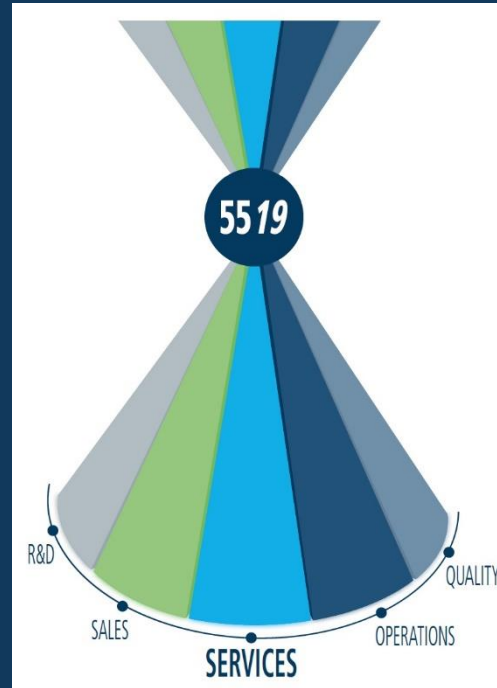
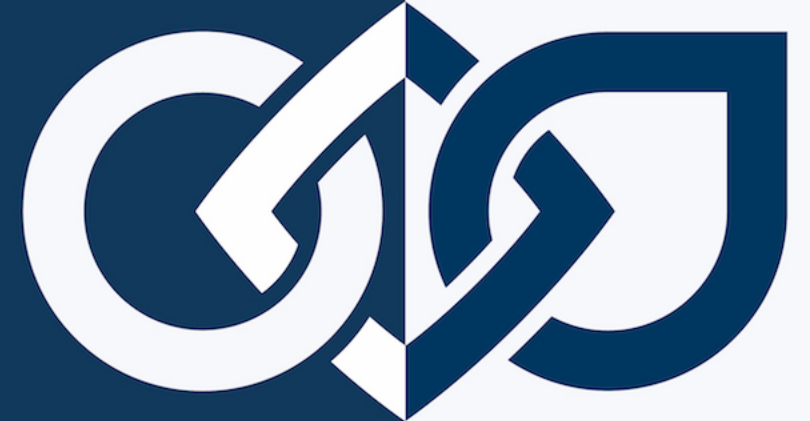


S2U IP66

The Future starts Today 5519



Stéphane SURMON,



- 1. Overview**
- 2. Key features**
- 3. PLC functions**
- 4. Technical Data**
- 5. Applications**
- 6. Order processing**
- 7. Product comparison (Syn10, S2U, S2U IP66)**

S2U-IP66 Overview



S2U-IP66 Overview

	Features	Benefits	Applications
Performance	32 bit Processor with advanced IGBT power switching frequency.	Advanced and accurate sensorless vector control. High starting torque at low speed	Small Handling machine Elevators for disabled people
Intelligence	Built-in PLC function and PID controller	Accurate control and regulation for frequency, Pressure, Air volume.	HVAC
Robustness	IP66 degree Protection version rating up 18,5 kW	Harsh environment protection Machine from High pressure water jets.	Food Processing Chemical industry Textile
Reliability	Built-in EMC filter in compliance with IEC/EN61800-3	Lower electromagnetic interference allowing a safe machine environment.	Process machinery with supervising monitor

S2U-IP66 Key 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 1Hz
- Carrier frequency: 1~16Khz
- **Firemode**
- Accl.and Decel. Control : **4 S curve setting**
- 16 preset speeds
- Built-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

S2U-IP66 PLC Functions

Special Register

Counter Instruction (4 modes)

Timer Instruction (7 modes)

Analog Comparing Instruction (3 modes)

