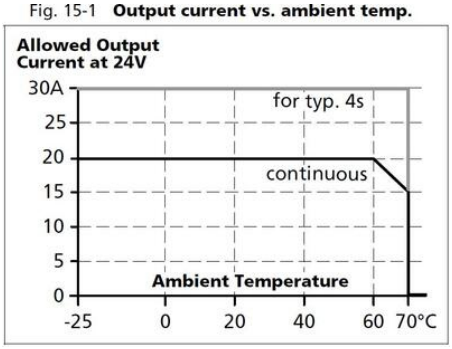


Fig. 6-2 **Bonus time vs. output power**

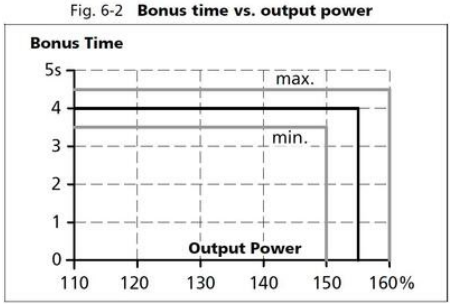


Fig. 9-1 **Efficiency vs. output current at 24V, typ.**

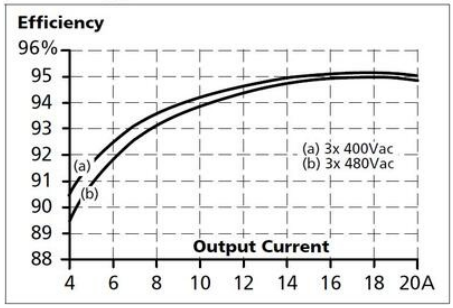
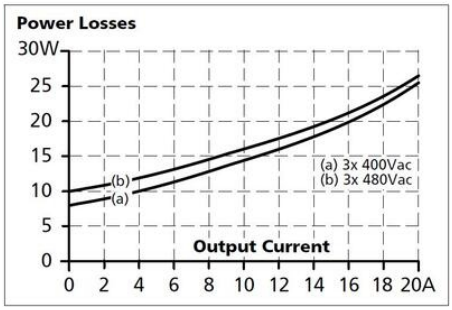


Fig. 9-2 **Losses vs. output current at 24V, typ.**



Maximal wire length*) for a fast (magnetic) tripping:

	0.75mm²	1.0mm²	1.5mm²	2.5mm²
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. 13-1 **Front side**

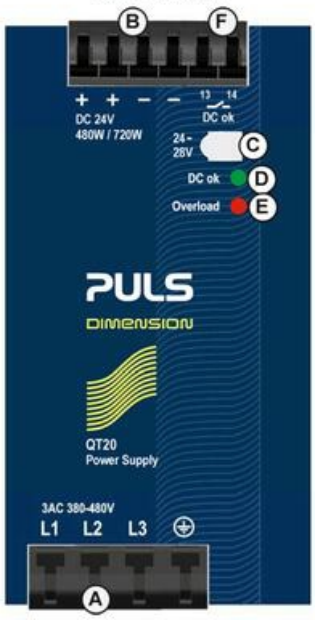
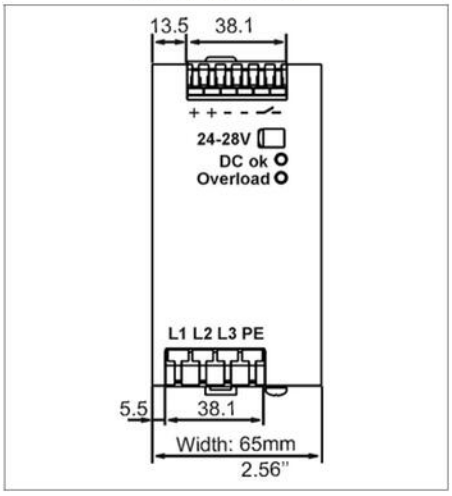
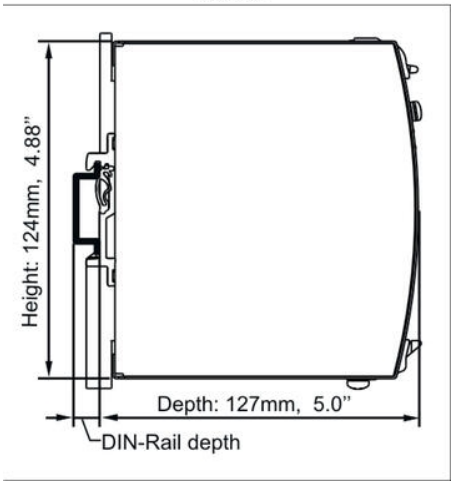


