

ACTILINK-SC 8-1

750 W Servo motor fully integrated with ultra-compact servo drive



ACTILINK-SC 8-1 is a 750 W servo motor with an integrated ultra-compact servo drive, designed for applications in automation, transportation and others. Designed for extra-low voltage environments, it offers high output, high power density and superior efficiency in a minimal footprint. It includes an 18-bit feedback system

for accurate position sensing and high-performance motion control. Certified functional safety at SiL3 / PLe is integrated. Optional configurations including a holding brake and an embedded micro PLC. The unit is available with three connector interface options to support flexible system integration.

TYPE CODES

The following specific ACTILINK-SC variants are covered by this datasheet:

	EtherCAT	Ethernet/IP	PROFINET
ISO (M8 / M12)	ASC1-081A-0K-120-ECMH-M2G3-STO-01 ASC1-081A-BK-120-ECMH-M2G3-STO-01 ASC1-081A-0K-120-ECMH-M2G3-STO-04 ASC1-081A-BK-120-ECMH-M2G3-STO-04	ASC1-081A-0K-120-EIMH-M2G3-STO-01 ASC1-081A-BK-120-EIMH-M2G3-STO-01 ASC1-081A-0K-120-EIMH-M2G3-STO-04 ASC1-081A-BK-120-EIMH-M2G3-STO-04	ASC1-081A-0K-120-EPMH-M2G3-STO-01 ASC1-081A-BK-120-EPMH-M2G3-STO-01 ASC1-081A-0K-120-EPMH-M2G3-STO-04 ASC1-081A-BK-120-EPMH-M2G3-STO-04
I-TEC	ASC1-081A-0K-120-ECMH-H2G3-STO-01 ASC1-081A-BK-120-ECMH-H2G3-STO-01 ASC1-081A-0K-120-ECMH-H2G3-STO-04 ASC1-081A-BK-120-ECMH-H2G3-STO-04	ASC1-081A-0K-120-EIMH-H2G3-STO-01 ASC1-081A-BK-120-EIMH-H2G3-STO-01 ASC1-081A-0K-120-EIMH-H2G3-STO-04 ASC1-081A-BK-120-EIMH-H2G3-STO-04	ASC1-081A-0K-120-EPMH-H2G3-STO-01 ASC1-081A-BK-120-EPMH-H2G3-STO-01 ASC1-081A-0K-120-EPMH-H2G3-STO-04 ASC1-081A-BK-120-EPMH-H2G3-STO-04
Y-TEC	ASC1-081A-0K-120-ECMH-H4G3-STO-01 ASC1-081A-BK-120-ECMH-H4G3-STO-01 ASC1-081A-0K-120-ECMH-H4G3-STO-04 ASC1-081A-BK-120-ECMH-H4G3-STO-04	ASC1-081A-0K-120-EIMH-H4G3-STO-01 ASC1-081A-BK-120-EIMH-H4G3-STO-01 ASC1-081A-0K-120-EIMH-H4G3-STO-04 ASC1-081A-BK-120-EIMH-H4G3-STO-04	ASC1-081A-0K-120-EPMH-H4G3-STO-01 ASC1-081A-BK-120-EPMH-H4G3-STO-01 ASC1-081A-0K-120-EPMH-H4G3-STO-04 ASC1-081A-BK-120-EPMH-H4G3-STO-04

Variants ASC1-081A-0... without brake, ASC1-081A-B... with brake

Variants ...-01 standard servo functionality, ...-04 standard servo with micro PLC functionality (available on request)

