



EWDL+EWML - ESA Servo Package Low Power

EWDL+EWML

ESA Servo Package Low Power

Connect
ideas.
Shape
solutions.

ESA S.p.A. | www.esa-automation.com |

Overview

Smart Tech. Ease of Use.

IPC	SOFTWARE
HMI	IIOT & CLOUD
HMI + SOFT PLC	EMS
PAC	REMOTE ASSISTANCE
WEB PANEL	SCADA
INDUSTRIAL ROUTER	CNC & MOTION
I/O	
DRIVE & MOTOR	

EWDL Servo Drive

the new ESA drive low power (EWDL) with the ESA motors (EWML) made the servo-package solution based on the EtherCAT fieldbus designed as an excellent performance/price powered at 230 Vac and rated up to 1 kW. Available in the 3 sizes of 100W, 400W and 750W nominal power, this family drive allows a decentralized motion control approach, executed by EtherCAT fieldbus or CANOpen DS402. Inside offers a control algorithm with very fast sampling, advanced speed, torque and position loop controls plus the addition of filters for correct system setting. These ensure fast system response times, high accuracy and efficiency. The EWDL series also offers features such as anti-vibration, automatic in-line setting, preselectable

positioning, stand-alone programs with integrated motion control and more.

The configuration wizard on the ESA Servo Suite tool optimizes inertia detection for accuracy and allows you to quickly set control parameters and minimize commissioning time.

UL certification and STO safety features available on EWDL reduce time and cost, no need additional cabling.

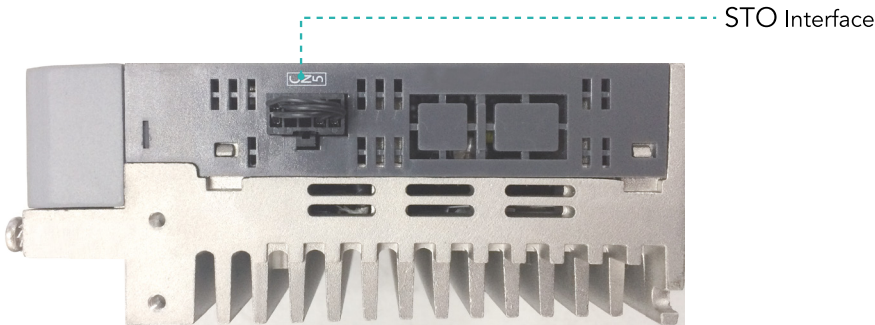
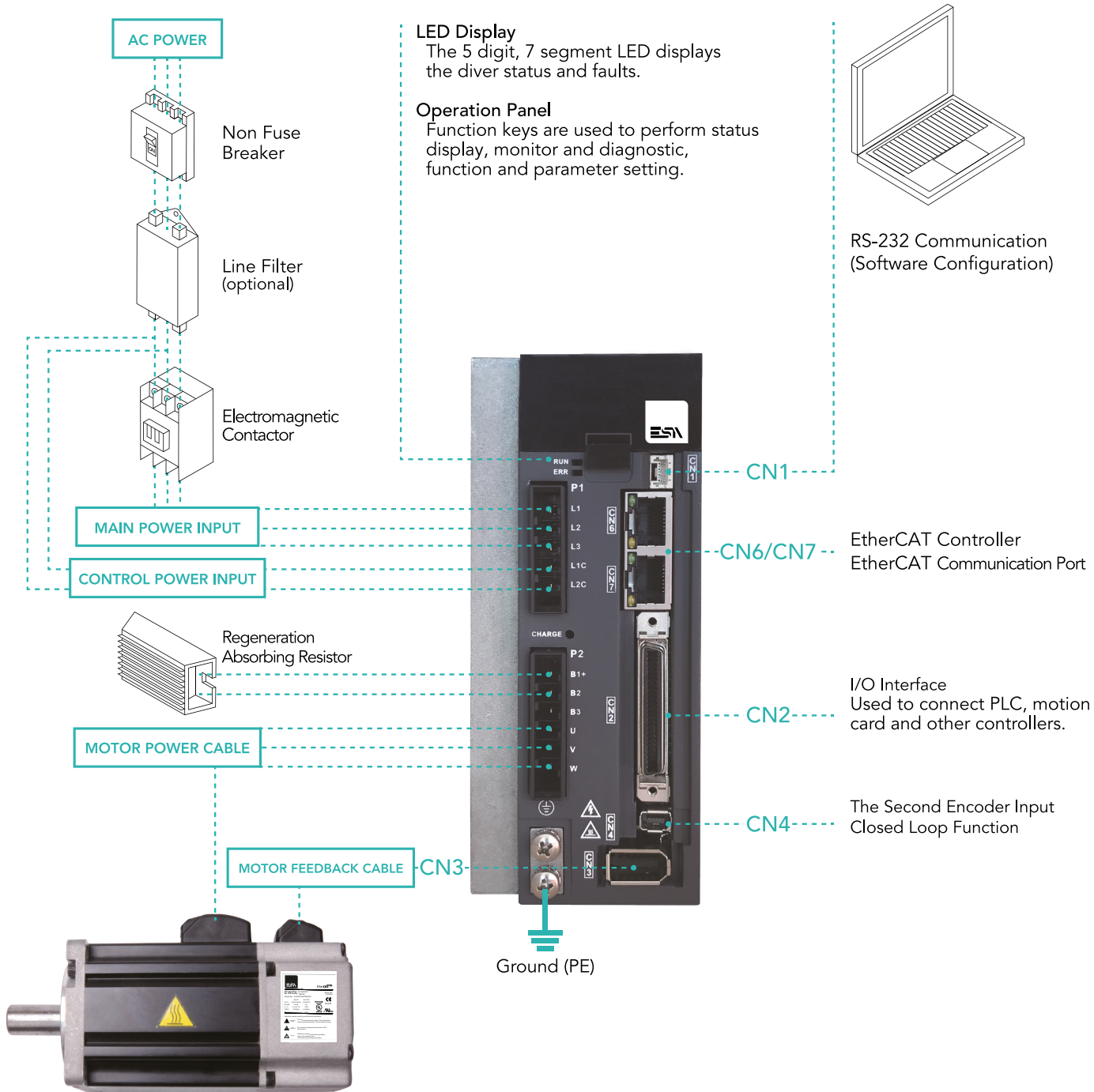
FEATURES

