

INOVANCE

SV660 Series Servo Drive

Performance and flexibility in a compact footprint



- User friendly installation
- Easy set-up and tuning
- Safe Torque Off-SIL3
- 23-bit encoder ensures accurate control

EtherCAT

CANlink

CANopen

PROFINET

Modbus



Scan the QR code for the manual of SV660-INT;

Power cables

Motor Model		Cable Name	Cable Model	Cable Length (m)
MS1H1/MS1H4 terminal type motor	Front outlet	Without brake	S6-L-M107-3.0(-T)-INT	3
			S6-L-M107-5.0(-T)-INT	5
			S6-L-M107-10.0(-T)-INT	10
	Front outlet	With brake	S6-L-B107-3.0(-T)-INT	3
			S6-L-B107-5.0(-T)-INT	5
			S6-L-B107-10.0(-T)-INT	10
	Back outlet	Without brake	S6-L-M108-3.0(-T)-INT	3
			S6-L-M108-5.0(-T)-INT	5
			S6-L-M108-10.0(-T)-INT	10
		With brake	S6-L-B108-3.0(-T)-INT	3
			S6-L-B108-5.0(-T)-INT	5
			S6-L-B108-10.0(-T)-INT	10
MS1H2 motors of 3 kW and below/MS1H3 motors of 1.8 kW and below	Without brake		S6-L-M111-3.0(-T)-INT	3
			S6-L-M111-5.0(-T)-INT	5
			S6-L-M111-10.0(-T)-INT	10
	With brake		S6-L-B111-3.0(-T)-INT	3
			S6-L-B111-5.0(-T)-INT	5
			S6-L-B111-10.0(-T)-INT	10

Motor Model		Cable Name	Cable Model	Cable Length (m)
MS1H2 motors of 4 kW/5 kW	Without brake		S6-L-M011-3.0(-T)-INT	3
			S6-L-M011-5.0(-T)-INT	5
			S6-L-M011-10.0(-T)-INT	10
	With brake		S6-L-B011-3.0(-T)-INT	3
			S6-L-B011-5.0(-T)-INT	5
			S6-L-B011-10.0(-T)-INT	10
MS1H3 motors of 2.9 kW	Without brake		S6-L-M112-3.0(-T)-INT	3
			S6-L-M112-5.0(-T)-INT	5
			S6-L-M112-10.0(-T)-INT	10
	With brake		S6-L-B112-3.0(-T)-INT	3
			S6-L-B112-5.0(-T)-INT	5
			S6-L-B112-10.0(-T)-INT	10
MS1H3 motors of 4.4 kW and above	Without brake		S6-L-M022-3.0(-T)-INT	3
			S6-L-M022-5.0(-T)-INT	5
			S6-L-M022-10.0(-T)-INT	10
	With brake		S6-L-B022-3.0(-T)-INT	3
			S6-L-B022-5.0(-T)-INT	5
			S6-L-B022-10.0(-T)-INT	10

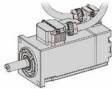
Encoder cables

Motor Model			Cable Model	Cable Length (m)
MS1H1/ MS1H4 terminal- type motor	Front outlet	Single-turn absolute encoder	S6-L-P114-3.0(-T)-INT	3
			S6-L-P114-5.0(-T)-INT	5
			S6-L-P114-10.0(-T)-INT	10
		Multi-turn absolute encoder	S6-L-P124-3.0(-T)-INT	3
			S6-L-P124-5.0(-T)-INT	5
			S6-L-P124-10.0(-T)-INT	10
	Rear outlet	Single-turn absolute encoder	S6-L-P115-3.0(-T)-INT	3
			S6-L-P115-5.0(-T)-INT	5
			S6-L-P115-10.0(-T)-INT	10
		Multi-turn absolute encoder	S6-L-P125-3.0(-T)-INT	3
			S6-L-P125-5.0(-T)-INT	5
			S6-L-P125-10.0(-T)-INT	10

Motor Model		Cable Model	Cable Length (m)
MS1H2/MS1H3 motor	Single-turn absolute encoder	S6-L-P111-3.0(-T)-INT	3
		S6-L-P111-5.0(-T)-INT	5
		S6-L-P111-10.0(-T)-INT	10
	Multi-turn absolute encoder	S6-L-P121-3.0(-T)-INT	3
		S6-L-P121-5.0(-T)-INT	5
		S6-L-P121-10.0(-T)-INT	10

- Notes:
- [1] Power and encoder cables are made of oil-resistant cables and with shield as standard.
 - [2] T indicates that a flexible cable is available as an option.
 - [3] For a 50W motor, select the rear outlet model for power cables (as shown on the right) to avoid interfering with the mounting flange.