PERFORMANCE DATA

Rated / Continuous Operation

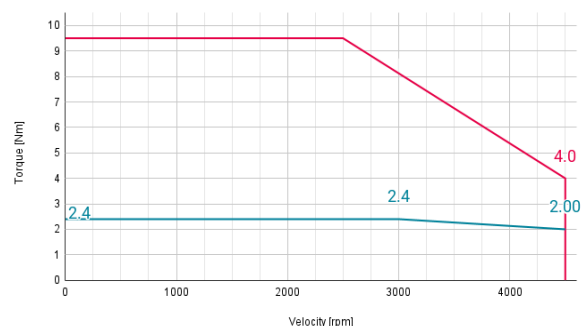
Continuous Stall Torque	2.4	Nm
Rated (Continuous) Torque	2.4	Nm
Rated Velocity	3000	rpm
Rated Power	750	W
Rated Voltage	48	V
Rated DC current	18	A _{DC}
Rated Overall Efficiency*	87%	%

* System level efficiency considering motor plus electronics

Peak Operation

Peak Torque	9.5	Nm
Peak Power	2480	W
Maximum Velocity	4500	rpm
Peak DC Current	76	A

Motor Curve ACTILINK-SC 8-1



MECHANICAL AND ENVIRONMENTAL DATA

Mechanical

Weight	2.4	kg (without brake)
	3	kg (with brake)
Inertia	1.5	kgcm ² (without brake)
	1.65	kgcm ² (with brake)
Max radial load	392*	N
Max axial load	147*	N
IP rating	IP 65 (shaft seal: IP64)	

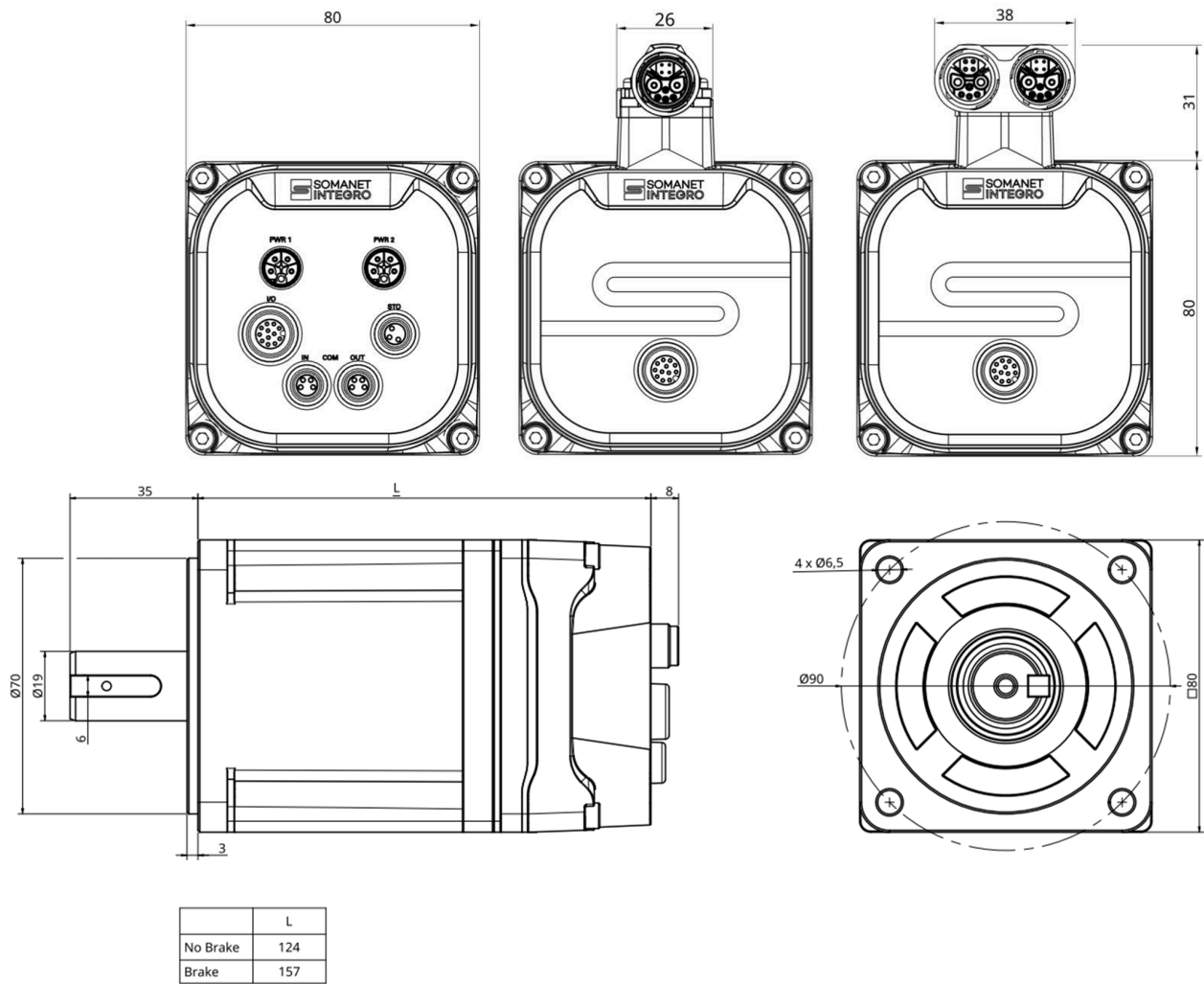
* for 20,000 h under rated operating conditions