- + Incremental Encoder feedback 2500ppr
- + FieldBUS: EtherCAT or CANopen
- + 8 digital input / 4 digital output
- + 6 operation mode conformal EtherCAT standards
- + IP 20 Protection Degree
- + Safety Standards – Safe Torque Off
- + Standards: CE, UL, UR

APPLICATION

- + Packaging
- + Position Tables
- + Delta Robot X-Y
- + Polisher, Conveyor
- + Industrial Automation





Technical Characteristics

	EWDL2S20x250000	EWDL2S40x250000	EWDL2S70x250000
General Specifications			
Input Power Main Circuit	Single / Three-phase, 200~240VAC ±10%, 50/60Hz		
Input Power Control Circuit	Single, 200~240VAC ±10%, 50/60Hz		
Nominal Current (A)	1,75	3	4,5
Peak Current (A)	5,25	9	13,5
Withstand Voltage	Primary to earth: withstand 1500 VAC, 1 min, (Leakage current: 20 mA) [220V Input]		
Control Method	PWM Sinusoidal wave drive		
Analogue Input	2 inputs (12Bit A/D:2 input) – Only for CANopen Version -		
Digital Input	8 optical isolated multi function inputs, 5-24VDC, 20mA		
Digital Output	4 optical isolated multi function outputs, 5-24VDC, 20mA		
Communications	RS-232 (for configuration) – EtherCAT-CANopen		
Operation Mode (EtherCAT)	Profile Position (PP) – Profile Velocity (PV) – Torque Profile (TQ) – Cyclic Synchronous Position (CSP) – Cyclic Synchronous Velocity (CSV) – Homing (HM) – Q Program		
Front Panel	4 keys (MODE, UP, DOWN, SET) , 5-digit LED Display		
Regeneration Resistor	Built-in regenerative resistor (external resistor is also enabled.)		
Additional Features	Simple Soft PLC QProgram based on SCL		
Mechanical			
Dimensions	W.41 x D.145 x H.150 (mm)	W.55 x D.145 x H.150 (mm)	W.65 x D.176 x H.150 (mm)
Weight	0,89 kg	1,21 kg	1,63 kg

