

Frequency inverters System overview

PERFECTION IN AUTOMATION
A MEMBER OF THE ABB GROUP



B&R frequency inverters – Total integration



ETHERNET
POWERLINK

Economical drive technology for industrial machines

Highest efficiency, improved competitiveness, reduced energy consumption and lower maintenance costs. With its new ACOPOSinverter P66, P76, P86 and P96 products, B&R offers machine builders a wide range of new frequency inverters that optimally meet all requirements for low-cost to high-end applications.

Save cabinet space

ACOPOSinverter P66 and P76 units are designed to cover a power range between 0.18 and 15 kW. With an installation width of 45 mm (up to 1.5 kW) and 60 mm (up to 4 kW), ACOPOSinverter P76 systems save a large amount of space when installed in the control cabinet. With the ACOPOSinverter P66, the user receives maximum flexibility through the use of a wide variety of fieldbus technologies – POWERLINK, X2X-Link and CANopen.

Frequency inverters for a wide range of applications

The ACOPOSinverter P86 is a frequency inverter for three-phase synchronous and induction motors with and without a sensor. It covers a wide power spectrum from 0.75 to 75 kW. The P86 is particularly suitable for packaging, conveyor or material processing applications.

Powerful frequency inverters that meet the highest demands in industrial environments

The new ACOPOSinverter P96 frequency inverter from B&R is particularly suitable for machines that require high power for their drive systems. It covers a power spectrum for three-phase motors from 55 to 250 kW. The compact device is particularly robust and features modern motor control technology as well as integrated safety technology (STO).

Safety level PL e

Integrated safety is an important highlight of this inverter family. The following safety functions are always integrated in these devices: STO (Safe Torque Off), SLS (Safely Limited Speed), SS1 (Safe Stop 1) SMS (Safe Maximum Speed) and GDL (Guard Door Locking) for the ACOPOSinverter P66, P76 and P86. Depending on the configuration and wiring of the frequency inverter, these safety functions satisfy IEC/EN 61508-1 SIL 2/3 and ISO 13849-1 PL d/e requirements.

Quick and easy configuration

These frequency inverters are configured and diagnosed using Automation Studio. All parameters are saved to the PLC and transferred to the frequency inverter automatically. Commissioning can therefore be done quickly and easily without requiring specific knowledge of frequency inverters.

ACOPoSinverter P96



819601124A5.0000-0	819601564A5.0000-0	81960180A5.0000-0	819601240A5.0000-0	819601260A5.0000-0	819601361A5.0000-0	819601414A5.0000-0	819604503A5.0000-0
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Features
Applications
Power supply
EMC according to EN 61800-3:2004 + A1:201 Categories C3 and C2 with internal option
Power rating [kW]
Power rating [HP]
Nominal current [A] at nominal switching frequency
Output frequency
Switching frequency
Motor control
Operational conditions
Relative humidity
Dimensions (width x height x depth) [mm]
Weight [kg]

<p>Fully integrated in Automation Studio, integrated ETHERNET POWERLINK, integrated safety functions (STO) according EN/IEC 61800-5-2) IEC 61508 ed2: SIL 3, IEC 61511: SIL 3, EN/IEC 62061: SIL CL 3, EN ISO 13849-1: PL e, direct torque control (DTC) as standard, for high performance motor control, built-in EMC filter</p>							
<p>The ACOPoSinverter P96 are customized to the precise needs of industries such as oil and gas, mining, metals, chemicals, cement, power plants, material handling, pulp and paper and sawmills. They are designed to control a wide range of applications including cranes, extruders, winches, winders, conveyors, mixers, compressors, pumps and fans.</p>							
<p>Three phase 380 -15% to 500 +10% VAC 50 to 60 Hz ±5%</p>							
x	x	x	x	x	x	x	x
55	75	90	110	132	160	200	250
75	100	236	150	200	250	250	350
125	156	180	240	260	361	414	503
<p>0.1 to 500 Hz</p>							
<p>1 to 16 kHz 2.7 kHz nominal</p>							
<p>The ACOPoSinverter P96 are equipped with direct torque control (DTC), which provides precise speed and torque control for all applications and supports virtually any type of motor. The ACS880 provides reliable control for various motors, such as squirrel cage, high-torque or servo-type permanent magnet, synchronous reluctance (SynRM), submersible and high-speed motors.</p>							
<p>Ambient temperature: 0°C to 40°C (up to 55°C with derating)</p>							
<p>5 to 95%, non-condensing</p>							
870	992	1145		1145		1541	
325	400	485		485		350	
580	568	655		655		506	
42.2	53.0	68.0		95		161	

