

In order to take the best advantage of the features that this power supply has to offer and to ensure long term reliability for your equipment, please read these instructions carefully before installation and use. They should be retained for future reference.

EVOLUTION 3 PHASE 40

164
132
66
66
5
2

1
2
3
4
5
6
7
8
9
10
11
12
13
14

3x400 VAC
L3
L2
L1
PE
DC+
DC-
Art. No. 85004
DC24V

3x400 VAC
L3
L2
L1
PE
DC+
DC-
Art. No. 85004
DC48V

480-745 VDC
L3
L2 (-)
L1 (+)
PE
DC+
DC-
Art. No. 85004

280
240
200
160
120
80
40
0
0 10 20 30 40 50 (A)

280
240
200
160
120
80
40
0
0 10 20 30 40 50 (A)

280
240
200
160
120
80
40
0
0 50% 100% 150% (A)

40
30
20
10
0
-25 -5 15 35 55 75 (°C)

CE
C 165828
GL
11699-10HH

(1) General

This unit employs many features previously unavailable in an industrial power supply. It has been designed to withstand the high levels of interference found in heavy industry. The Evolution 40-3x360-520/24 has a high level of reserve power. This enables loads with significant inrush current to be supported and will also ensure that circuit breakers will trip in event of short circuit. A protective feature is provided which will take control as the unit approaches the power limit due to the overload or excessive temperature brought about by lack of ventilation. If input voltage drops down to 3 x 300 VAC for 4 sec, output voltage still complies to PLC standard EN 61131-2 ($\geq 20,4$ VDC). Use only in star-architecture networks TN, TT and IT (< 3x440 VAC).

(2) Technical specification, Art. No. 85004		v1.2
Nominal voltage (*)	3 x 360 - 520 VAC, 480 - 745 VDC	
Input voltage range	3 x 324 - 572 VAC	
Use allowed with two phases (**)	2 x 360 - 572 VAC	
Nominal frequency	50 / 60 Hz $\pm 6\%$	
Input current, I_{nom}	2,4 A _{max} / 3x360 VAC - 1,7 A _{max} / 3x520 VAC	
Input current with two phase	4,1 A _{max} / 2x360 VAC - 3,2 A _{max} / 3x520 VAC	
Inrush current	none	
Efficiency, typ.	91% / 3 x 400 VAC - 90% / 3 x 520 VAC	
Power factor, typ.	0,70 / 3 x 400 VAC and 24 VDC / 40 A	
External fuse max.	3 x 20 A / 250 VAC, type B or C	
Safety class	1	
Output voltage, adjustable	22 - 28 VDC	
Static regulation accuracy	$\pm 1\%$	
Dynamic regulation accuracy typ.	0->100%, 5% 1ms / 100%->5%, 5% 1ms	
Start-up time	< 500 ms	
Hold up time of the output	> 10 ms / 3 x 400 VAC and 24 VDC / 40 A	
Output current 24 VDC / +55°C	40 A	
Output current 28 VDC / +55°C	34 A	
Derating	+55°C - +70°C, -0,67A / °C	
Output current (power boost)	60 A / > 4 s	
Output current, short circuit, typ.	45 A	
Output ripple	< 50 mV _{rms}	
Overloading / temperature protection	Yes	
Overvoltage shutdown	< 35 VDC	
Relative humidity	5 - 95% , no condensing	
Operation temperature	-25°C - +70°C (> +55°C derating)	
Storage temperature	-40°C - +85°C	
Protection class, case, EN 60529	IP 20	
Dimensions W x H x D; Weight	164 x 132 x 142 mm; 3,0 kg	

(*) GL type approvals are fulfilled with nominal input voltage of 3 x 380 - 520 VAC (-15% / +10%)
(**) Check diagram [14] for derating values.

(3) Features

[1] Output terminal:

Conductor sizes
Solid 2,5 - 16 mm² / 13 - 5 AWG
Stranded 2,5 - 16 mm² / 13 - 5 AWG
Stranded with ferrule without / with plastic sleeve 2,5 - 16 mm² / 13 - 5 AWG
Ferrule minimum length must be ≥ 10 mm
Wire insulation temperature rating 75°C

Tightening torque: min. 1,2 Nm / 11 lb. in.

[2] Bi-color LED, output voltage "OK" - green, Alarm - red.

[3] Output voltage adjust 22 - 28 VDC; when over 24 VDC is used, must input voltage be accordingly higher.

[4] Input terminal:

Conductor sizes
Solid 1,5 - 6 mm² / 15 - 9 AWG
Stranded 1,5 - 4 mm² / 15 - 11 AWG
Stranded with ferrule without / with plastic sleeve 1,5 - 4 mm² / 15 - 11 AWG
Ferrule minimum length must be ≥ 8 mm
Wire insulation temperature rating 75°C

Tightening torque: min. 0,5 Nm / 7 lb. in.

(4) Location

The power supply is cooled by natural convection. Top and bottom clearances should be 50 mm at minimum. When used with maximum output power and high ambient temperature (>50°C), front and side clearances shall be 100 mm minimum. The ambient temperature should be measured on the underside of the unit. There will be an increase of 25°C at the top. If natural convection is restricted, forced cooling should be used. Mounting should comply with EN 60950-1 point 4.7 and 4.6.1. Protection class of the case IP20 (EN 60529).

(5) Mounting [7]

The rail should be fixed solidly so that it cannot twist when mounting or removing the unit. Mounting instructions [5], Removing instructions [6].

(6) Switching on

Factory set, ready to use, check the connection diagrams for parallel and series connection. Check the connection diagram for DC use [13].

(7) Loading capacity

The nominal current is 40 A but due to the nature of industrial loading, the power supply has been designed to support loads with high inrush currents without damage or shutdown. Curve [8] shows the typical voltage / current curve. Decreasing part of the curve [8] shows the current limitation. Curve [9] shows the typical overload / temperature limit. To ensure correct convection cooling, the unit must always be mounted with rail horizontally. Power supply is designed to give 150% output power (power boost) for min. 4 seconds [10].

(8) Parallel connection [11]

Up to 2 units may be connected in parallel. The open circuit voltage of each unit should be set to same value. Accuracy of setting will determine how well the units share the load current. The gauge and length of the cable between each power supply and the common point should be the same.

(9) Series connection

Up to 2 units may be connected in series to give either 48 VDC or +/-24 VDC. Check the connection diagram [12].

(10) Using circuit breakers on the power supply output.

Using circuit breakers on the power supply output side up to 28 VDC we recommend "MICO". For example: MICO 4.10, Art. No. 9000-41034-0401000.

More models on request or on our homepage: www.murrelektronik.com

For higher output voltages (series connection) and standard circuit breakers, power supply will trip, for example the following ABB-STOTZ circuit breaker:

- S201-C6A
- S201-Z16A

(11) Standards

Electrical safety	IEC / EN 60950-1 (CB Scheme), CSA, SELV CSA C22.2 No 14, ANSI/UL508
EMC	EN 61204-3 (2000); EMI: Class B, EMS: Industrial environment, GL
Immunity	EN 61000-4-2 (1995) ESD 4/8 kV EN 61000-4-3 (2002) RF-field 10 V/m EN 61000-4-4 (1995) EFT/B 2/2 kV EN 61000-4-5 (1996), Surge 1/2 kV; 500 V EN 61000-4-6 (1996) Cond. Rf 10 V EN 61000-4-11 (1994)
Emissions	EN 55022 B, RF-emissions EN 61000-3-2 (2006) (valid with three phase use) EN 61000-3-3 (1995) EN 60204-1 60 V / 1 s

We reserve the right to change this specification.