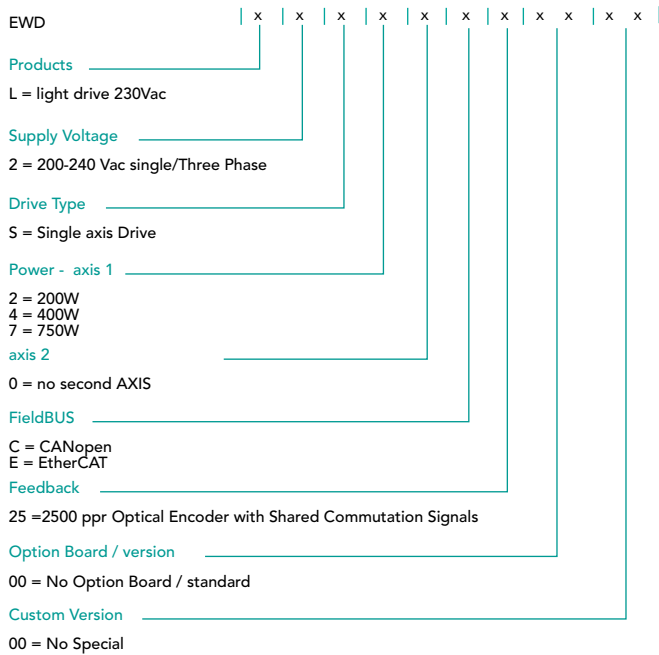
Environmental Conditions

Working temperature:	0°C to 50°C (If the ambient temperature of servo drive is higher than 45°C, please install the drive in a wellventilated location)
Stocking temperature:	20°C .. + 65°C
Altitude	Lower than 1000m
Humidity	10 to 85%RH or less both Operating and Storage
Vibration	9,8m/s ² or less, 10 - 60Hz (Do not use continuously at resonance frequency)
Protection Degree	IP20

Standard

EN 61800-3:2004 + A1:2012	Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods
EN 61800-5-1 (2007)	Adjustable speed electrical power drive systems - Part 5-1: Safety requirements - electrical, thermal and energy requirements
2014/30/EU	European Directive on electromagnetic compatibility
2014/35/EU	European Low Voltage Directive
2011/65/EU	European RoHS Directive
UL	Power Conversion Equipment UL508C
STO	safety Torque Off according to EN ISO 13849

Dimensions



EWML Brushless Servo Motor

ESA motor made by 3 different mechanical flange size, 40, 60 and 80mm and 3 power level 100W, 400W, 750W; inside an high performance encoder ensure well accuracy and stability.
Low cogging rotors built for power, speed and accuracy

- + High energy magnets provide enhanced peak torque
- + Skewed magnets minimize cogging for smooth speed control and accurate positioning
- + Double bonded magnets and precision balanced, for smooth reliable high speed performance

FEATURES

- + Encoder 2500ppr on board
- + High torque in a small package:
40mm, 60mm and 80mm flanges
- + Low cost non sealed connectors,
- + Low cogging design
- + Standard brake option
- + Shaft seal
- + IP65 protection level
- + All motors are CE, RoHS, and UL recognized