Accessories



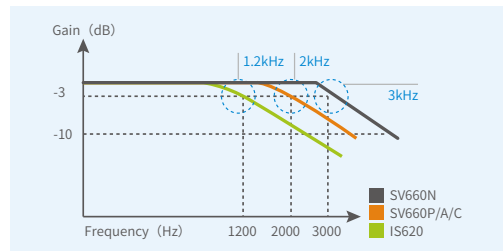
Description	Model	Outline Drawing
Battery box kit (without battery)	S6-C4A-NB	
Battery kit	S6-C4A	
CN1 connector (DB44) (for SV660P)	S6-C8	
CN1 connector (DB15) (for SV660N)	S6-C6	
PC communication cable	S6-L-T00-3.0	

Product Features overview

Control Performance

A speed loop response bandwidth of 3kHz gives significantly improved performance compared to the previous generation of Inovance products.*

SV660	
Frequency lower limit	12kHz
Current loop sampling	625kHz
Speed loop sampling	16kHz
Position loop sampling	8kHz



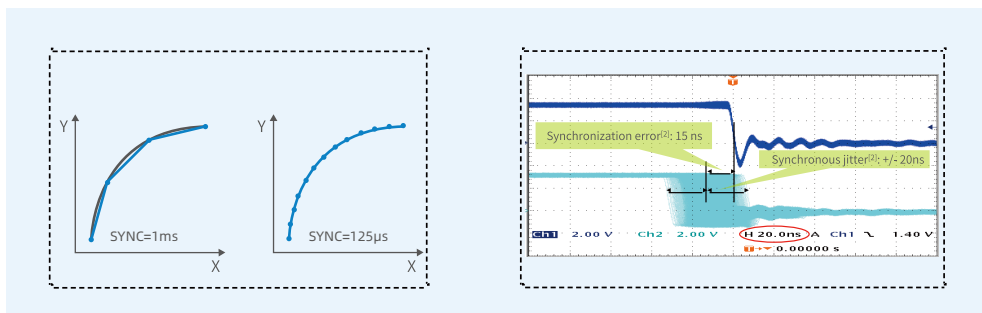
*Please note: The phrase 'speed loop bandwidth' refers to the highest frequency speed command change that the servo system can respond to.

Positioning Accuracy

23 bit serial single/multi-turn absolute encoder provides 8,388,608 pulses within one mechanical turn. Multi-turn absolute information can be also saved at power down, avoiding the need to perform machine homing at every power-up.

High speed EtherCAT communications

- The 125 μ s synchronization period is supported for all operation modes over EtherCAT. The trajectory control techniques for interpolation and cam are improved.
- By precise adjustment of EtherCAT distributed clock to achieve the distance of 120m & 300 nodes, 15ns synchronization error and ± 20 ns synchronization jitter.



*please note: synchronization error refers to the time deviation between any two nodes receiving the synchronization signal; synchronization jitter refers to the variation error of the synchronization signal interval time.

Control Signals I/O:

- P model: 7xDI, 5xDO; N/F model: 5xDI, 3xDO
- Built-in RS232 port for PC connection, and RS485 port for Modbus RTU communication protocol on P model/EtherCAT port on N model/Profinet port on F model

Position-Speed-Torque Composite Control

- 16x multi-position registers for point-to-point and sequential motion
- Homing sequence
- Interrupt positioning
- Position comparison

Compatible with Multiple PROFINET Bus Controllers

- PROFINET RT handle time-critical data, with cycle times down to 1ms, meeting most industrial timing needs; PROFINET IRT goes further: it reduces communication delays for deterministic, synchronized communication with cycle time down to 500 μ s.
- The PROFIdrive implementation in the SV660F supports the following application classes:

