

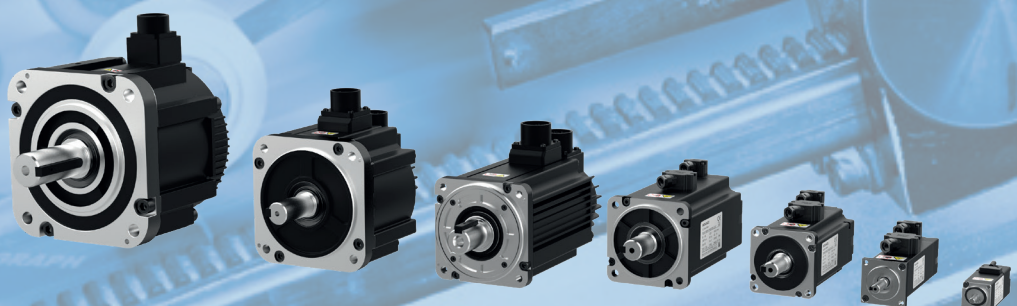
IS810N Multi-Axes Servo Drive Platform

For maximum performance in the most demanding applications

- Three phase 380-480 V supply voltage
- Single and dual axes modules: 850 W - 75 kW*
- Common power supply module

*dual axes available up to 18.5 kW

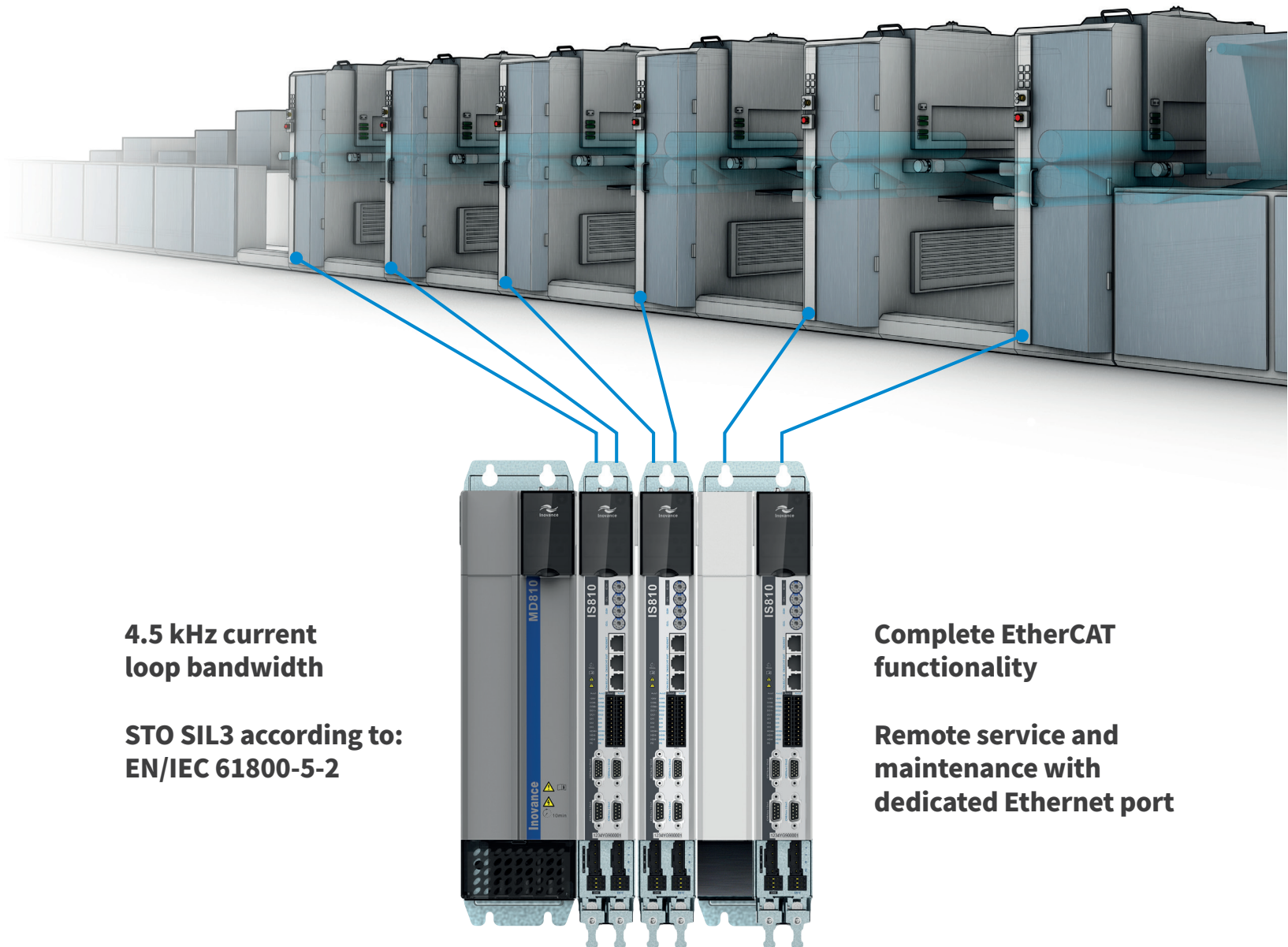
EtherCAT[®]



IS810N features and functions

Designed for high performance, multi-axes applications

IS810N is a modular, scalable servo platform designed for the most complex and demanding industrial applications



**4.5 kHz current
loop bandwidth**

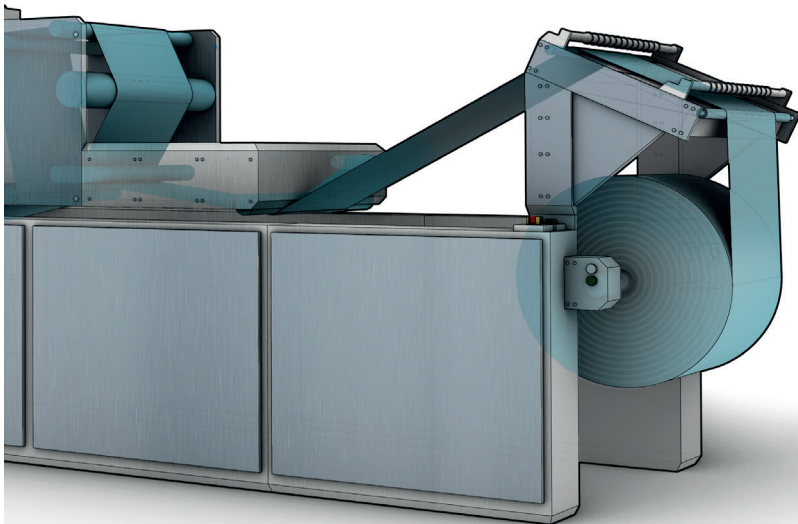
**STO SIL3 according to:
EN/IEC 61800-5-2**

**Complete EtherCAT
functionality**

**Remote service and
maintenance with
dedicated Ethernet port**

High dynamic performance with ultra-fast current loop

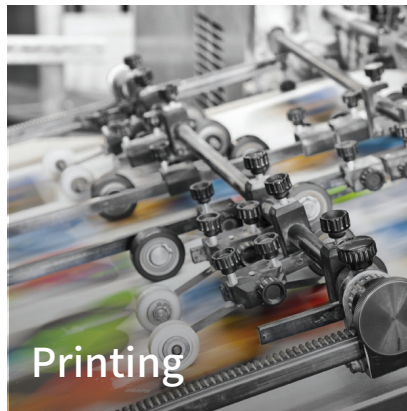
IS810N meets the needs of European OEM manufacturers of high performance precision machinery. To develop IS810N, Inovance Technology Europe implemented a co-design process that brought together best-in-class R&D knowhow from engineering centres in Europe and Asia.



