



S2U IP66 SERIES

Variable Frequency Drive

 **Bonfiglioli**

S2U

VARIABLE FREQUENCY DRIVE:

THE IDEAL DRIVE FOR YOUR LEAN APPLICATION PROJECTS

Bonfiglioli S2U IP66 drives are designed to be fast to install.

Compact and cost effective, S2U IP66 is suitable for a wide range of machinery applications requiring extreme conditions such as dust, moisture and cleaning chemicals.

S2U IP66 range is made of 3 frame sizes and kW rating from 0.4 kW up to 18.5 kW.

The integrated Keypad makes setup and commission easier.

Thanks to its integrated PLC functions and Ladder language complying with standard IEC61131, S2U IP66 allows the machines to be customised.

Moreover, it can be easily integrated into any control architecture thanks to the built-in Modbus port and the wide range of standard communication configuration protocols available.

Easy Plug in of PC Vplus with S2U Manager is granted via the integrated RJ45 connector for high level commissioning.



MECHATRONICS

THE CHALLENGE TO BUILD YOUR SUCCESS

Faster, better and cheaper - this is the new challenge for machine designers!

Increasing demands regarding the productivity of complex system machines, and thus more flexible machines which run at highest efficiency levels, now require new intelligent technical solutions that enhance future growth. Bonfiglioli has implemented a detailed strategy to precisely achieve this objective!

Mechatronic Drives & Solutions division is born with the mission to improve profitability by acting as a reliable partner and a provider of energy-efficient solutions over the total lifecycle in the field of industrial automation.



SYSTEM
INTEGRATION



EXPERTISE



ENERGY
SAVING

TYPE OF APPLICATIONS

- High environment immunity
- High braking ability without braking resistor
- High torque at low speed
- Heat sink designed for dusty environment



PACKAGING
INDUSTRY



FANS, PUMPS
AND MIXERS



TEXTILE
MACHINES



MATERIALS
HANDLING



WOOD
PROCESSING



FOOD,
BEVERAGE &
TOBACCO

DESIGNATION

S2U IP66 series

Basic variants



S2U

400

T

-

21

F

Noise filter
F Built-in
(blank) None

Power
03 0.4 kW
07 0.75 kW
11 1.5 kW
13 2.2 kW
18 3.7 kW
19 5.5 kW
21 7.5 kW
23 11 kW
25 15 kW
27 18.5 kW

Phase number
S Single phase
T Three phase

Supply
230 200-240 V
400 380-480 V

Series
S2U inverter S2U



FEATURES

- Sensorless Vector and V/f control
- Motor Auto-tuning function
- Integrated braking transistor for all series
- RTU Modbus RS485 interface through RJ45
- 150% starting torque at 1 Hz
- Carrier frequency: 1~16 kHz
- Firemode
- Accl.and Decel. Control: 4 S curve setting
- 16 preset speeds
- Buil-in PID controller
- Pulse train frequency reference
- Emergency stop function built-in complying with global standard
- Internal PLC functions with Ladder language
- 32 bit CPU
- Integrated EMC filter
- Torque compensation
- Slip compensation

FEATURES



	Features	Benefits
Performance	32 bit Processor with advanced IGBT power switching frequency.	Advanced and accurate sensorless vector control providing high starting torque at low speed.
Intelligence	Built-in PLC functions and PID controller.	Provide accurate control and regulation for frequency, Pressure, Air volume in applications such as HVAC without PLC Programing.
Robustness	IP66 degree protection version rating up to 18.5 kW	Suitable for harsh environment protecting machine from high Pressure water jets from any direction.
Reliability	Built-in EMC filter in compliance with IEC/EN61800-3	Lower electromagnetic interference allowing a safe machine environment.

GENERAL TECHNICAL DATA

200 V Class: Single phase

Model: S2U230S-□□ F IP66	03	07	11	13
Suitable motor capacity [kW]	0.4	0.75	1.5	2.2
Rated output current [A]	3.1	4.5	7.5	10.5
Rated capacity [KVA]	1.2	1.7	2.90	4.00
Input voltage range [V]	Single Phase: 200~240 V, 50/60 Hz			
Allowable voltage fluctuation	+10%-15%			
Output voltage range [V]	Three phase: 0~240 V			
Input current [A]*	8.5	12	16	23.9
Inverter net weight [kg]	1.65	1.65	2.5	2.5
Allowable momentary power loss time [s]	2.0	2.0	2.0	2.0
Enclosure	IP20/NEMA1&IP66/NEMA4X			

* The input current is calculated value at full rated output current.