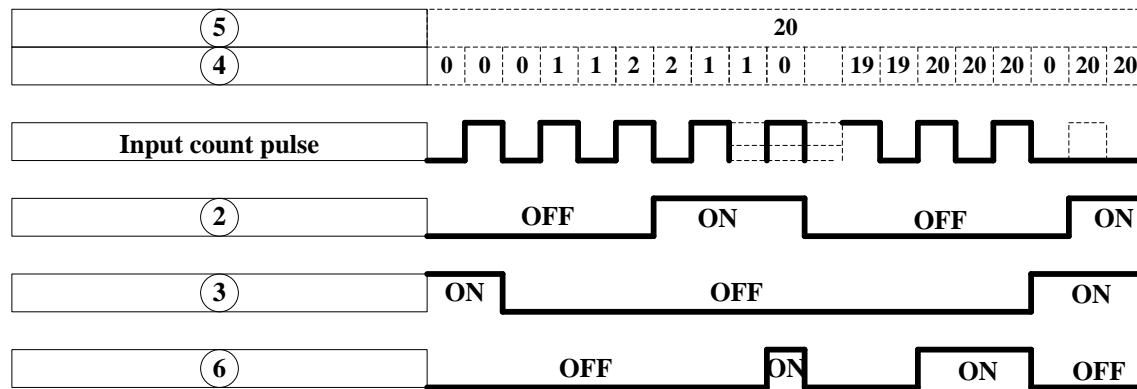
Encoder Comparing Instruction

ADD-SUB Instruction

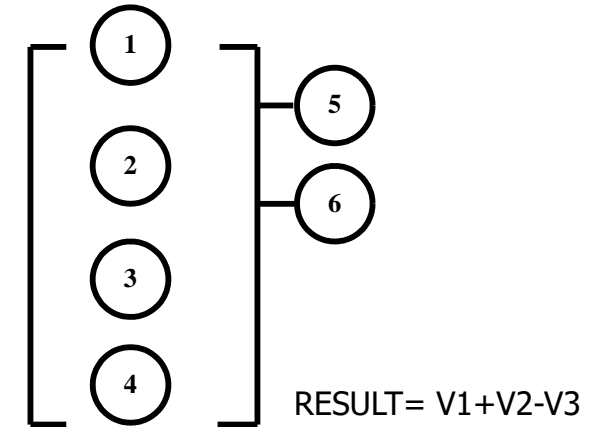
Mul-DIV Instruction

S2U-IP66 PLC Functions

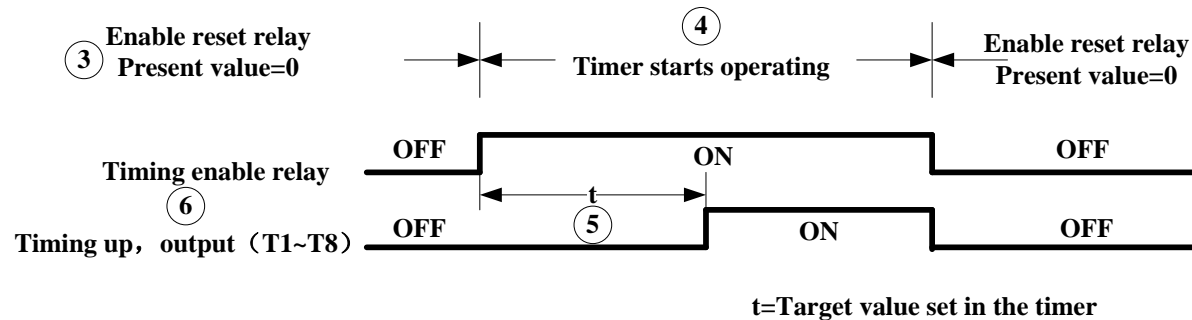
① =1 Counter instruction



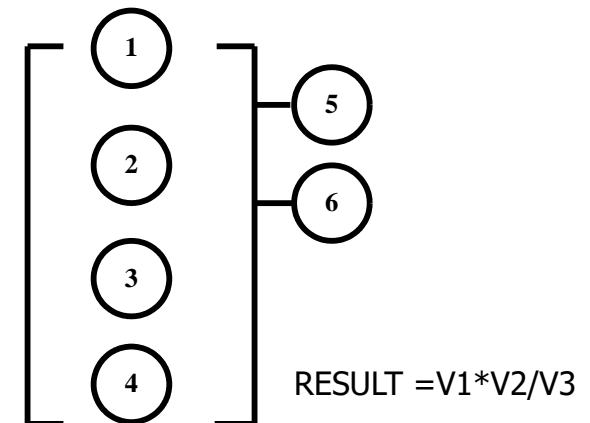
ADD-SUB instruction



Timer instruction



Mul-Div instruction



S2U-IP66 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			

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			

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				

S2U-IP66 Technical DATA

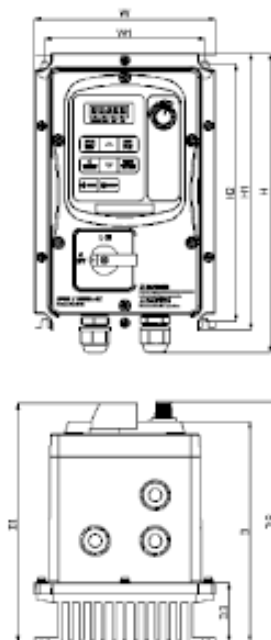
Filter combination

Model	Supply voltage (Vac)	(KW)	Filter	Switch	Frame Size
S2U230S-03 F IP66	1 ph 200~240V +10%-15% 50/60Hz	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		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 ph 380~480V +10%-15% 50/60Hz	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

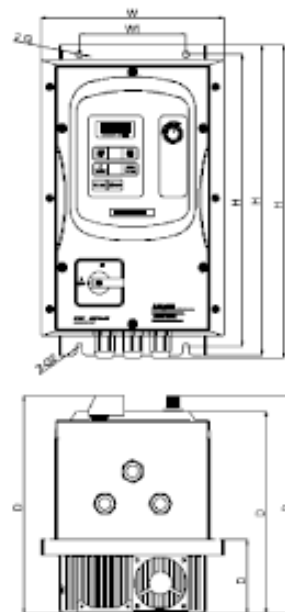
S2U-IP66 Technical DATA

Dimensions

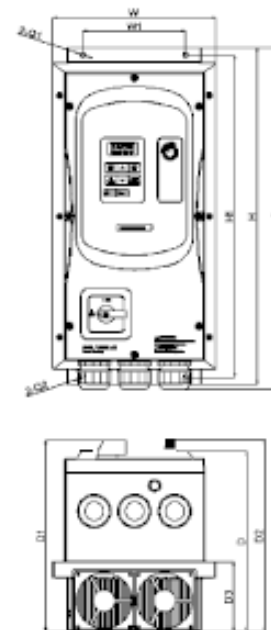
Frame 1
(Weight: 2.9 kg)



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

S2U-IP66 Certification

CE Declaration

UL Certification

http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpage.html?name=NMMS.E204867&ccnshorttitle=Power+Conversion+Equipment&objid=1074645277&cfgid=1073741824&version=versionless&parent_id=1073990282&sequence=1