Environmental Conditions

Operating Temperature	0 - 40**	°C
Max operating altitude	2000***	m
Storage Temperature	-20 - 40	°C
Relative Humidity	20% - 80%	
Shock Resistance	250	m/s ²
Vibration Resistance	±10 mm	@ 5..10 Hz
	40 m/s ²	@ 10..57 Hz
	50 m/s ²	@ 57..500 Hz

** Possible to operate at higher temperature with derating

*** Derating applies above 1000 m



CONTROL AND ELECTRONICS FEATURES

DC Bus Voltage	24-60 V
DC Current Max Continuous*	M12 Connector: 32 A _{DC} I-Tec / Y-Tec Connector: 25 A _{DC}
Inverter Rated Current	20 A RMS
Inverter Peak Current	60 A RMS
Thermal Management and Protection	Internal temperature sensors for electronics, motor temperature sensor (PT1000), I2t
Safety Functions	STO, SBC
Safety Integrity Level	SIL3, PLe-Cat.3
Bus Interface	EtherCAT, EtherNet/IP, PROFINET
GPIO	2x DIO, 1x DI, 1x AI, 1x ext. encoder (BiSS / SSI / ABI)
Touch Probe	1 channel, accuracy y 15 µs
Commissioning	OBLAC Drives, native apps available for Windows, Linux or OBLAC Box
Control System Architectures	With PLC / master controller via field bus, standalone via micro PLC** or combined
Approvals and certificates	CE, IEC-61800, among others. See Standards and Compliance (below) for details.

* In case of a daisy chain, DC currents provided here apply to max continuous total consumption of the complete daisy-chain. For actual consumption of a single device, see plot in section *POWER SUPPLY*.
** Available on request

INTEGRATED FEEDBACK SYSTEM

Single turn resolution	18	bits
Accuracy: measurement step	<5	arcsec
Accuracy: integrated non linearity	200	arcsec
Multi turn range	2 ¹⁴ - 2 ³² (configurable)	revolutions
Battery change interval	none (battery-free multi-turn)	

BRAKE

Variants ASC1-06xx-B... only

Brake type	Spring-applied holding brake, normally closed	
Static braking torque (min)	3.2	Nm
Brake voltage	24 V nominal, internally supplied	
Brake power	11	W
Release time	60	ms
Engage Time	40	ms