ACOPOSinverter P66



Possible interfaces for xx:

- OC - CAN
- OP - POWERLINK
- OX - X2X Link

8166S200018.xx-000

8166S200037.xx-000

8166S200055.xx-000

8166S200075.xx-000

8166S200110.xx-000

8166S200150.xx-000

8166S200220.xx-000

8166T200018.xx-000

8166T200037.xx-000

8166T200055.xx-000

8166T200075.xx-000

8166T200110.xx-000

8166T200150.xx-000

8166T200220.xx-000

8166T200300.xx-000

Features

Fully integrated in Automation Studio, integrated PROFIBUS DP and ISO 13849 PL d/e requirements

Applications

Material handling (conveyors, palletizers), packaging, kneading machines

Power supply

Single phase 200 -15% to 240 +10% VAC
50 to 60 Hz ±5%

Three phase 200 -15% to 240 +10% VAC
50 to 60 Hz ±5%

Integrated EMC filter
IEC/EN 61800-3 category C2 / C3

x

x

x

x

x

x

x

x

x

x

x

x

x

x

x

Power rating [kW]

0.18

0.37

0.55

0.75

1.1

1.5

2.2

0.18

0.37

0.55

0.75

1.1

1.5

2.2

3

Power rating [HP]

0.25

0.5

0.75

1

1.5

2

3

0.25

0.5

0.75

1

1.5

2

3

4

Nominal current [A]
at nominal switching frequency

1.5

3.3

3.7

4.8

6.9

8

11

1.5

3.3

3.7

4.8

6.9

8

11

13.7

Maximum transient current [A]

150%

2.3

5

5.6

7.2

10.4

12

16.5

2.3

5

5.6

7.2

10.4

12

16.5

20.6

Output frequency

Switching frequency

Transient overtorque

Motor control

Induction motor: Vector control without speed feedback: 1. With V/f characteristic curve for constant torque. Default profile 1. With V/f characteristic curve for constant torque. Default profile 2. With V/f characteristic curve for constant torque (150% torque for 100% frequency)
Synchronous motor: Vector control without speed feedback

Operational conditions

Ambient temperature

Dimensions
(width x height x depth) [mm]

72
188
109

72
188
128

72
188
143

105
188
158

72
188
143

105
188
158

105
188
158

143
222
158

Weight [kg]

0.8

1.0

1.1

1.6

0.9

1.0

1.4

2.2

8166T200400.xx-000	8166T200550.xx-000	8166T200750.xx-000	8166T201100.xx-000	8166T201500.xx-000	8166T400037.xx-000	8166T400055.xx-000	8166T400075.xx-000	8166T400110.xx-000	8166T400150.xx-000	8166T400220.xx-000	8166T400300.xx-000	8166T400400.xx-000	8166T600075.xx-000	8166T600150.xx-000	8166T600220.xx-000	8166T600400.xx-000	8166T600550.xx-000	8166T600750.xx-000	8166T601100.xx-000	8166T601500.xx-000
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HERNET
POWERLINK integrated safety functions (STO, SLS, SS1, SMS, GLD), satisfies IEC/EN 61508-1 SIL 2/3
 ports, external and integrated 24 VDC power supply, common DC bus connection

packing and packaging machines, strapping machines, washing machines, milling machines,
 machines, mixers, textile machines, pumps, fans, compressors