EU-Declaration of Conformity

We: TECO Electric & Machinery B.V.
Address: Rivium 3e straat 17
2909 LH Capelle a/d IJssel,
The Netherlands

Herewith declares that the product:

Equipment: Bonfiglioli's S2U/ IP66 Series Inverter

Model:

S2U230S-03 F IP66; S2U230S-07 F IP66; S2U230S-11 F IP66;
S2U230S-13 F IP66; S2U400T-07 F IP66; S2U400T-11 F IP66;
S2U400T-13 F IP66; S2U400T-18 F IP66; S2U400T-19 F IP66;
S2U400T-21 F IP66; S2U400T-23 F IP66; S2U400T-25 IP66;
S2U400T-27 IP66

Option: built-in or with Option Filter

Series No.: All

is in conformity with the following directives
(including all applicable amendments)

- 2014/35/EU Low Voltage Directive
- 2014/30/EU EMC Directive
- 2011/65/EU RoHS Directive

and that the standards and/or technical specifications referenced below have been applied:

- EN 61800-5-1:2007 Adjustable speed electrical power drive systems -Part 5-1: Safety requirements -Electrical, thermal and energy
- EN 61800-3:2004+A1:2012 Adjustable speed electrical power drive systems. EMC requirements and specific test methods
- EN 50581:2012 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Place: Capelle a/d IJssel; The Netherlands

Date: 5 Oct. 2017

Signature: 