- ✓ Advanced functionality
- ✓ Single and dual axes modules available
- ✓ Energy saving with common DC bus
- ✓ Robust design: conformal coating
- ✓ Easy & flexible integration
- ✓ Reduced installation costs
- ✓ Easy commissioning & maintenance



Packaging



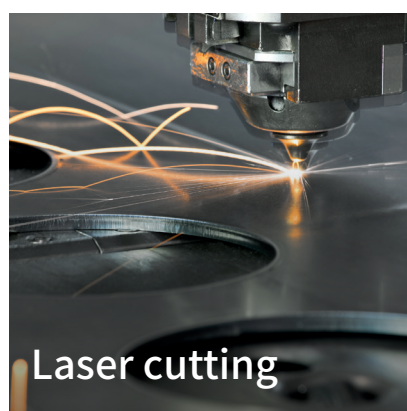
Printing



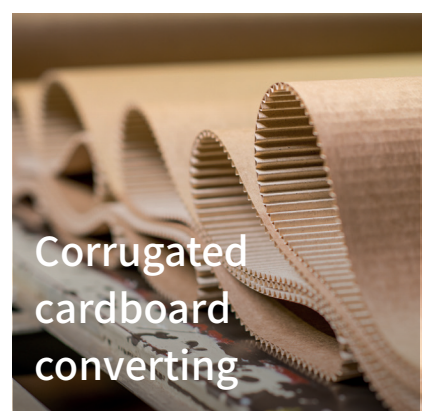
Milling



Textiles



Laser cutting



Corrugated
cardboard
converting

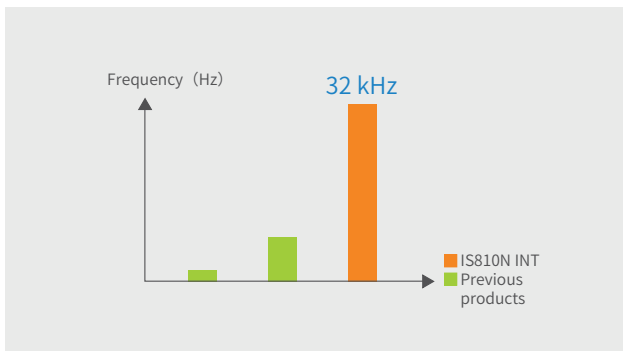
IS810N – advanced multi-axes servo platform

Dynamic performance with ultra-fast current loop

IS810N's 4.5 kHz current loop bandwidth allows the motor to follow the motion profile with minimal error.

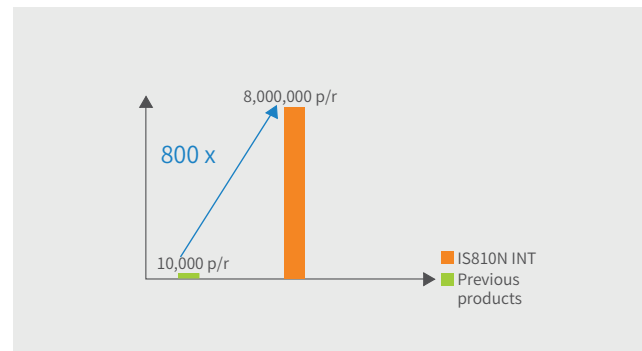
The drive has achieved perfect synchronization and higher stability by eliminating all delay between the speed loop and current loop.

The result is radically improved system performance with a shorter settling time and higher throughput. In case of mechanical resonance, high performance can be ensured through use of notch filters (up to four notch filters are available for simultaneous use if necessary).



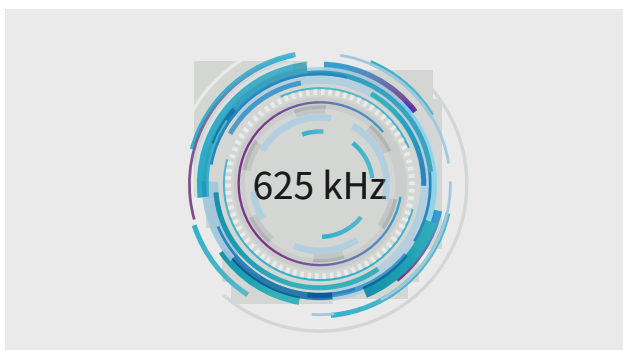
Speed and position loop cycle time: 31.25 μ s

4 times faster than previous generation products

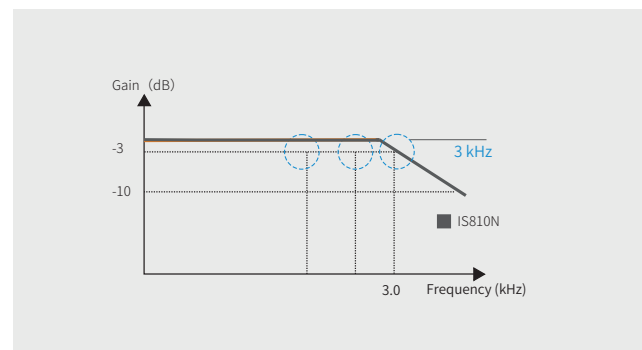


Matches with 23 bit absolute encoder

Equivalent resolution of 0.15 arc seconds

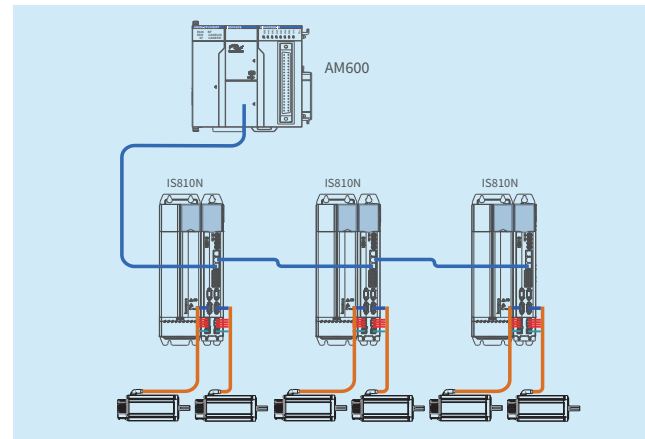
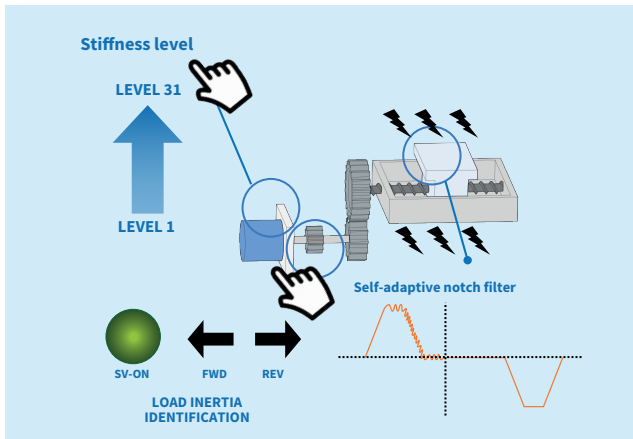


