



**BONFIGLIOLI
VECTRON**

SYNTHESIS

SINGLE PHASE
115 V 0.2 - 0.4 kW
230 V 0.2 - 2.2 kW

THREE PHASE
400 V 0.75 - 2.2 kW



BONFIGLIOLI

Power & Control Solutions



SPECIFICATION

- Compact size and economical
- Versatile
- Easy to use
- Version IP65 available with integrated switches (optional)
- Din rail mounting option
- Built in class A EMI filter (class B optional available)
- Braking resistor connectable (since 0.75 kW)



IP65 S option:

- speed potentiometer
- on/off motor switch
- main switch

Sample model identification

SYN10	S	220	05	AF	IP65	S
	Input phases	Power voltage	Rated power	EMC filter	Protection degree	Switches
Inverter series	S = single phase T = three phase	115 = 115V 220 = 220V 400 = 400V	01 = 0.2 kW 03 = 0.4 kW 05 = 0.75 kW 07 = 1.5 kW 09 = 2.2 kW	AF = integrated class A filter not available for S115	_ = IP20 IP65 = IP65 only for: S220 AF 01/03/05 S115 01/03	_ = without switches S = with switches and potentiometer (IP65 only)



Mounting dimensions

Inverter SYN10	W	W1	H	H1	D
S 115 and S 220 AF 01/03/05	72	61	131	116	118
S 220 AF 07/09 T 400 AF 05/07/09	118	108	143	127.5	172
IP65 NEMA 4 Version					
S 220 AF 01/03/05 with switches	141	124	216	199	183
S 220 AF 01/03/05 without switches	141	124	216	199	170

Braking resistor selection

Inverter model	Braking mod. built-in	Braking resistor
SYN10 S 220 07/09 AF	Yes	SR-0.75-S
SYN10 T 400 05 AF	Yes	SR-0.75-T
SYN10 T 400 07 AF	Yes	SR-1.5-T
SYN10 T 400 09 AF	Yes	SR-2.2-T

Class B EMI filter book size mounting

Inverter model	Filter model	Dim. (mm) LxAxP	Curr. (A)
SYN10 S 220 01 AF	FT1000-0.4-S	36x189x71	6.5
SYN10 S 220 03 AF			
SYN10 S 220 05 AF	FT1000-0.75-S	36x191x110	18
SYN10 S 220 07 AF			
SYN10 S 220 09 AF	FT1000-2.2-S	41x191x174	29
SYN10 T 400 05 AF			
SYN10 T 400 07 AF	FT1000-2.2-T	41x191x110	10
SYN10 T 400 09 AF			

● Functional specifications

SYN10		S115		S220				T400			
		01	03	01 AF	03 AF	05 AF	07 AF	09 AF	05 AF	07 AF	09 AF
Suitable Motor Power Rating (kW)		0.2	0.4	0.2	0.4	0.75	1.5	2.2	0.75	1.5	2.2
Output Current (A)		1.4	2.3	1.4	2.3	4.2	7.5	10.5	2.3	3.8	5.2
Capacity (KVA)		0.53	0.88	0.53	0.88	1.6	2.9	4.0	1.7	2.9	4.0
Weight (Kg)		0.7	0.72	0.76	0.77	0.8	1.66	1.76	1.6	1.62	1.68
Input Voltage Max.		Single phase 100-120V		Single phase 200-240V		Single/Three phases 200-240V		Three phases 380 - 460V			
		Variations: voltage (+10%, -15%), frequency 50/60 Hz (+/-5%)									
Output Voltage Max.		Three phases 200 - 240V						Three phases 380 - 460V			
Dimensions LxAxP (mm)		72x132x118					118x143x172				
EMC specification		not available		Class A built in filter							
Input Signal Type		PNP type (SOURCE) input (external 24VDC Input allowed)									
Control Method		Sinusoidal wave PWM control									
Freq. control	Freq. Range	1~200 Hz									
	Resolution Setting	Digital: 0.1 Hz (1 ~ 99.9 Hz); 1 Hz (100 ~ 200 Hz); Analog: 1Hz/ 60 Hz									
	Keyboard Setting	Directly setup by ▲ and ▼ buttons.									
	External Signal Setting	0~10V, 4 ~ 20mA, 0 ~ 20mA									
	Other function	Frequency upper and lower limit									
Main features	Carrier frequency	4~16 kHz									
	Accelerate/Decelerate time	0.1~ 999 sec									
	V/F Pattern	6 Patterns									
	Torque control	Torque boost level adjustable (manual torque boost)									
	Multi-Functional input	2 point, to be used as multi-speed 1(Sp.1) / multi-speed 2(Sp.2) / Jog / External emergency stop / External base block / Reset									
	Multi-Functional output	Relay terminal, to be setup as Fault / Running / Frequency									
Braking Torque	S115, S220 01, 03 and 05: about 20%;										
	S220 07, 09 and T400: 20%~100% built-in braking transistor										
Other function	Decelerate or free run stop, Auto reset, DC braking frequency / Voltage / Time can be setup by constants										
Display		Three digital LED display frequency / inverter parameter / fault record / program version									
Operating temperature		-10°C ~ +40 °C (with cover removed: -10°C ~ +50°C)									
Humidity		0~95% RH non-condensing									
Vibration		Under 1 G (9.8 m/s ²)									
EMC specification		EN5008-1, EN5008-2, EN50082-1, EN50082-2, EN50178									
UL		UL508C									
Protection functions	Overload protection	150% for 1 min.									
	Over-voltage	DC voltage > 410V (220 series); DC voltage > 800V (400 series)									
	Under voltage	DC voltage < 200V (220 series); DC voltage < 400V (400 series)									
	Momentary Power-loss	0 ~ 2 sec: The inverter can be restarted using speed search feature									
	Stall Prevention	During Acceleration / Deceleration / Constant speed									
	Output Short-circuit	Electronic circuitry protection									
	Grounding fault										
Other functions	Heat sink overheat protection, Current limit										
Installation		Mounting screw or DIN rail (Option)									