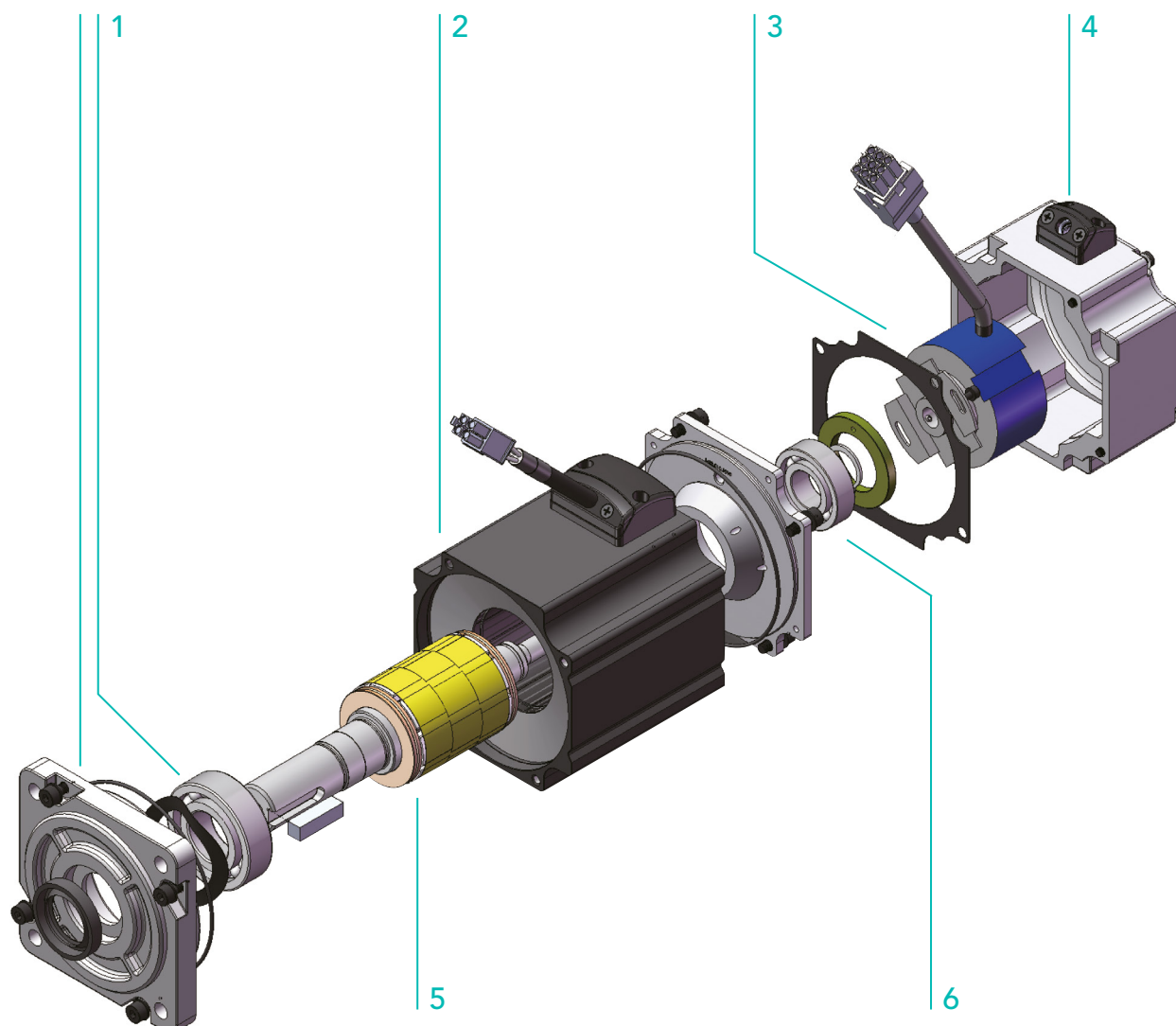
The simplicity of mechanical construction and only the optional brake make the product very economical, which can be combined with all gearboxes on the market.

CE, RoHS and UL certifications complete the product, making it available for the various reference markets.

APPLICATION

- + Textile
- + Packaging
- + Industrial Equipment
- + Delta Robot X-Y
- + Wood Working
- + Semiconductor





How is made

.1

Rugged aluminum endcaps with steel inserts and high capacity bearings, for long life with high radial loads.

.2

Stators built for: Maximum Torque, Environmental Protection and Reliability

- + Segmented construction with maxim winding fill, for lower resistance coils and more power
- + Stators inserted in aluminum shells and completely encapsulated in Epoxy, to maximize heat transfer and protect the motors from harsh operating conditions

.3

High performance encoder ensure well accuracy and stability.

.4

Rugged cast metal covers for reliable protection from electrical noise and harsh operating conditions.

.5

Low cogging rotors built for: Power, Speed and Accuracy

- + High energy magnets provide enhanced peak torque
- + Skewed magnets minimize cogging, for smooth speed control and accurate positioning
- + Double bonded magnets and precision balanced, for smooth reliable high speed performance