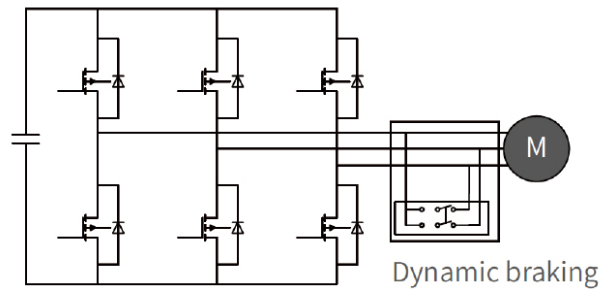
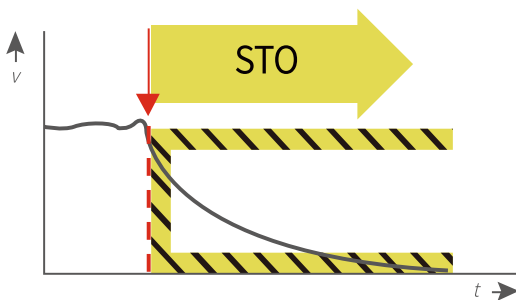
- AC1 adjustable-speed drives with/without technology function
- AC3 drives with positioning function
- AC4 synchronous servo applications and high-performance motion control applications



- Depending on the application class, the SV660F supports the telegrams 1, 2, 3, 102, 111, 105, 750.

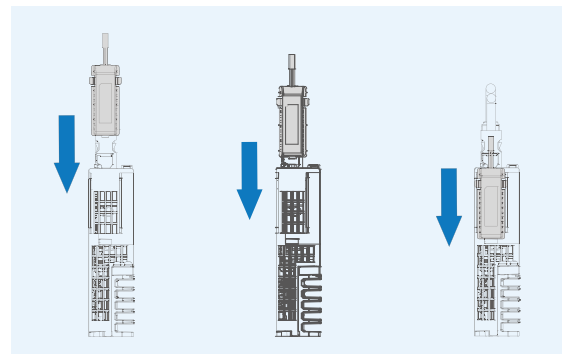
Safety Assurance

- The STO function guarantees the servo drive to stop safely without using additional contactors
- Built-in dynamic braking ensures safe stops if the drive is unexpectedly disabled- even in the case of a failure in the motor brake.



Easy installation

- Pluggable connectors for both signal and power allow avoidance of wiring mistakes.
- The absolute encoder's battery is directly attached to the drive by snap-fit joint, which is easy to remove and replace.



Fast Commissioning

- Fine tuning is possible using the STune and ETune software functions, which are both designed for use in applications with small load inertia changes:

- STune obtains the gains using a calculation based on the set stiffness level
- ETune automatically adjusts the optimal gain parameters of the servo drive to deliver the best performance

Easy cloning of drive parameters

- For servo drive parameter replication over the EtherCAT and PROFINET bus, parameters for all SV660N(EtherCAT)/SV660F(PROFINET) in one device can be uploaded and downloaded at a time with the commissioning software over EtherCAT/PROFINET.

Ordering Code

Servo Drive

SV660 N S 2R8 I - FS - INT

① ② ③ ④ ⑤ ⑥ ⑦

① Product series SV660: SV660 series servo drive	④ Rated output current S: 200V ~ 240V T: 380V ~ 440V 1R6: 1.6 A 3R5: 3.5 A 2R8: 2.8 A 5R4: 5.4 A 5R5: 5.5 A 8R4: 8.4 A 7R6: 7.6 A 012: 11.9 A 012: 11.6 A 017: 16.5 A 021: 20.8 A 026: 25.7 A	⑤ Model configuration I: Standard type
② Communication type N: EtherCAT P: Pulse A: CANlink C: CANopen F: Profinet		⑥ Optional configuration FS: with STO None: without STO
③ Voltage class S: 200V ~ 240V T: 380V ~ 440V		⑦ Version INT: International Version

Servo Motor

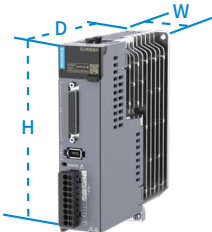
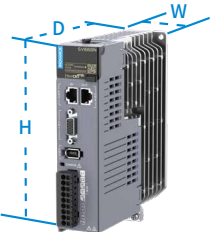
MS1 H4 - 75B 30C B - A3 3 1 R - INT

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① MS1 series servo motor	④ Rated speed (rpm) Comprised of a letter and two digits B: × 10 C: × 100 Example: 30C: 3000 rpm	⑧ Brake and oil seal ^[1] 0: Without oil seal or brake 1: With oil seal, without brake 2: Without oil seal, with brake 4: With oil seal and brake
② Inertia and capacity type H1: Low inertia, small capacity H2: Low inertia, medium capacity H3: Medium inertia, medium capacity H4: Medium inertia, small capacity	⑤ Voltage calss B:200V D:400V	⑨ Sub-series No. R: R series
③ Rated power (W) Comprised of a letter and two digits B: x10 C: x 100 Example:75B:750W	⑥ Encoder type Comprised of a letter and a digit A3: 23-bit multi-turn absolute encoder	⑩ Version INT: International Version
	⑦ Shaft connection mode 3: Solid and keyed, with threaded hole in the shaft center	