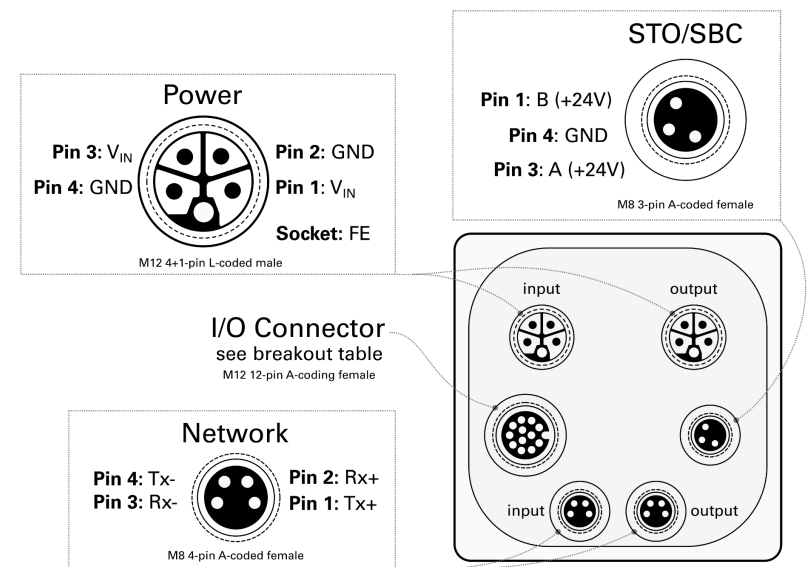
ELECTRICAL MOTOR DATA

Actilink-S motors integrate a controller (servo drive) which comes pre-configured for the mounted motor. Consequently, the electrical motor data provided here reflects internal properties which will not be exposed to the user. The values are provided for reference only.

Number of Pole Pairs	5	
Motor Type and Winding	PMSM, star winding	
Torque Constant	0.13	Nm/A _{RMS}
Back EMF Constant	8.5	V/krpm
Insulation Class	F	

POWER SUPPLY & WIRING

PINOUT METRIC VARIANTS (M2G3)

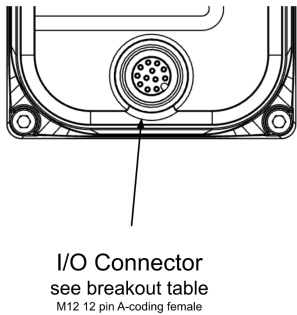
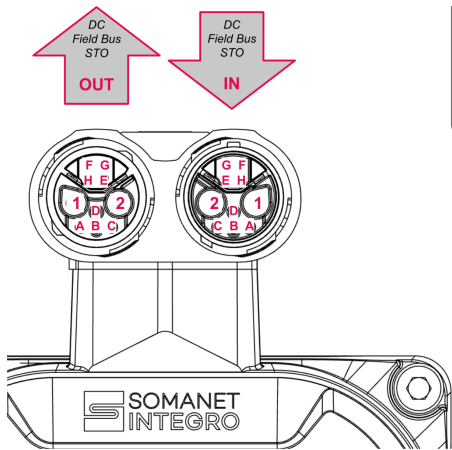


I/O CONNECTOR BREAKOUT TABLE

Pin	Dedication	Cable Color
1	AI_2_n/Clock-/B-	White
2	I-	Brown
3	DI_1/DO_1*	Green
4	DI_2/DO_2*	Yellow
5	DI_3** (Fast DI)	Gray
6	DI_COM	Pink
7	AI_1_p/Data1+/A+	Blue
8	AI_1_n/Data1-/A-	Red
9	AI_2_p/Clock+/B+	Black
10	GND	Violet
11	I+	Gray/Pink
12	+24V_out*	Red/Blue

PINOUT SINGLE CABLE TECHNOLOGY (Hxxx)

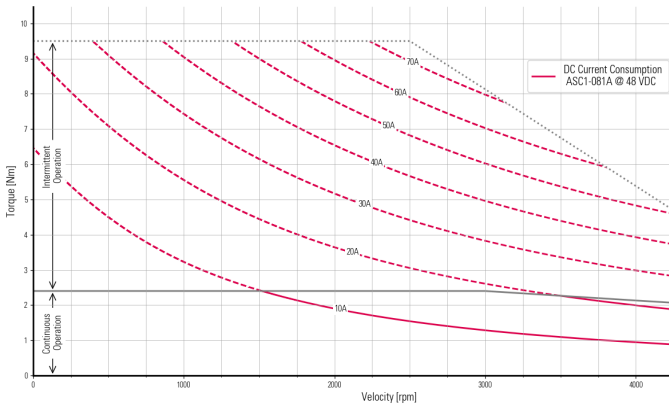
Pin	Dedication	Cable Color
1	GND	Black
2	VCC	Red
A	STO B	Yellow/Gray
B	STO GND	Black
C	STO A	Yellow/White
D	FE	Pink
E	TD+	Yellow
F	RD-	Blue
G	TD-	Orange
H	RD+	White