400 V Class: Three phase

Model: S2U400T-□□ F IP66	07	11	13	18
Suitable motor capacity [kW]	0.75	1.5	2.2	3.7
Rated output current [A]	2.3	3.8	5.2	8.8
Rated capacity [KVA]	1.7	2.9	4.0	6.7
Input voltage range [V]	Three phase: 380~480 V, 50/60 Hz			
Allowable voltage fluctuation	+10%-15%			
Output voltage range [V]	Three phase: 0~480 V			
Input current [A]*	4.2	5.6	7.3	11.6
Inverter net weight [kg]	1.7	1.7	2.5	2.5
Allowable momentary power loss time [s]	2.0	2.0	2.0	2.0
Enclosure	IP20/NEMA1&IP66/NEMA4X			

* The input current is calculated value at full rated output current.

400 V Class: Three phase

Model: S2U400T-□□ (F) IP66	19	21	23	25	27
Suitable motor capacity [kW]	5.5	7.5	11	15	18.5
Rated output current [A]	13.0	17.5	24	32	40
Rated capacity [KVA]	9.9	13.3	19.1	24	30.5
Input voltage range [V]	Three phase: 380~480 V, 50/60 Hz				
Allowable voltage fluctuation	+10%-15%				
Output voltage range [V]	Three phase: 0~480 V				
Input current [A]*	17	23	31	38	48
Inverter net weight [kg]	6.7	6.7	6.7	13.7	13.7
Allowable momentary power loss time [s]	2.0	2.0	2.0	2.0	2.0
Enclosure	IP20/NEMA1&IP66/NEMA4X				

* The input current is calculated value at full rated output current.

GENERAL TECHNICAL DATA

IP66 / NEMA 4X Type

Model	Supply voltage (Vac)	(kW)	Filter	Switch	Frame Size
S2U230S-03 F IP66	1 ph 200~240 V +10%-15% 50/60 Hz	0.4	V	V	1
S2U230S-07 F IP66		0.75	V	V	1
S2U230S-11 F IP66		1.5	V	V	2
S2U230S-13 F IP66		2.2	V	V	2
S2U400T-07 F IP66	3 ph 380~480 V +10%-15% 50/60 Hz	0.75	V	V	1
S2U400T-11 F IP66		1.5	V	V	1
S2U400T-13 F IP66		2.2	V	V	2
S2U400T-18 F IP66		3.7	V	V	2
S2U400T-19 F IP66		5.5	V	V	3
S2U400T-21 F IP66		7.5	V	V	3
S2U400T-23 F IP66		11	V	V	3
S2U400T-25 IP66		15	-	-	3
S2U400T-27 IP66		18.5	-	-	3