[1]Note: Flange size 40mm with H1 type motors are not equipped with an oil seal

Dimensions

SV660P	SV660N	Frame size	L (mm)	H (mm)	D (mm)	Mounting hole	Mass (kg)
		SIZE A	40	170	150	2-M4	0.8
		SIZE B	50	170	173	2-M4	1.0
		SIZE C	55±1	170	173±1	2-M4	1.3
		SIZE D	80±1	170	183	3-M4	1.8
		SIZE E	90	250	230	4-M4	3.6

Selection chart

Motor base speed (rpm)	Motor max. speed (rpm)	Motor power (W)	Motor rated torque (N.m)	Motor peak torque (N.m)	Motor frame size (mm)	Rotor inertia (kg·cm ²)	MS1 motor model	SV660 drive model	SV660 rated current (A)	SV660 peak current (A)	SV660 size	Drive weight (kg)	Motor weight (kg)
For 1PH 220V Servo Drive													
3000	7000	50	0.16	0.56	40×40	0.02	MS1H1-05B30CB-A33*R-INT	SV660*-S1R6I(-FS)-INT	1.60	5.80	A	0.80	0.26
3000	7000	100	0.32	1.12	40×40	0.03	MS1H1-10B30CB-A33*R-INT	SV660*-S1R6I(-FS)-INT	1.60	5.80	A	0.80	0.35
3000	7000	200	0.64	2.24	60×60	0.09	MS1H1-20B30CB-A33*R-INT	SV660*-S1R6I(-FS)-INT	1.60	5.80	A	0.80	0.80
3000	7000	400	1.27	4.45	60×60	0.15	MS1H1-40B30CB-A33*R-INT	SV660*-S2R8I(-FS)-INT	2.80	10.10	A	0.80	1.11
3000	7000	550	1.75	6.13	80×80	0.55	MS1H1-55B30CB-A33*R-INT ^[1]	SV660*-S5R5I(-FS)-INT	5.50	16.90	B	1.00	1.88
3000	7000	750	2.39	8.37	80×80	0.68	MS1H1-75B30CB-A33*R-INT	SV660*-S5R5I(-FS)-INT	5.50	16.90	B	1.00	2.22
3000	7000	50	0.16	0.56	40×40	0.04	MS1H4-05B30CB-A33*R-INT	SV660*-S1R6I(-FS)-INT	1.60	5.80	A	0.80	0.24
3000	7000	100	0.32	1.12	40×40	0.07	MS1H4-10B30CB-A33*R-INT	SV660*-S1R6I(-FS)-INT	1.60	5.80	A	0.80	0.32
3000	7000	200	0.64	2.24	60×60	0.22	MS1H4-20B30CB-A33*R-INT	SV660*-S1R6I(-FS)-INT	1.60	5.80	A	0.80	0.78
3000	7000	400	1.27	4.45	60×60	0.43	MS1H4-40B30CB-A33*R-INT	SV660*-S2R8I(-FS)-INT	2.80	10.10	A	0.80	1.11
3000	7000	550	1.75	6.13	80×80	1.12	MS1H4-55B30CB-A33*R-INT ^[1]	SV660*-S5R5I(-FS)-INT	5.50	16.90	B	1.00	1.85
3000	7000	750	2.39	8.37	80×80	1.46	MS1H4-75B30CB-A33*R-INT	SV660*-S5R5I(-FS)-INT	5.50	16.90	B	1.00	2.18
For 1/3PH 220V Servo Drive													
3000	7000	1000	3.18	11.13	80×80	0.82	MS1H1-10C30CB-A33*R-INT	SV660*-S7R6I(-FS)-INT	7.60	23.00	C	1.30	2.61
3000	6000	1000	3.18	9.54	100×100	1.78	MS1H2-10C30CB-A33*R-INT	SV660*-S7R6I(-FS)-INT	7.60	23.00	C	1.30	3.85
3000	6000	1500	4.90	14.70	100×100	2.35	MS1H2-15C30CB-A33*R-INT	SV660*-S012I(-FS)-INT	11.60	32.00	D	1.80	4.65
3000	6000	2000	6.36	19.1	100×100	2.92	MS1H2-20C30CB-A33*R-INT	SV660*-S012I(-FS)-INT	11.60	32.00	D	1.80	5.5