POWER SUPPLY

The following main requirements are recommended to be fulfilled supply ACTILINK S

- PELV or SELV power supply or battery
- Recommended voltage 48 V (24 - 60 V possible)
- Continuous and peak DC current as specified in the figure the right
- Consider the need for a braking chopper if regenerative operating points are used
- Recommended models available at www.synapticon.com



CABLING

Recommended cable configurations available in standard lengths: [ACTILINK Cables in Synapticon Online Shop](#). Other lengths on request.

Part Number	Usage	Connector A	Cable	Connector B
CMS-PS05-U14N0-xxx	Metric variants, to power source	M12, 5 pin, L-coding, Female	5x 2.5 mm2, drag chain capable	Open Leads
CMS-PD05-U14M0-xxx	Metric variants, power daisy-chain	M12, 5 pin, L-coding, Female	5x 2.5 mm2, drag chain capable	M12, 5 pin, L-coding, Male
CMS-ES04-U00F0-xxx	Metric variants, field bus to PLC	M8, 4 pin, A-coding, Male	CAT5 100 Mbps, drag chain capable	RJ45
CMS-ED04-U00F0-xxx	Metric variants, field bus daisy-chain	M8, 4 pin, A-coding, Male	CAT5 100 Mbps, drag chain capable	M8, 4 pin, A-coding, Male
CMS-SS03-U00N0-xxx	Metric variants, STO to source	M8, 3 pin, A-coding, Male	3x AWG22, drag chain capable	Open Leads
CMS-SY03-U00N1-xxx	Metric variants, STO daisy-chain	M8, 3 pin, A-coding, Male	3x AWG22, drag chain capable	Y-cable: 1x Male + 1x Female (M8, 3 pin, A-coding)
CHY-NS10-U14CQ-xxx	Hybrid variants, to source / PLC	ACTILINK Hybrid Cable Technology - Female Connector	ACTILINK Hybrid cable Technology: 2.5 mm2 DC + Field bus + STO + FE	Open Leads (DC + STO + FE) + RJ45 (Field Bus)
CHY-ND10-U14CQ-xxx	Hybrid variants, daisy chain	ACTILINK Hybrid Cable Technology - Female Connector	ACTILINK Hybrid cable Technology: 2.5 mm2 DC + Field bus + STO + FE	ACTILINK Hybrid Cable Technology - Male Connector
CMS-GS12-U00N0-xxx	All variants with IO, IO to sensor / actuator	M12, 12 pin, A-coding, Male	12x AWG26	Open Leads

The maximum cable length along the entire daisy chain is 30 m. For long cables and high currents, please consider voltage drop across cable.

STANDARDS & COMPLIANCE

Category	Standards
General Product Safety Directive	2001/95/EC
Conformity	  
EMC	IEC 61800-3, Emissions: C2 Immunity: second environment
Electrical Safety	IEC 61800-5-1
Functional Safety	IEC 61800-5-2, IEC 61508 parts 1-7, ISO 13849-1, ISO 13849-2 Certified by TÜV Süd 
UL	UL 61800-5-1, 2nd edition (pending)
Shock	IEC 60068-2-6
Vibration	IEC 60068-2-27

DOWNLOADS & DOCUMENTATION

-  [Technical Documentation](#)
-  [OBLAC Drives Commissioning Software](#)
-  [DC Servo Systems Design Tool](#)
-  [CAD Data](#)
-  [And More...](#)