Current loop cycle time: 1.6 μ s



3 kHz speed loop bandwidth

IS810N – advanced multi-axes servo platform



Complete EtherCAT functionality

The EtherCAT CiA Drive Profile 402 contains all seven motion profiles. Additionally, the SYNC object enables precise operation of the EtherCAT distributed clock to allow perfect synchronisation between drives. Meanwhile, a dedicated Ethernet port with a Modbus TCP/IP protocol allows efficient servicing and commissioning through the InoDriverShop PC tool.

Please note: a CANopen slave protocol is supported by the IS810P variant

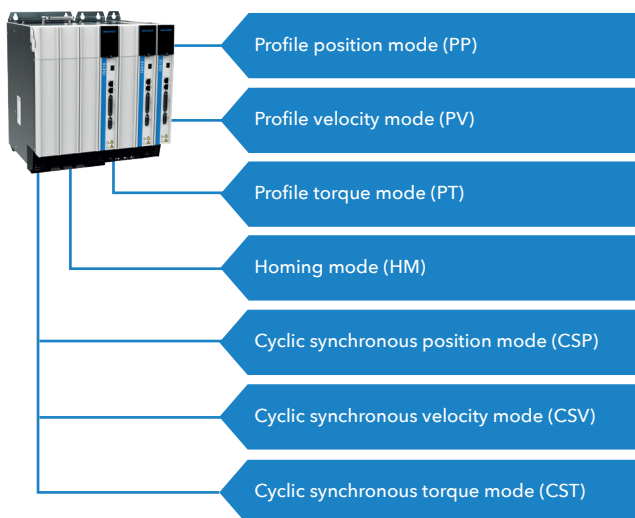
Easy commissioning with smart tuning functions

Machine performance can be optimized by using IS810N's automatic gain function to set the stiffness level to achieve fast response and stability.

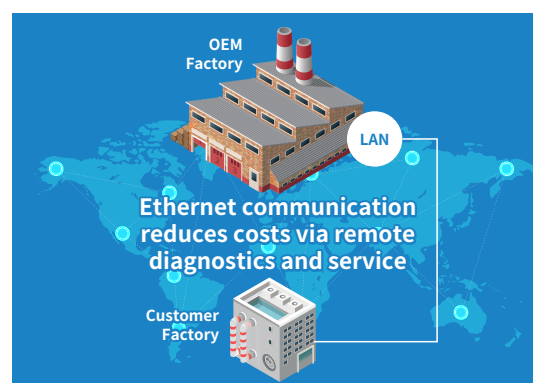
- Online and offline load inertia identification
- Automatically adjust speed and position loop gains by setting the stiffness level
- Automated detection of vibration frequency allows notch filter to be automatically set
- Damping filter suppresses vibrations with a characteristic frequency of 1-100 Hz

Remote service and maintenance

An Ethernet port with Modbus TCP/IP protocol is available for commissioning, remote monitoring, diagnostics and maintenance.



Seven CiA 402 motion profiles are supported



The IS810N multi-axes solution

Product overview

Ultra-fast
current loop
(>4 kHz bandwidth)

23 bit serial single/
multi-turn absolute
encoders

Power supply unit,
common DC bus

45 kW rectifier unit
100 mm wide



SIL3

Safety Integrity Level

IS810N series servo drive key features

High performance

- Current loop bandwidth > 4 kHz *1
- Speed loop bandwidth > 2 kHz *1

Safety on board

- Dual input for STO function (SIL 3)

Digital I/O

- 6 DI (2 fast inputs) + 2 DO

Power supply voltage range

- Three phase AC 380 V ~ 480 V, +10 ~ -15%, -50/60 Hz

Network

- EtherCAT® - CiA 402 motion profiles: PP, PV, PT, HM, CSP, CSV, CST
- Ethernet Modbus TCP/IP

Easy to use

- Fine tuning with PC software (InoDriverShop)