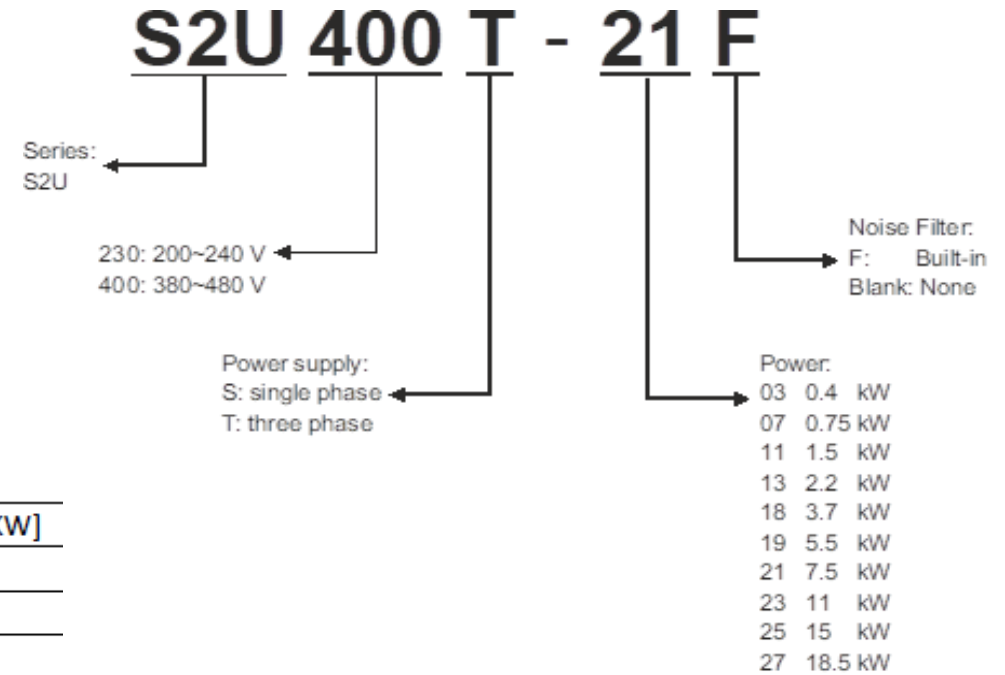
Printed Name: Paul Chiueh

Position: Managing Director

S2U-IP66 Order Processing

SAP codes

Model Designation Bonfiglioli	SAP-Number	Nominal power [KW]
S2U230S-03 F IP66	S2U-230S031FIP66	0.4
S2U230S-07 F IP66	S2U-230S071FIP66	0.75
S2U230S-11 F IP66	S2U-230S1122FIP66	1.5
S2U230S-13 F IP66	S2U-230S1322FIP66	2.2
S2U400T-07 F IP66	S2U-400T071FIP66	0.75
S2U400T-11 F IP66	S2U-400T111FIP66	1.5
S2U400T-13 F IP66	S2U-400T132FIP66	2.2
S2U400T-18 F IP66	S2U-400T182FIP66	3.7
S2U400T-19 F IP66	S2U-400T193FIP66	5.5
S2U400T-21 F IP66	S2U-400T213FIP66	7.5
S2U400T-23 F IP66	S2U-400T233FIP66	11
S2U400T-25 IP66	S2U-400T253IP66	15
S2U400T-27 IP66	S2U-400T273IP66	18.5