1500	4500	850	5.39	13.90	130×130	13.56	MS1H3-85B15CB-A33*R-INT	SV660*-S7R6I(-FS)-INT	7.60	23.00	C	1.30	5.80
1500	4500	1300	8.34	20.85	130×130	19.25	MS1H3-13C15CB-A33*R-INT	SV660*-S012I(-FS)-INT	11.60	32.00	D	1.80	7.10
1500	4500	1800	11.5	28.75	130×130	24.9	MS1H3-18C15CB-A33*R-INT	SV660*-S012I(-FS)-INT	11.60	32.00	D	1.80	8.50
3000	7000	1000	3.18	11.13	80×80	1.87	MS1H4-10C30CB-A33*R-INT	SV660*-S7R6I(-FS)-INT	7.60	23.00	C	1.30	2.55
For 3PH 400V Servo Drive													
3000	6000	1000	3.18	9.54	100×100	1.78	MS1H2-10C30CD-A33*R-INT	SV660*-T3R5I(-FS)-INT	3.50	11.00	C	1.30	3.85
3000	6000	1500	4.90	14.70	100×100	2.35	MS1H2-15C30CD-A33*R-INT	SV660*-T5R4I(-FS)-INT	5.40	14.00	C	1.30	4.65
3000	6000	2000	6.36	19.10	100×100	2.92	MS1H2-20C30CD-A33*R-INT	SV660*-T8R4I(-FS)-INT	8.40	20.00	D	1.80	5.50
3000	6000	2500	7.96	23.90	100×100	3.49	MS1H2-25C30CD-A33*R-INT	SV660*-T012I(-FS)-INT	11.90	29.75	D	1.80	6.30
3000	6000	3000	9.80	29.40	130×130	6.40	MS1H2-30C30CD-A33*R-INT	SV660*-T012I(-FS)-INT	11.90	29.75	D	1.80	10.00
3000	6000	4000	12.60	37.80	130×130	9.00	MS1H2-40C30CD-A33*R-INT	SV660*-T017I(-FS)-INT	16.50	41.25	E	3.60	13.20
3000	6000	5000	15.80	47.40	130×130	11.60	MS1H2-50C30CD-A33*R-INT	SV660*-T021I(-FS)-INT	20.80	51.12	E	3.60	16.35
1500	4500	850	5.39	13.50	130×130	13.56	MS1H3-85B15CD-A33*R-INT	SV660*-T3R5I(-FS)-INT	3.50	11.00	C	1.30	5.80
1500	4500	1300	8.34	20.85	130×130	19.25	MS1H3-13C15CD-A33*R-INT	SV660*-T5R4I(-FS)-INT	5.40	14.00	C	1.30	7.10
1500	4500	1800	11.50	28.75	130×130	24.90	MS1H3-18C15CD-A33*R-INT	SV660*-T8R4I(-FS)-INT	8.40	20.00	D	1.80	8.50
1500	4500	2900	18.60	46.50	180×180	44.70	MS1H3-29C15CD-A33*R-INT	SV660*-T012I(-FS)-INT	11.90	29.75	D	1.80	13.80
1500	4500	4400	28.40	71.10	180×180	64.90	MS1H3-44C15CD-A33*R-INT	SV660*-T017I(-FS)-INT	16.50	41.25	E	3.60	17.40
1500	4500	5500	35.00	87.60	180×180	86.90	MS1H3-55C15CD-A33*R-INT	SV660*-T021I(-FS)-INT	20.80	52.12	E	3.60	21.70
1500	4500	7500	48.00	119.00	180×180	127.50	MS1H3-75C15CD-A33*R-INT	SV660*-T026I(-FS)-INT	25.70	64.25	E	3.60	29.00

Note:[1]Brake option not available.



บริษัท นานดีอินเตอร์เทรด จำกัด
NANDEE INTER-TRADE CO., LTD.

314,316,318,320,322 ซอยจันทน์ 32 ถนนจันทน์ แขวงทุ่งวัดดอน เขตสาทร กทม. 10120

☎ : 0-2675-8239
 📞 : @nandeeintertrade
 🌐 : nandeeintertrade
 🌐 : www.nandee.co.th
 ✉ : marketing@nandee.co.th
 ✉ : sales@nandee.co.th