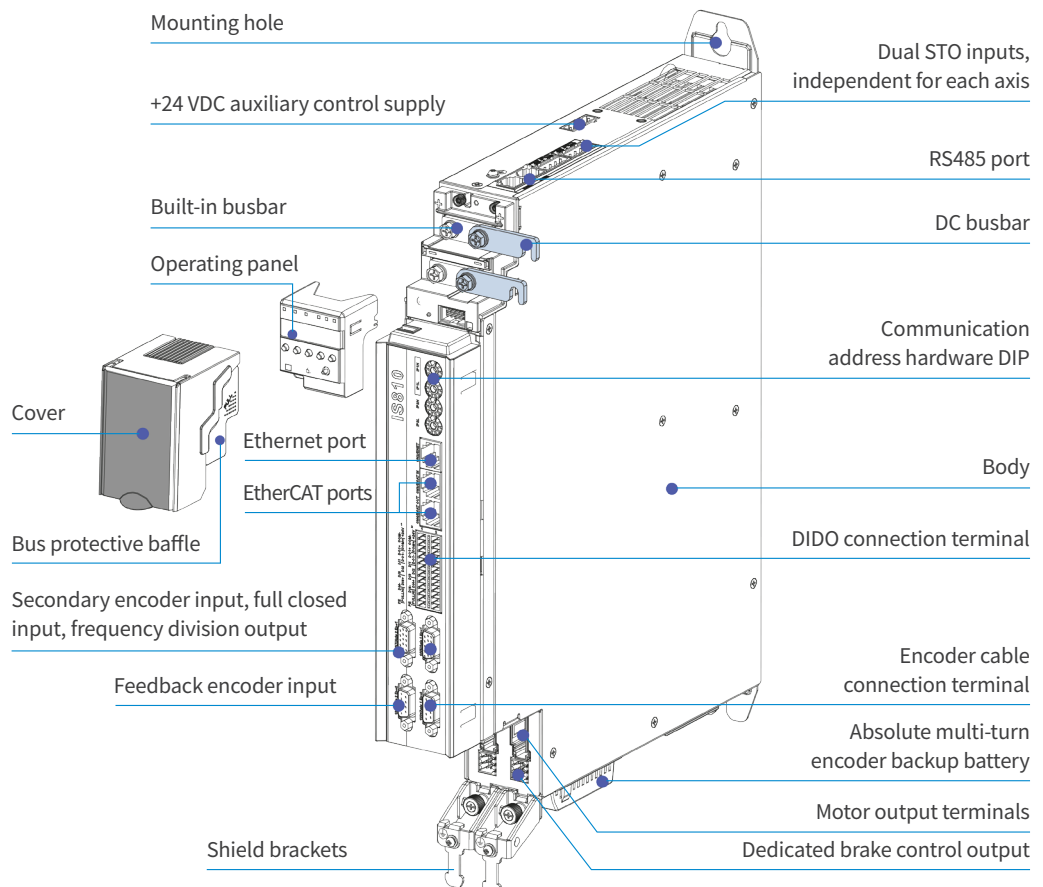
Smart tuning

- Inertia auto-tuning (on-line/off-line)
- Automatic loop gains tuning
- Adaptive notch filter (4 filters available)
- Automatic/manual damping filter for low frequency resonance

*1 - Maximum theoretical performance achievable by the drive

Dual STO inputs,
independent for each axis

IS810N – 2 axes in 1 module



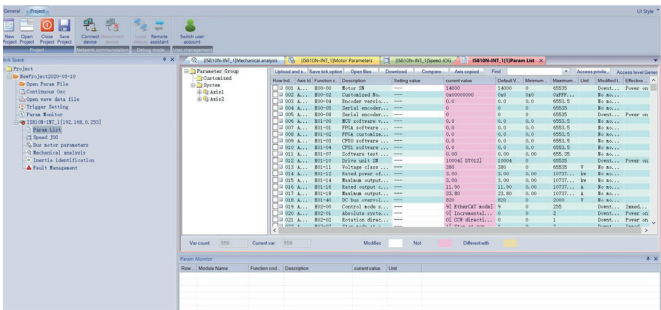
Dedicated brake
control output

PC software tools

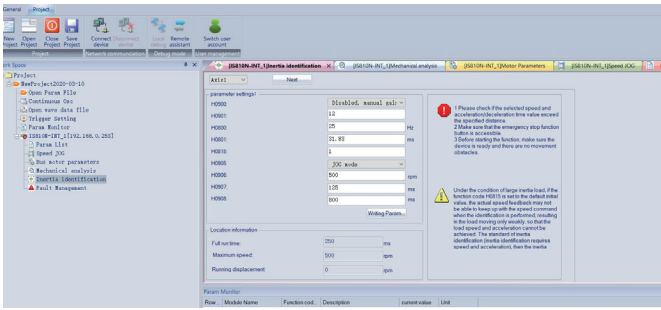
InoDriverShop

InoDriverShop is Inovance's PC-based software offering. It is based on a familiar Windows interface. InoDriverShop can upload and download drive parameters, and features a variety of other functions, such as a real-time oscilloscope, commissioning tools (e.g. inertia auto-tuning), and online software upgrades.

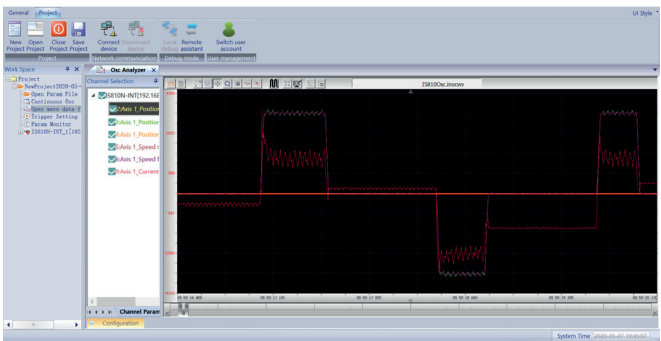
Upload parameters from the drive



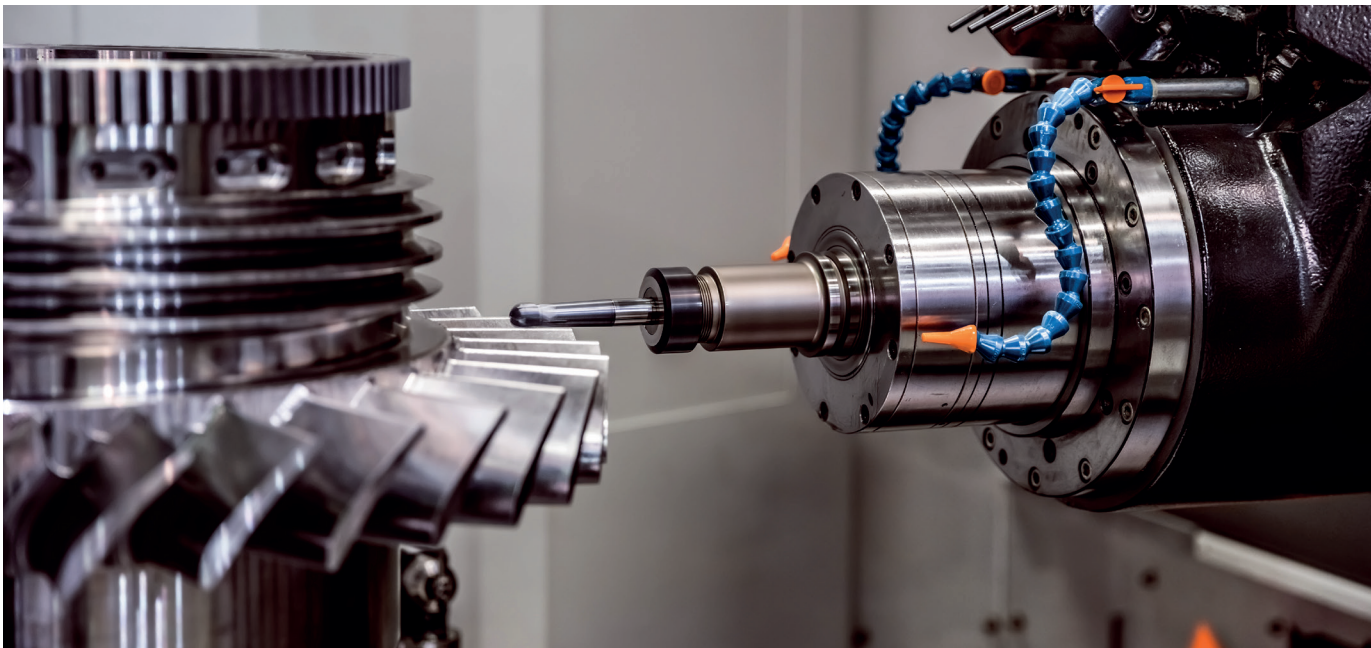
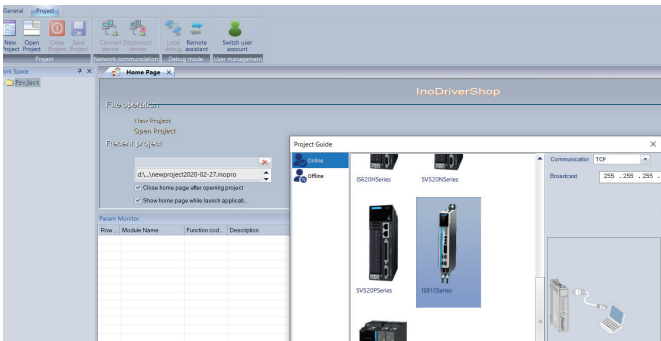
Inertia auto-tuning