0% VAC					Three phase 380 -15% to 525 +10% VAC 50 to 60 Hz ±5%								Three phase 525 -15% to 600 +10% VAC 50 to 60 Hz ±5%							
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4	5.5	7.5	11	15	0.37	0.55	0.75	1.1	1.5	2.2	3	4	0.75	1.5	2.2	4	5.5	7.5	11	15
5	7.5	10	15	20	0.5	0.75	1	1.5	2	3	4	5	1	2	3	5	7.5	10	15	20
17.5	27.5	33	54	66	1.5	1.9	2.3	3	4.1	5.5	7.1	9.5	1.7	2.7	3.9	6.1	9	11	17	22

5 of the nominal drive current for 60 s (typical value)

23.6	41.3	49.5	81.0	99.0	2.3	2.9	3.5	4.5	6.2	8.3	10.7	14.3	2.6	4.1	5.9	9.2	13.5	16.5	25.5	33
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0.1 to 599 Hz
 2 to 16 kHz
 4 kHz nominal

170% of nominal motor torque (typical value)

ult profile 2. With V/f characteristic curve for quadratically increasing torque. Energy-saving profile e.g. for fans and pumps. Slip control without speed feedback:
 5 f ranges). Profile for individual special applications. 3. With V/f characteristic curve for quadratically increasing torque. Energy-saving profile e.g. for fans and pumps.
 out speed feedback: 1. With V/f characteristic curve for constant torque. Default profile

st temperature: -10°C to 50°C (up to 60°C with derating)
 Relative humidity: 5 to 95%, non-condensing


0	150	180		105	140	105	140	150	180				
8	308	404		188	228	188	228	308	404				
8	178	198		158	158	158	158	178	198				
2	3.6	6.8	6.9	1.2	1.3	2.1	2.2	1.3	2.0	3.5	3.6	6.8	6.9

Fea
App
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Wei

OPOSinverter P76



8176S200018.0P-000	8176S200037.0P-000	8176S200055.0P-000	8176S200075.0P-000	8176S200110.0P-000	8176S200150.0P-000	8176S200220.0P-000	8176T400037.0P-000	8176T400055.0P-000	8176T400075.0P-000	8176T400110.0P-000	8176T400150.0P-000	8176T400220.0P-000	8176T400300.0P-000	8176T400400.0P-000	8176T400550.0P-000	8176T400750.0P-000	8176T401100.0P-000	8176T401500.0P-000
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Features	Fully integrated in Automation Studio, integrated  POWERLINK , integrated safety functions (STO, SLS, SS1, SMS, GDL), satisfies IEC/EN 61508-1 SIL 2/3 and ISO 13849 PL d/e requirements, external and integrated 24 VDC power supply, common DC bus connection																		
Applications	Material handling (conveyors, palletizers), packing and packaging machines, strapping machines, washing machines, milling machines, kneading machines, mixers, textile machines, pumps, fans, compressors																		
Power supply	Single phase 200 -15% to 240 +10% VAC 50 to 60 Hz ±5%							Three phase 380 -15% to 500 +10% VAC 50 to 60 Hz ±5%											
Integrated EMC filter EN 61800-3 category C2 / C3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Power rating [kW]	0.18	0.37	0.55	0.75	1.1	1.5	2.2	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15
Power rating [HP]	0.25	0.5	0.75	1	1.5	2	3	0.5	0.75	1	1.5	2	3	4	5	7.5	10	15	20
Nominal current [A]	1.5	3.3	3.7	4.8	6.9	8	11	1.5	1.9	2.3	3	4.1	5.5	7.1	9.5	14.3	17	27.7	33
Nominal switching frequency	150% of the nominal drive current for 60 s (typical value)																		
Maximum transient current [A]	2.3	5	5.6	7.2	10.4	12	16.5	2.3	2.9	3.5	4.5	6.2	8.3	10.7	14.3	21.5	25.5	41.6	49.5
Output frequency	0.1 to 599 Hz																		
Switching frequency	2 to 16 kHz 4 kHz nominal																		
Transient overtorque	170% of nominal motor torque (typical value)																		
Motor control	Induction motor: Vector control without speed feedback: 1. With V/f characteristic curve for constant torque. Default profile 2. With V/f characteristic curve for quadratically increasing torque. Energy-saving profile e.g. for fans and pumps. Slip control without speed feedback: 1. With V/f characteristic curve for constant torque. Default profile 2. With V/f characteristic curve for constant torque (6 f ranges). Profile for individual special applications. 3. With V/f characteristic curve for quadratically increasing torque. Energy-saving profile e.g. for fans and pumps. <u>Synchronous motor</u> : Vector control without speed feedback: 1. With V/f characteristic curve for constant torque. Default profile																		
Operational conditions	Ambient temperature: -10°C to 50°C (up to 60°C with derating) Relative humidity: 5 to 95%, non-condensing																		
Dimensions (width x height x depth) [mm]	45 325 245			60 325 245			45 325 245			60 325 245			150 308 232			180 404 232			
Weight [kg]	1.59	1.65		1.95		2.07	1.62	1.72		1.71		2.32	2.12	2.18		4.20		6.75	