Function	F_	Function description	Unit	Range	Factory setting
	00	Factory Adjustment			0
Accel. Time	01	Acceleration time	0.1 sec	0.1 ~ 999 s	5.0
Decel. Time	02	Deceleration time	0.1 sec	0.1 ~ 999 s	5.0
Operation mode	03	0: Forward / Stop, Reverse / Stop 1: Run/Stop, Forward / Reverse	1	0 ~ 1	0
Motor rotation direction	04	0: Forward 1: Reverse	1	0 ~ 1	0
V/F Pattern	05	V/f pattern setting	1	1 ~ 6	1/4
Frequency upper/lower limit	06	Frequency upper limit	0.1 Hz	1.0 ~ 200Hz	50/60 Hz
	07	Frequency lower limit	0.1 Hz	0.0 ~ 200Hz	0.0 Hz
SP1 frequency	08	SP1 frequency	0.1 Hz	1.0 ~ 200Hz	10 Hz
JOG frequency	09	JOG frequency	0.1 Hz	1.0 ~ 200Hz	6 Hz
Start / Stop Control	10	0: Keypad 1: Terminal (TM2)	1	0 ~ 1	0
Frequency Control	11	0: Keypad 1: Terminal (0~10v / 0~20mA) 2: Terminal (4~20mA)	1	0 ~ 2	0
Carrier frequency control	12	Carrier Frequency Setting	1	1 ~ 10	5
Torque boost	13	Torque compensation gain	0.1%	0.0 ~ 10.0%	0.0%
Stop method	14	0: controlled deceleration stop 1: free run to stop	1	0 ~ 1	0
DC braking setting	15	DC braking time	0.1 s	0.0 ~ 25.5 s	0.5 s
	16	DC braking injection frequency	0.1 Hz	1 ~ 10 Hz	1.5 Hz
	17	DC braking level	0.1%	0.0 ~ 20.0%	8.0%
Electronic thermal Overload protection	18	Protection base on motor rated current	1%	0 ~ 200%	100%
Multifunction input connection point	19	Multifunction input terminal 1 (SP1) function	1: Jog 2: SP1		2
	20	Multifunction input terminal 2 (RESET) function	3: Quick stop 4: External Base Block 5: Reset 6: SP2		5
Multifunction output	21	Multifunction output terminal	1: Operating 2: Frequency reached 3: Fault		3
Reverse Lock-Out	22	0: REV run 1: REV run Lock-Out	1	0 ~ 1	0
Activity on momentary power loss	23	0: enabled 1: disabled	1	0 ~ 1	0
Auto restart	24	Number of Auto-restart times	1	0 ~ 5	0
Factory setting	25	010: Constants initialization to 50 Hz system 020: Constants initialization to 60 Hz system			
SP2 frequency	26	SP2 frequency	0.1 Hz	1.0~200 Hz	20
SP3 frequency	27	SP3 frequency	0.1 Hz	1.0~200 Hz	30
Motor direct start	28	0: enabled 1: disabled	1	0 ~ 1	1
Software version	29	CPU program version			
Fault Log	30	Fault log for three faults			