Real-time oscilloscope



Drive selection tool



IS810N drive Product ordering code

IS810 N 50M 4T D 3R5 INT

- ① **Servo drive series:**
IS810
- ② **Control board type:**
N: Ethercat
- ③ **Module type:**
50M: drive
- ④ **Voltage supply:**
4T: 380-480 V
- ⑤ **Drive module type:**
S: single
D: dual
- ⑥ **Rated current:**
- | | | | |
|-----|--------|-----|-------|
| 3R5 | 3.5 A | 037 | 37 A |
| 5R4 | 5.4 A | 045 | 45 A |
| 8R4 | 8.4 A | 060 | 60 A |
| 012 | 11.9 A | 075 | 75 A |
| 017 | 16.5 A | 091 | 91 A |
| 021 | 20.8 A | 112 | 112 A |
| 026 | 25.7 A | 152 | 152 A |
| 032 | 32 A | | |
- ⑦ **Model:**
INT: international edition

MD810 rectifier Product ordering code

MD810 - 20M 4T 45 G 1 0 0 - INT

- ① **Rectifier series:**
MD810
- ② **Module type:**
20M: rectifier
- ③ **Voltage supply:**
4T: 380-480 V
- ④ **Rectifier (rated power):**
22: 22 kW
45: 45 kW
110: 110 kW
160: 160 kW
355: 355 kW
- ⑤ **Model**
G: general model
- ⑥ **Optional functional component**
Rectifier:
0: without built-in brake
1: with built-in brake (22 & 45 kW only)
- ⑦ **Optional communication component**
Rectifier:
0: built-in RS485 (Modbus-RTU), CANopen and CANlink communications
- ⑧ **Optional features**
Rectifier:
0: no optional features available
- ⑨ **Model:**
INT: international edition

IS810N ratings

Single drives

Model	Size	Rated power (kW)	Rated input DC current (A)	Rated output AC current (A)	Peak output AC current for 3 s (A)
Input voltage: 537-679 VDC (operating range: 350-800 VDC); output voltage: 0-480 VAC					
IS810N50M4TS3R5INT	1 (50 mm)	0.85	5	3.5	8.5
IS810N50M4TS5R4INT		1.3	7	5.4	14
IS810N50M4TS8R4INT		1.8	12	8.4	20
IS810N50M4TS012INT		2.9	17	12	28
IS810N50M4TS017INT	2 (100 mm)	4.4	22	16.5	42
IS810N50M4TS021INT		5.5	27	20.8	55
IS810N50M4TS026INT		7.5	31	25.7	65
IS810N50M4TS032INT		15	40	32	80
IS810N50M4TS037INT		18.5	46	37	92.5
IS810N50M4TS045INT		22	55	45	112.5
IS810N50M4TS060INT		30	73	60	150
IS810N50M4TS075INT		37	90	75	187.5
IS810N50M4TS090INT	3 (200 mm)	45	105	91	227.5
IS810N50M4TS112INT		55	129	112	280
IS810N50M4TS152INT		75	172	152	380

Dual drives

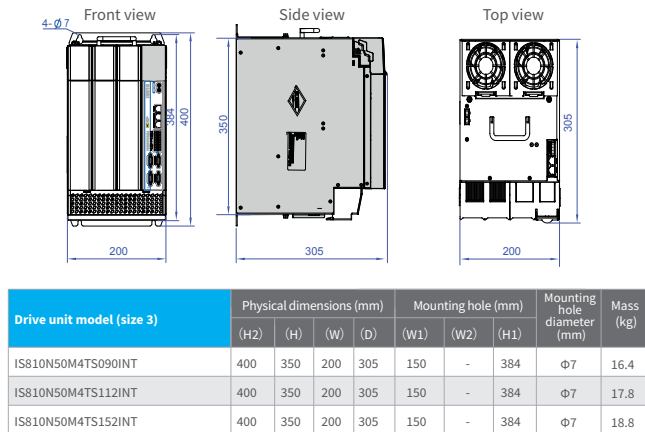
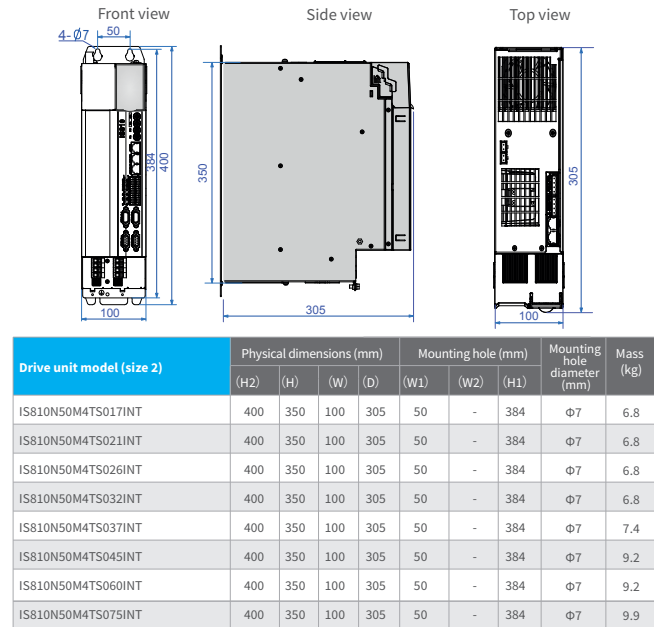
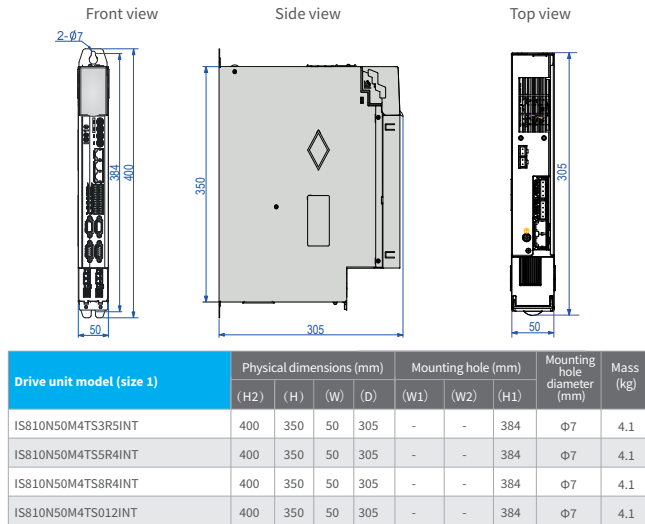
Model	Size	Rated power (kW)	Rated input DC current (A)	Rated output AC current (A)	Peak output AC current for 3 s (A)
Input voltage: 537-679 VDC (operating range: 350-800 VDC); output voltage: 0-480 VAC					
IS810N50M4TD3R5INT	1 (50 mm)	0.85	10	3.5	8.5
IS810N50M4TD5R4INT		1.3	14	5.4	14
IS810N50M4TD8R4INT		1.8	24	8.4	20
IS810N50M4TD012INT		2.9	34	12	28
IS810N50M4TD017INT	2 (100 mm)	4.4	44	16.5	42
IS810N50M4TD021INT		5.5	54	20.8	55
IS810N50M4TD026INT		7.5	62	25.7	65
IS810N50M4TD032INT		15	80	32	80
IS810N50M4TD037INT		18.5	92	37	92.5