S2U-IP66-10_ModelB2-4/00

S2U-IP66 Product Comparison

		S2U IP 20	Syn10	S2U IP66	S2U IP66 vs S2U IP20
models		1-phase 100v 0.25~1hp(IP20) 1-phase 200v 0.25~3hp(IP20) 3-phase 200v 0.25~3hp(IP20) 3-phase 400v 1~3hp(IP20)	200v 0.25-3hp(IP20/65) 380v 1-3hp(IP20/65)	1 phase, 200V, 0,4-2,2kW 3 phase, 400V, 0,75-18,5 kW	- without 100V Device - without 0.2kW Device
voltage/frequency		1ph 100-120v 1ph 200-240v(built-in filter type) 1/3ph 200-240v 3ph 380-480v 50/60Hz	1ph 200-230v 3ph 380-480v 50/60Hz	1ph 200-240v(built in filter) 3ph 380-480v 50/60Hz	- without 100V Device
size		IP20 : F1 : 72 x 141 x 139.2mm F2 : 118 x 144 x 147.3mm F3 : 129 x 188 x 148mm F4 : 187 x 261 x 190mm	IP20 : F1 : 72 x 132 x 118mm F2 : 118 x 143 x 171.7mm IP65 : F1 : 204.8 x 133.5 x 173.3 F2 : 232 x 295 x 211	IP20 : F1 : 90.6 x 163.6 x 149mm F2 : 128.7 x 197.5 x 149mm F3 : 186.9 x 260.9 x 197mm F4 : 224.6 x 330.9 x 200.5mm IP66 : F1 : 150 x 248.7 x 200mm F2 : 198 x 337.9 x 235.2mm F3 : 222.8 x 466.3 x 263.5mm	
DI	points	5	4	6	- 1 additional digital input
	type	PNP/NPN types available . Specified by part number	PNP input	PNP/NPN selectable by jumper bar	- with NPN logic
DO	points	1 point	1 point	2 points	- 1 additional digital output
	type	Relay/1a	Relay/1a	Relay/1a*1 Relay/1a1c*1	- 1 additional relay output
AI	points	2 point	1 point	2 point	
	type	0-10v *1 4-20mA *1	0-10v/4-20mA(selectable)	0-10v/4-20mA selectable	
	resolution	10bits	10bits	10bits	
AO	points	1 point	1 point	1 point	
	type	0-10v. Programmable	0-10v. Programmable	0-10v. Programmable	
Keypad	LED	built-in 7-seg.*5	built-in 7-seg.*3	built-in 7-seg.*5	
	key number	6 key	5 key	8 key	- 2 additional operating keys
	VR	standard built-in	N.A	standard built-in	
	remote control	by external copy unit. Max 5M cable interfaced to RJ45 socket	N.A	by keypad extension. Max 5M cable interfaced to keypad RJ45 socket	- ext. keypad connectable
Filter built-in design		standard built-in type (Class A/Option: Class B)	standard built-in type (Class A/Option: Class B)	standard built-in type Class A	
braking ability	braking ability	standard 20%	standard 20%	standard 20%	
	DC braking	built-in , adjustable for braking freq/level/time	built-in , adjustable	built-in , adjustable for braking freq/level/time	
	braking transistor	400V type built-in	200v 2-3hp/400v 1-3hp standard built-in	all series built-in	- brake chopper transistor of 230V devices
Other design		1. Copy unit 2. Remote keypad	-	1. Copy unit	

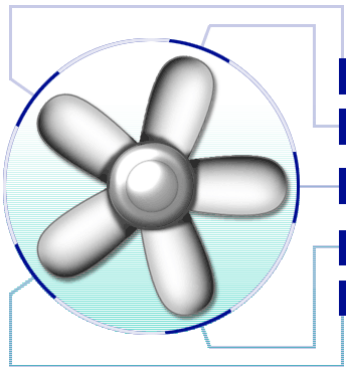
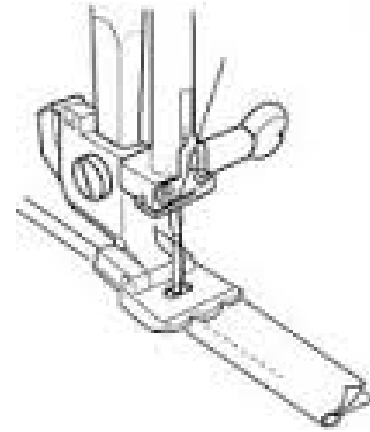
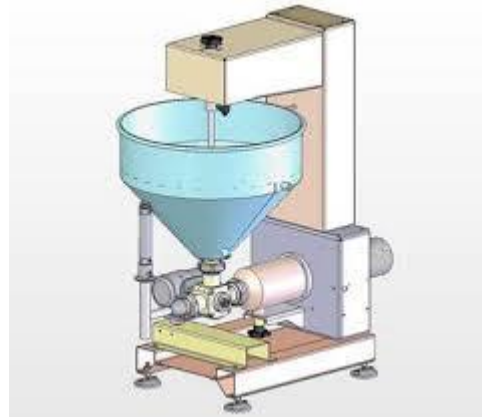
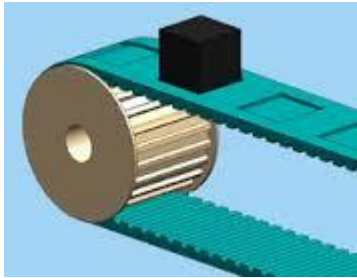
S2U-IP66 Product Comparison