Fig. 20-1 **Front view**



Side view



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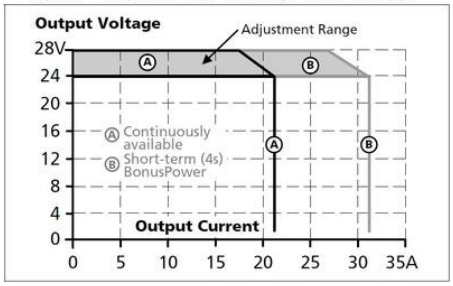


Fig. 15-1 **Output current vs. ambient temp.**

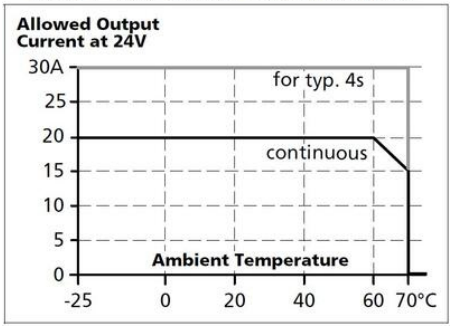


Fig. 6-2 **Bonus time vs. output power**

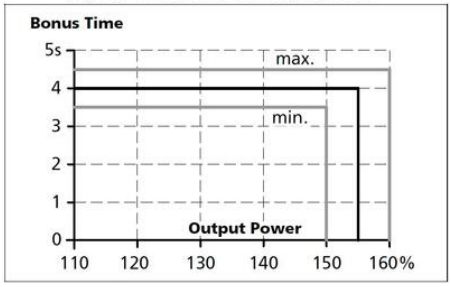


Fig. 9-1 **Efficiency vs. output current at 24V, typ.**

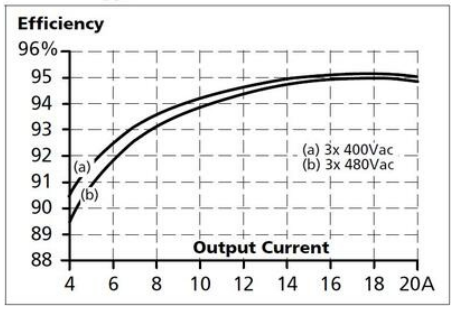
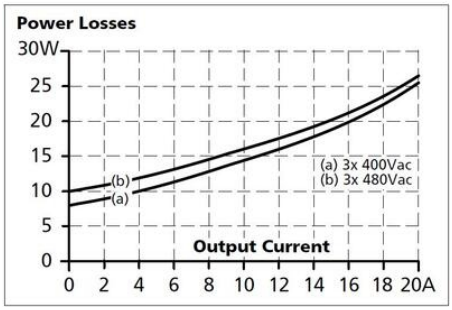


Fig. 9-2 **Losses vs. output current at 24V, typ.**



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C-8A	1m	2m	2m	3m
C-10A	1m	1m	1m	1m
B-6A	18m	23m	31m	54m
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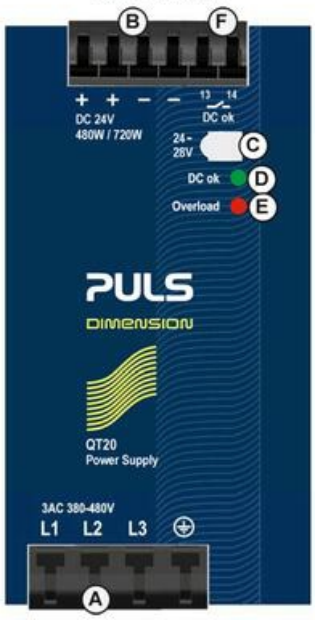

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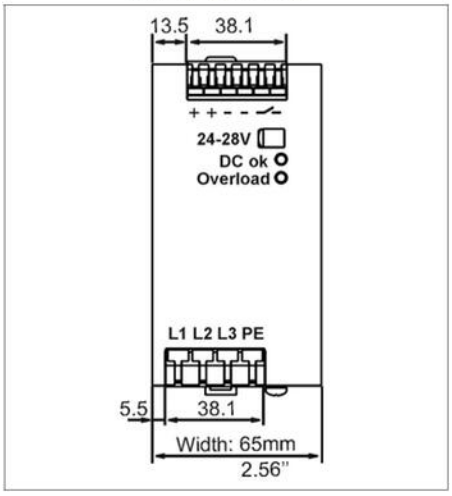

Side view