Rectifiers

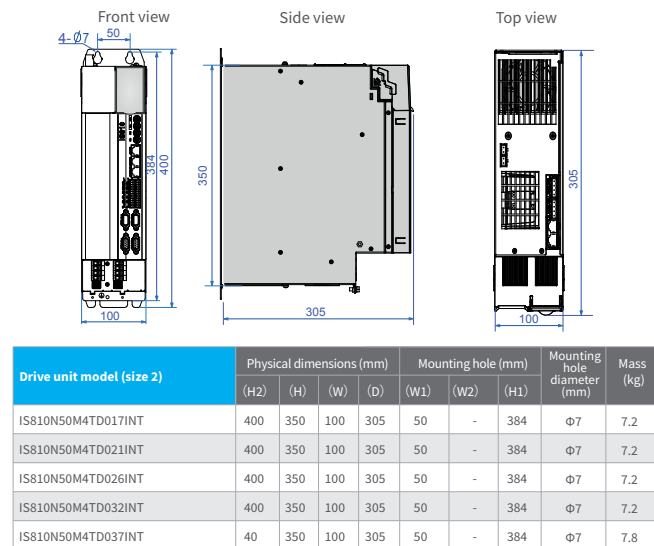
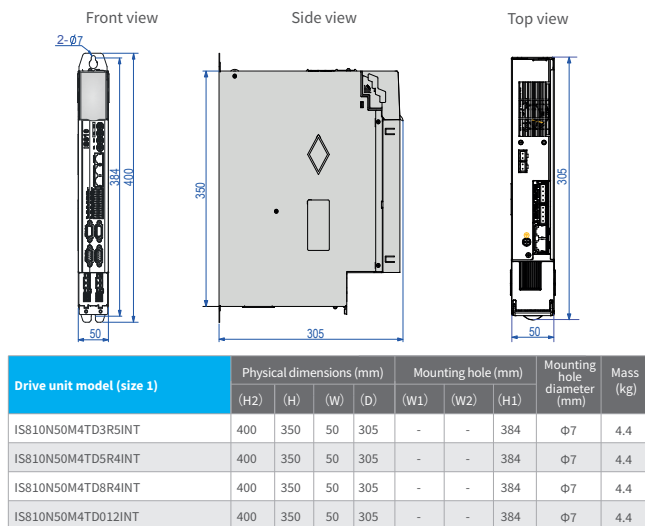
Model	Size	Rated power (kW)	Rated input AC current (A)	Rated output DC current (A)	Braking unit
MD810-20M4T22G1XX-INT	1 (50 mm)	22	59	56	Built-in
MD810-20M4T45G1XX-INT	2 (100 mm)	45	112	110	Built-in
MD810-20M4T110G0XX-INT	3 (200 mm)	110	196	240	MDBUN-60-(5)T x 2
MD810-20M4T160G0XX-INT	4 (300 mm)	160	292	358	MDBUN-90-(5)T x 2
MD810-20M4T355G0XX-INT	5 (180 mm)	355	619	759	MDBUN-200-(5)T x 3

Overview of IS810N series servo drives

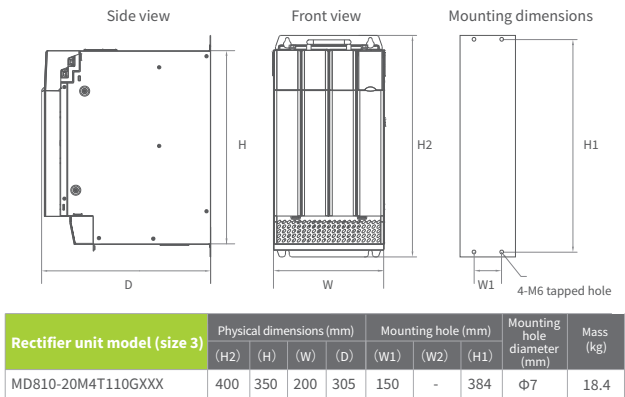
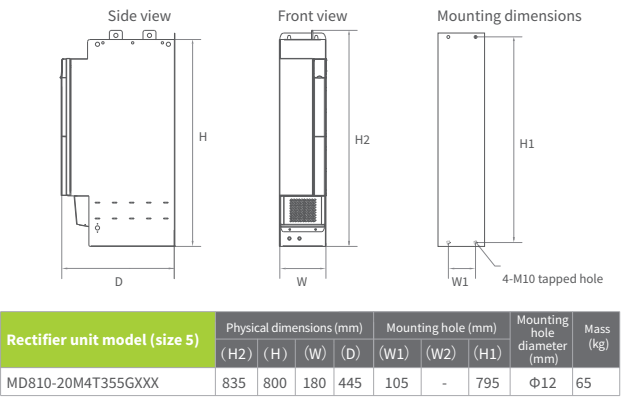
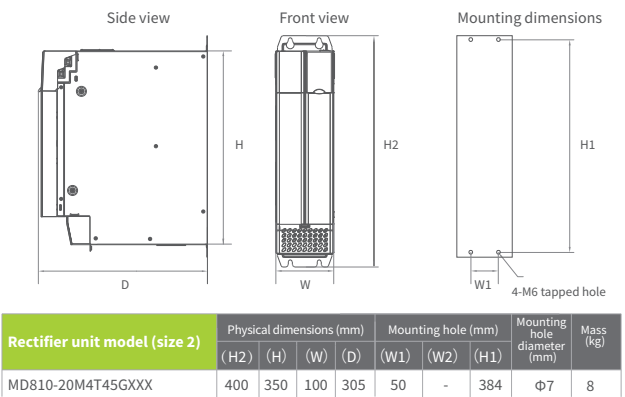
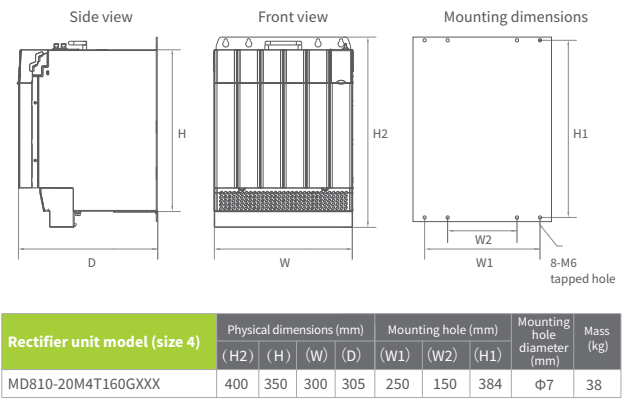
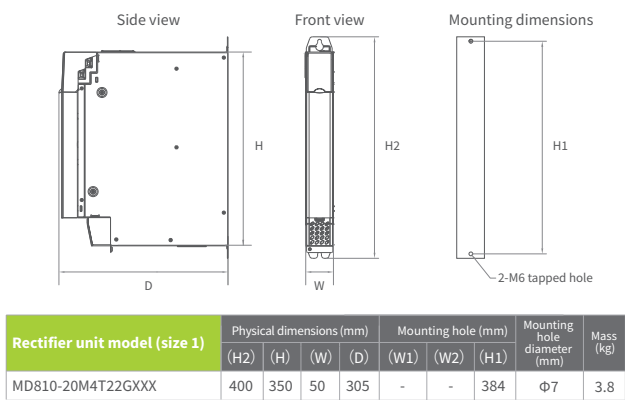
Dimensions of single drive units