ACOPOS Inverter P86



8186T40075.0P-000
8186T400150.0P-000
8186T400220.0P-000
8186T400300.0P-000
8186T400400.0P-000
8186T400550.0P-000
8186T400750.0P-000
8186T401100.0P-000
8186T401500.0P-000
8186T401850.0P-000
8186T402200.0P-000
8186T403000.0P-000
8186T403700.0P-000
8186T404500.0P-000
8186T405500.0P-000
8186T407500.0P-000

Features	Fully integrated in Automation Studio, integrated ETHERNET POWERLINK , integrated safety functions (STO), satisfies IEC/EN 61508-1 SIL 3, external and integrated 24 VDC power supply, common DC bus connection															
Applications	High performance application requirement and superior automation capabilities for material handling (conveyors, palletizers), packing and packaging machines, strapping machines, washing machines, milling machines, kneading machines, mixers, textile machines, pumps, fans, compressors															
Power supply	Three phase 380 -15% to 500 +10% VAC 50 to 60 Hz ±5%															
Integrated EMC filter IEC/EN 61800-3 category C2 / C3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Power rating [kW]	0.75	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75
Power rating [HP]	1	2	3	4	5	7.5	10	15	20	25	30	40	50	60	75	100
Nominal current [A] at nominal switching frequency	2.2	4	5.6	7.2	9.3	12.7	16.5	24	32	39	46	61.5	74.5	88	106	145
Maximum transient current [A]	150% of the nominal drive current for 60 s (typical value)															
	3.3	6	8	11	14	19.1	24.8	36	48	59	69	92.3	111.8	132	159	217.5
Output frequency	0.1 to 599 Hz										0.1 to 500 Hz					
Switching frequency	2 to 16 kHz 4 kHz nominal										1 to 8 kHz 2,5 kHz nominal					
Transient overtorque	220% Tn for 2 s (typical value)										180% Tn for 2 s (typical value)					
Motor control	Induction motors: Flux vector control without encoder, voltage/frequency ratio (2 or 5 points), energy saving, quadratic ratio for pumps and fans Synchronous motors: Vector control without feedback, closed-loop synchronous motor control, synchronous reluctance motor control															
Operational conditions	Ambient temperature: 0°C to 50°C (up to 60°C with derating)										-15°C to 50°C (60°C derating)			-15°C to 40°C (50°C derating)		
Relative humidity	5 to 95%, non-condensing															
Dimensions (width x height x depth) [mm]	85 270 232,5				110 270 234				180 385 249				213 660 262		271 908 309	
Weight [kg]	1.7	1.8	2.1	2.2	2.9	3.0	9.5	10.2	27.9	28.4	56.4	57.9	58.4			

Integrated automation
Global presence
Solid partnership



ETHERNET 
POWERLINK

open 
SAFETY

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