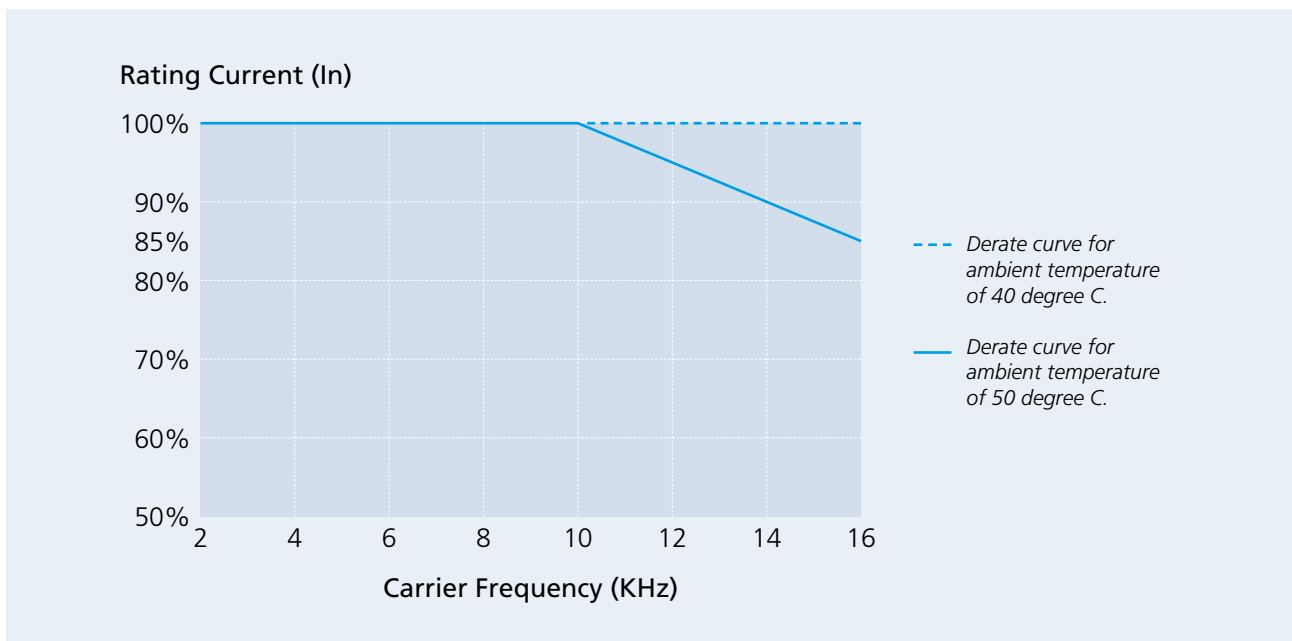
V: Built-in / - : None

De-rating curves

Curves below show the applicable output current de-rate due to setting of carrier frequency and the ambient operating temperatures of 40 and 50 degrees C.

Frame 1/2/3/4

(Single phase: 200 V: 0.4 ... 2.2 kW; Three phase: 400 V: 0.75 ... 18.5 kW)



GENERAL TECHNICAL DATA

CE conformity	The S2U frequency inverters meet the requirements of the low voltage directive 2006/95/EEC and DIN EN 61800-5-1.
EMC directive	For proper installation of the frequency inverter in order to meet the requirements of EN 61800-3, please comply with the installation instructions in these operating instructions.
Interference immunity	The S2U frequency inverters meet the requirements of EN 61800-3 for use in industrial environments.
UL Approval	The frequency inverters are also marked with the UL label according to UL508c, which proves that they also meet the requirements of the CSA Standard C22.2-No. 14.
Ambient temperature	Storage: -20 ... 60 °C (-4 ... 140 °F) Operation: -10 ... 50 °C (14 ... 122 °F) If several inverters are installed in the same Operator panel, ensure adequate spacing and provide the necessary cooling and ventilation for successful operation.
Environmental conditions	Operation: 3K3 (EN60721-3-3) Relative humidity: max 95%, no water condensation Notice prevention of inverter freezing up. (Compliance with IEC 60068-2-78).
Ingress protection rating	IP66
Shock resistance	1 G. (9.8 m/s ²) for 20 Hz and below 0.6 G (5.88 m/s ²) from 20 to 50 Hz (Compliance with IEC 60068-2-6)
Storage	Storage according to EN 50178 After one year of storage, connect the device to mains voltage for 60 minutes.

GENERAL TECHNICAL DATA

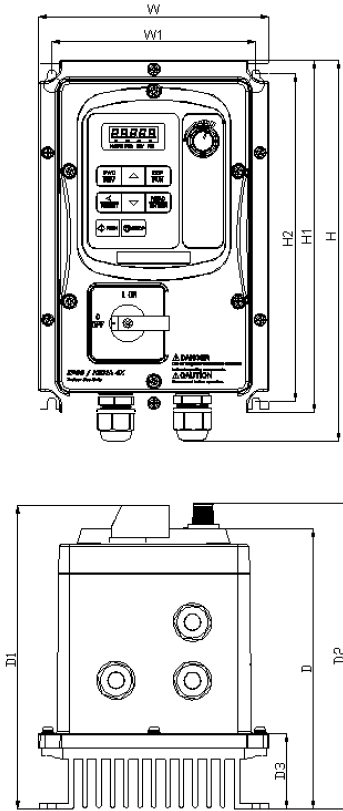
Control Mode		V/F Control, Vector Control
Frequency	Output Frequency	0.01~599.00 Hz
	Starting Torque	150% / 1 Hz (Vector)
	Speed Control Range	1:50
	Setting resolution	Digital input: 0.01 Hz Analog input: 0.06 Hz / 60 Hz
	Setting	Keypad: Set directly with ▲ ▼ keys or the VR on the keypad External Input Terminlas: AI1 (0/2~10 V), AI2 (0/4~20 mA) input Multifunction input up/down function(Group3) Setting frequency by communication method.
	Frequency limit	Lower and upper frequency limits 3 skip frequency settings.
Run	Operation set	Keypad run, stop button
		External terminals: Multi- operation-mode 2 / 3 wire selection Jog operation
		Run signal by communication method.
Main Control Features	V / F curve setting	18 fixed curves and one customized curve
	Carrier frequency	1~16 kHz
	Acceleration and deceleration control	2 off Acc / Dec time parameters. 4 off S curve parameters.
	Multifunction input	29 functions (refer to description on group 3)
	Multifunction output	21 functions (refer to description on group 3)
	Multifunction analog output	5 functions (refer to description on group 4)
	Main features	Overload Detection, 16 preset speeds, Auto-run, Acc/Dec Switch (2 Stages), Main/Alt run Command select, Main/Alt Frequency Command select, PID control, torque boost, V/F start Frequency, Fault reset, Firemode.