Dimensions of dual drive units



Dimensions of rectifier units



IS810N Selection chart

Power supply voltage for all drives: 3 phase 400 V

Motor base speed (RPM)	Motor maximum speed (RPM)	Motor power (W)	Motor rated torque (N·m)	Motor peak torque (N·m)	Motor frame size (mm)	Rotor inertia (0.0001x kg·m ²)	MS1 motor type	IS810N type**	IS810N rated current (A)	IS810N peak current (A)	Size	Dimensions H x W x D (mm)
3,000	6,000	50	0.16	0.56	40x40	0.026	MS1H1-05B30CB-A330Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
3,000	6,000	100	0.32	1.12	40x40	0.041	MS1H1-10B30CB-A330Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
3,000	6,000	200	0.64	2.24	60x60	0.207	MS1H1-20B30CB-A331Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
3,000	6,000	400	1.27	3.75	60x60	0.376	MS1H1-40B30CB-A331Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
3,000	6,000	400	1.27	4.46	60x60	0.376	MS1H1-40B30CB-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	6,000	400	1.27	3.75	60x60	0.657	MS1H4-40B30CB-A331Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
3,000	6,000	400	1.27	4.46	60x60	0.657	MS1H4-40B30CB-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	6,000	550	1.75	5.72	80x80	1.06	MS1H1-55B30CB-A331Z*	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	6,000	750	2.39	6.93	80x80	1.38	MS1H1-75B30CB-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3000	6000	750	2.39	8.36	80x80	1.38	MS1H1-75B30CB-A331Z	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
3000	6000	750	2.39	6.93	80x80	2	MS1H4-75B30CB-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	6,000	750	2.39	8.36	80x80	2	MS1H4-75B30CB-A331Z	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
3,000	6,000	1,000	3.18	7.93	80x80	1.75	MS1H1-10C30CB-A331Z*	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
3,000	6,000	1,000	3.18	11.10	80x80	1.75	MS1H1-10C30CB-A331Z*	IS810N50M4T_012INT	12.0	28.00	1	400 x 50 x 305
3,000	6,000	1,000	3.18	9.54	100x100	1.87	MS1H2-10C30CD-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	5,000	1,500	4.9	14.70	100x100	2.46	MS1H2-15C30CD-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
3,000	5,000	2,000	6.36	19.10	100x100	3.06	MS1H2-20C30CD-A331Z	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
3,000	5,000	2,500	7.96	19.12	100x100	3.65	MS1H2-25C30CD-A331Z	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
3,000	5,000	2,500	7.96	23.90	100x100	3.65	MS1H2-25C30CD-A331Z	IS810N50M4T_012INT	12.0	28.00	1	400 x 50 x 305
3,000	5,000	3,000	9.8	27.44	130x130	7.72	MS1H2-30C30CD-A331Z	IS810N50M4T_012INT	12.0	28.00	1	400 x 50 x 305
3,000	5,000	3,000	9.8	29.40	130x130	7.72	MS1H2-30C30CD-A331Z	IS810N50M4T_017INT	16.5	42.00	2	400 x 100 x 305
3,000	5,000	4,000	12.6	37.80	130x130	12.1	MS1H2-40C30CD-A331Z	IS810N50M4T_017INT	16.5	42.00	2	400 x 100 x 305
3,000	5,000	5,000	15.8	41.65	130x130	15.4	MS1H2-50C30CD-A331Z	IS810N50M4T_017INT	16.5	42.00	2	400 x 100 x 305
3,000	5,000	5,000	15.8	47.60	130x130	15.4	MS1H2-50C30CD-A331Z	IS810N50M4T_021INT	20.8	55.00	2	400 x 100 x 305
1,500	3,000	850	5.39	13.50	130x130	13.3	MS1H3-85B15CD-A331Z	IS810N50M4T_3R5INT	3.5	8.50	1	400 x 50 x 305
1,500	3,000	1,300	8.34	20.85	130x130	17.8	MS1H3-13C15CD-A331Z	IS810N50M4T_5R4INT	5.4	14.00	1	400 x 50 x 305
1,500	3,000	1,800	11.5	28.75	130x130	25	MS1H3-18C15CD-A331Z	IS810N50M4T_8R4INT	8.4	20.00	1	400 x 50 x 305
1,500	3,000	2,900	18.6	37.20	180x180	55	MS1H3-29C15CD-A331Z	IS810N50M4T_012INT	12.0	28.00	1	400 x 50 x 305
1,500	3,000	4,400	28.4	71.10	180x180	88.9	MS1H3-44C15CD-A331Z	IS810N50M4T_017INT	16.5	42.00	2	400 x 100 x 305
1,500	3,000	5,500	35	87.60	180x180	107	MS1H3-55C15CD-A331Z	IS810N50M4T_021INT	20.8	55.00	2	400 x 100 x 305
1,500	3,000	7,500	48	119.00	180x180	141	MS1H3-75C15CD-A331Z	IS810N50M4T_026INT	25.7	65.00	2	400 x 100 x 305

*Motor does not have an option with a brake **All drives are available in single axis (TS) or dual axes (TD)
To select motors with higher ratings, please consult with your local Inovance representative

MS1 motor Product ordering code

MS1 H1 - 40B 30C B - A3 3 1 Z - INT

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① **Motor series:**
MS1 series servo motor