		S2U IP 20	Syn10	S2U IP66	S2U IP66 vs S2U IP20	
control function	control mode	V/F	V/F	V/F, Sensorless vector	- sensor less vector control	
	speed ratio	output freq. range	0-650Hz	0-200Hz	0-650Hz	
		starting torque	100%/3Hz	-	V/F: 150%/3Hz SLV: 150%/1Hz	- higher starting torque
		control ratio	V/F : 1.5 : 50	-	SLV: 1:50	
	control function	speed control	speed control	speed control		
	V/F curve	7 curves(1 customization)	6 curves	19 curves	- additional 12 selectable V/f patterns	
	carrier freq.	1-16KHz(default 5KHz) (frequency are auto-adjustable by temperature)	4-16KHz(default 8KHz)	1-16KHz(default 5KHz) (frequency are auto-adjustable by temperature)		
	torque boost function	manual	manual	Auto	- torque boost	
	Acceleration and deceleration control	accel/deccel time	0-3600.0 sec	0-999sec	0-3600.0sec	
		type	2 stage; linear/S type	linear	4 stage; linear/S type	- 2 additional ramp times (accelerate and decelerate)
	multi-speed control	stage independent	8 stages Yes	4 stages N.A	16 stages Yes	- 8 additional fixed frequencies
		stage of Acc/Dec				
	PID function	built-in (settable by communication)	N.A	built-in (settable by communication)		
	Pulse input	N.A	N.A	Yes, one channel	- pulse input (frequency input)	
	Auto Sequencer	Yes	N.A	Yes		
PLC function	N.A	N.A	built-in	- PLC function by Ladder		
Auto voltage Regulation	Yes	N.A	Yes			

S2U-IP66 Product Comparison

		S2U IP 20	Syn10	S2U IP66	S2U IP66 vs S2U IP20	
protection function	overload capacity	150%/1min	150%/1min	150%/1min		
	protection	Stall Prevention	Acc/Dec/Running	N.A	Acc/Dec/Running	
		Motor protection	electronic Thermal protection	electronic Thermal protection	electronic Thermal protection	
		Voltage protection	OV/LV protection	OV/LV protection	OV/LV protection	
		Regeneration Prevention Function	N.A	N.A	Yes Parameter 11-13: [0] : Regeneration prevention function is disabled [1] : Regeneration prevention function is enabled [2] : Regeneration prevention function is enabled only during constant speed	
		fire mode	N.A	N.A	Yes run till inverter broken when enabled	- usable for fire extinguisher equipment
		over torque detection	N.A	N.A	Yes	
		Momentary Power Loss and Restart	Momentary Power Loss 2 sec and restart	Momentary Power Loss 2 sec and restart	Momentary Power Loss 2 sec and restart	
auto Reset	built-in	N.A	built-in			
communication/ extensions	communication	RS232/485	built-in/Modbus	built-in/Modbus		
	Open bus	gateway : profibus/CanOpen/DeviceNet/TCP-IP	gateway : profibus/CanOpen/DeviceNet/TCP-IP	gateway : profibus/CanOpen/DeviceNet/TCP-IP		
environment	IP level	IP20	IP20/IP65	IP20/66		
	operation temperature	-10~50°C	-10~50°C	-10~50°C		
	certification	UL/CE	UL/CE	UL/CE		
	installation	screw/Din rail (option)	screw/Din rail (option)	screw	- without DIN Rail mounting	
Fan design		F1 : no fan F2 with fan	F1/F2 with fan	F1~F4 with fan	- all construction sizes with cooling fan	
heatsink design		internal heatsink design	internal heatsink design	external heatsink design		
line speed display		YES	N.A	YES		
Skip Frequency		3 stage	N.A	3 stage		
fan control		Yes 08- 07= [0] : Cooling fan runs as the inverter detects temperature rise. 08- 07= [1] : Cooling fan runs while the inverter is running. 08- 07= [2] : Cooling fan runs continuously. 08- 07= [3] : Cooling fan is Disabled.	N.A	Yes 08- 07= [0] : Cooling fan runs as the inverter detects temperature rise. 08- 07= [1] : Cooling fan runs while the inverter is running. 08- 07= [2] : Cooling fan runs continuously. 08- 07= [3] : Cooling fan is Disabled.		

S2U-IP66 Applications



PACKAGING
INDUSTRY



FANS, PUMPS
AND MIXERS



TEXTILE
MACHINES



MATERIALS
HANDLING



WOOD
PROCESSING



FOOD,
BEVERAGE &
TOBACCO

Thanks !