GENERAL TECHNICAL DATA

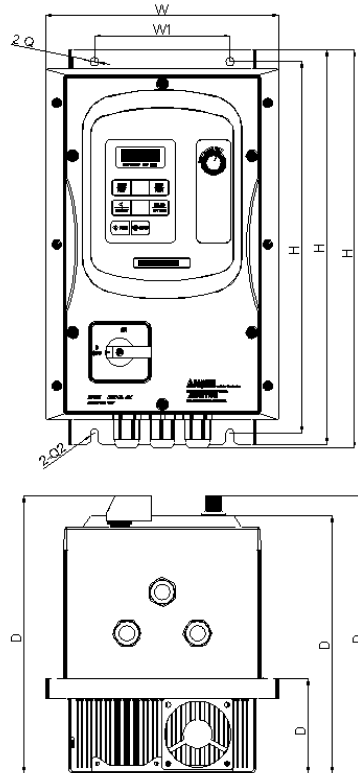
Display	LED	Display: parameter / parameter value / frequency / line speed / DC voltage / output voltage / output current / PID feedback / input and output terminal status / Heat sink temperature / Program Version / Fault Log.
	LED Status Indicator	Run / Stop / Forward / Reverse ,and etc.
Protective Functions	Overload Protection	The relays to protect the motor and the inverter. (150%/1min)
	Over voltage	220 V: >410 V, 380 V: >820 V
	Under Voltage	220 V: <190 V, 380 V: <380 V
	Momentary Power Loss Restart	Inverter auto-restart after a momentary power loss.
	Stall Prevention	Stall prevention for Acceleration/ Deceleration/ Operation.
	Short-circuit output terminal	Electronic Circuit Protection
	Grounding Fault	Electronic Circuit Protection
	Other protection features	Protection for overheating of heat sink. The carrier frequency decreasing with the temperature function, fault output, reverse prohibit, prohibit for direct start after power up and error recovery, parameter lock up
	All frames include brake transistor	
Communication control	Standard built-in RS485 communication (Modbus), One to one or One to many control.	

DIMENSIONS

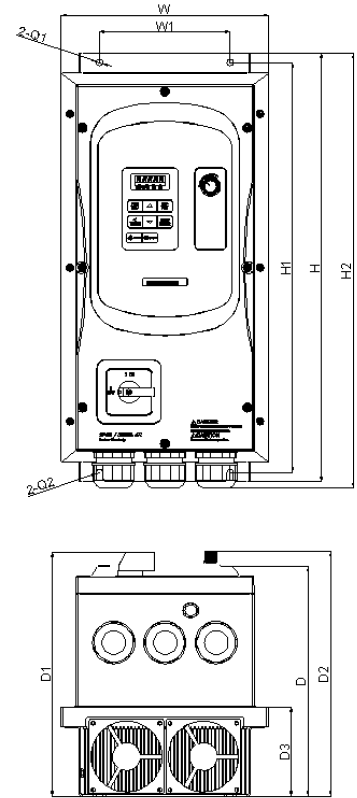
Frame 1
(Weight: 2.9 kg)



Frame 2
(Weight: 5.98 kg)



Frame 3
(Weight: 12.68 kg)



Frame	W	W1	H	H1	H2	D	D1	D2	D3	Q1	Q2	Q3
[mm]												
1	150.8	133.3	248.7	230.2	214.2	183	200	200	49.5	5.4	5.4	10.6
2	198	115	337.9	335	315	218.4	235.2	235.2	79.8	7	7	5.98
3	222.8	140	466.3	460	440	246.6	266.5	263.5	96	7	7	12.68

OUR GLOBAL PRESENCE

Thanks to an international network of closely interconnected commercial and production sites, we can guarantee the same high standards of Bonfiglioli quality anywhere at any given time. We know that our direct presence in local markets is the key to long-lasting success, so our family includes 15 production sites, 24 commercial sites and more than 550 distributors around the world.

Our organization is always close by, offering complete and efficient solutions and supporting our customers with dedicated services, co-engineering and after-sales assistance.



15
PRODUCTION SITES



24
COMMERCIAL SITES



80
COUNTRIES



550
DISTRIBUTORS



~4.000
PEOPLE

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 PRODUCTION

 ASSEMBLY

 SALES

 SERVICE



We have a relentless commitment to excellence, innovation & sustainability. Our team creates, distributes and services world-class power transmission & drive solutions to keep the world in motion.

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