② **Type:**
H1: low inertia, small capacity
H2: low inertia, medium capacity
H3: medium inertia, medium capacity
H4: medium inertia, small capacity

③ **Rated power (W)**
One number and one letter
A: x1
B: x10
C: x100
D: x1000
E: x10000
Example: 40B: 400 W

④ **Rated speed (RPM)**
One number and one letter
A: x1
B: x10
C: x100
D: x1000
E: x10000
e.g. 30C: 3000 RPM

⑤ **Voltage class**
B: 220 V
D: 380 V

⑥ **Encoder type**
One number and one letter
A3: multi-turn absolute encoder

⑦ **Shaft connection mode**
1: plain shaft
2: solid, keyed
3: solid, keyed with threaded holes
5: solid with threaded holes

⑧ **Brake, reducer and oil seal**
0: none
1: oil seal
2: brake
4: oil seal and brake

⑨ **Motor specification**
Z: terminal type

⑩ **Model:**
INT: international edition

IS810N

Cable selection chart

[illegible]

Please note: XX.X indicates the cable length. Standard specifications are 3.0 m, 5.0 m, 10.0 m. Customised specifications are available on request.

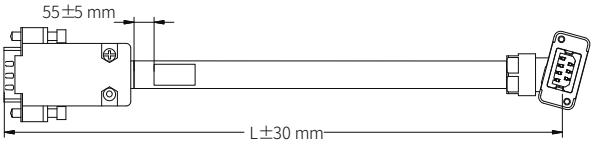
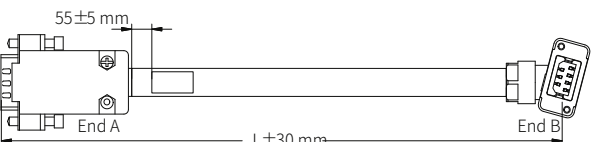
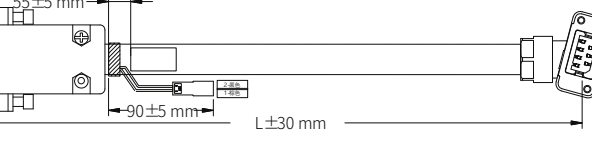
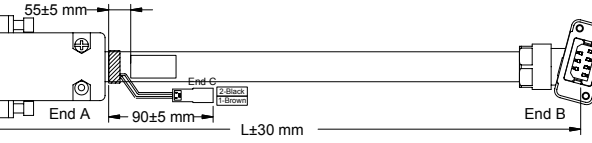
Motor cables without brake

Cable type	Item code	L (mm)	Appearance
Power cable for MS1H1/H4 servo motors without brake (back outlet)	S6-L-M108-3.0	3,000	
	S6-L-M108-5.0	5,000	
	S6-L-M108-10.0	10,000	
Power cable for MS1H1/H4 servo motors without brake (front outlet)	S6-L-M107-3.0	3,000	
	S6-L-M107-5.0	5,000	
	S6-L-M107-10.0	10,000	
Power cable for MS1H2/H3 servo motors without brake	S6-L-M111-3.0	3,000	
	S6-L-M111-5.0	5,000	
	S6-L-M111-10.0	10,000	
	S6-L-M112-3.0	3,000	
	S6-L-M112-5.0	5,000	
	S6-L-M112-10.0	10,000	
	S6-L-M122-3.0	3,000	
	S6-L-M122-5.0	5,000	
	S6-L-M122-10.0	10,000	

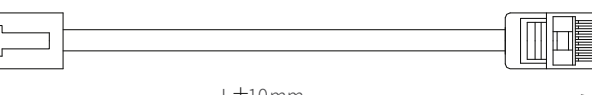
Motor cables with brake

Cable type	Item code	L (mm)	Appearance
Power cable for MS1H1/H4 servo motors with brake (back outlet)	S6-L-B108-3.0	3,000	
	S6-L-B108-5.0	5,000	
	S6-L-B108-10.0	10,000	
Power cable for MS1H1/H4 servo motors with brake (front outlet)	S6-L-B107-3.0	3,000	
	S6-L-B107-5.0	5,000	
	S6-L-B107-10.0	10,000	
Power cable for MS1H2/H3 servo motors with brake	S6-L-B111-3.0	3,000	
	S6-L-B111-5.0	5,000	
	S6-L-B111-10.0	10,000	
	S6-L-B112-3.0	3,000	
	S6-L-B112-5.0	5,000	
	S6-L-B112-10.0	10,000	
	S6-L-B122-3.0	3,000	
	S6-L-B122-5.0	5,000	
	S6-L-B122-10.0	10,000	

Encoder cables

Cable type	Item code	L (mm)	Appearance
20/23 bit single-turn encoder cable (back outlet) for MS1H1/H4 servo motors	S6-L-P015-3.0	3,000	
	S6-L-P015-5.0	5,000	
	S6-L-P015-10.0	10,000	
20/23 bit single-turn encoder cable (front outlet) for MS1H1/H4 servo motors	S6-L-P014-3.0	3,000	
	S6-L-P014-5.0	5,000	
	S6-L-P014-10.0	10,000	
20/23 bit single-turn encoder cable for MS1H2/H3 servo motors	S6-L-P011-3.0	3,000	
	S6-L-P011-5.0	5,000	
	S6-L-P011-10.0	10,000	
23 bit multi-turn encoder cable (back outlet) for MS1H1/H4 servo motors	S6-L-P025-3.0	3,000	
	S6-L-P025-5.0	5,000	
	S6-L-P025-10.0	10,000	
23 bit multi-turn encoder cable (front outlet) for MS1H1/H4 servo motors	S6-L-P024-3.0	3,000	
	S6-L-P024-5.0	5,000	
	S6-L-P024-10.0	10,000	
23 bit multi-turn encoder cable for MS1H2/H3 servo motors	S6-L-P021-3.0	3,000	
	S6-L-P021-5.0	5,000	
	S6-L-P021-10.0	10,000	

Communications cables

Cable type	Item code	L (mm)	Appearance
Ethernet communications cable	S6-L-T04-0.3	300	
	S6-L-T04-3.0	3,000	

Connector and battery kits

Model	Connector kit:	Battery set for absolute encoder back up
MS1H2	S6-C2 (CN1 & CN2 terminal, 20-18 pin & 20-29 pin connector)	S6-C4 (battery & battery case) Single axes: ES-A3 Dual axes: S81-C4
MS1H3 (1.8 kW & below)	S6-C2 (CN1 & CN2 terminal, 20-18 pin & 20-29 pin connector)	
MS1H3 (2.9 kW)	S6-C3 (CN1 & CN2 terminal, 20-22 pin & 20-29 pin connector)	
MS1H3 (above 2.9 kW)		

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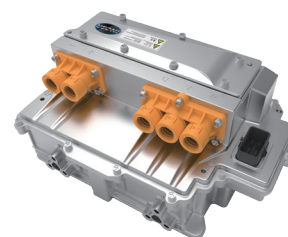


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