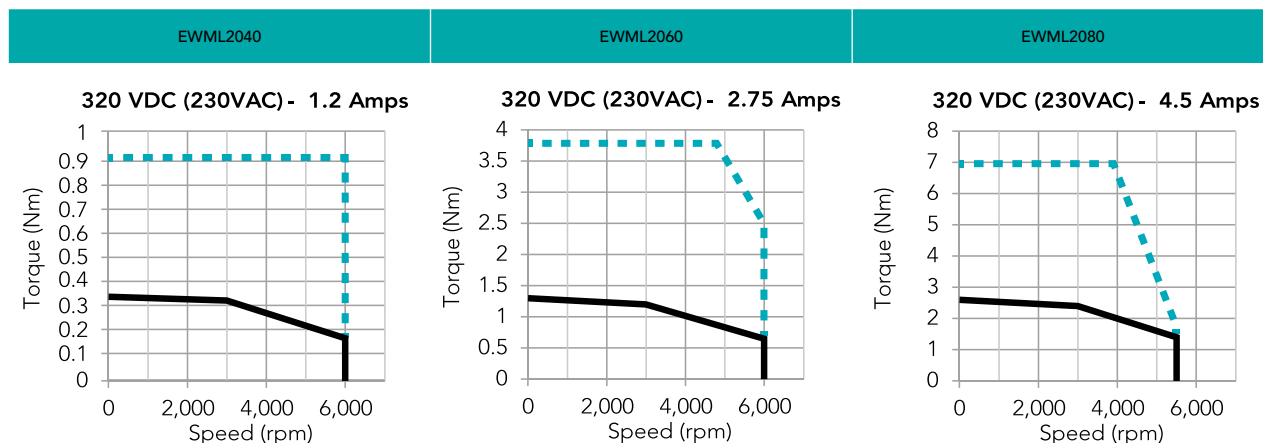
.6

Shaft movement controlled with captured bearings to eliminate axial movement, for consistent feedback performance and precise load control.

Technical Characteristics

	EWML2040EDx00	EWML2060EDx00	EWML2080EDx00
General Specifications			
Rated Output Power	100W	400W	750W
Rated Speed	3000 rpm		
Max. Mechanical Speed	6000 rpm		5500 rpm
Rated Torque	0,32 Nm	1,27 Nm	2,4 Nm
Continuous Stall Torque	0,34 Nm	1,27 Nm	2,6 Nm
Peak Torque	0,93 Nm	3,8 Nm	6,9 Nm
Rated Current	1,2 A (rms)	2,7 A (rms)	4,5 A (rms)
Continuous Stall Current	1,27 A (rms)	2,7 A (rms)	4,9 A (rms)
Peak Current	3,6 A (rms)	8,1 A (rms)	13,5 A (rms)
Inertia	0,0428 kgcm ²	0,272 kgcm ²	0,89 kgcm ²
Inertia - With Brake Option	0,0494 kgcm ²	0,326 kgcm ²	0,97 kgcm ²
Voltage Constant +/- 5%	16,6 V/krpm	29 V/krpm	36,6 V/krpm
Torque Constant +/- 5%	0,271 Nm/A	0,484 Nm/A	0,543 Nm/A
Numero di poli	8	8	8
Mechanical			
Flange	40 mm	60 mm	80 mm
Dimensions [Interaxis x Centering]	1.46 x C.30 mm	1.70 x C.50 mm	1.90 x C.70 mm
Shaft Dimensions [DxL]	8 x 25 mm	14 x 30 mm	19 x 40 mm
Weight	0,55 kg	1,4 kg	2,6 kg
Weight with Brake	0,8 kg	1,9 kg	3,4 kg

Curves



Environment Conditions

Working temperature:	0°C to 40°C
Stocking temperature:	-20°C .. + 80°C
Altitude	Lower than 1000m
Humidity	85%RH or lower (free from condensing) both Operating and Storage
Vibration	49 m/s ²
Protection Degree	IP65

Standards

2014/35/EU	European Low Voltage Directive
EN 60034-1	Rotating electrical machines part 1
EN 60034-5	Rotating electrical machines part 5
2011/65/EU	European RoHS Directive
UL	(cURus) standards

Motor Table configuration

Servo Drive				
				
CANopen		EWDL2S20C250000	EWDL2S40C250000	EWDL2S70C250000
EtherCAT		EWDL2S20E250000	EWDL2S40E250000	EWDL2S40E250000

Matching motor				
				
		Frame 40, 100W	Frame 60, 400W	Frame 80, 750W
Low Inertia	Without Brake	EWML2040EDN00	EWML2060EDN00	EWML2080EDN00
	With Brake	EWML2040EDB00	EWML2060EDB00	EWML2080EDB00

Order Code

EWM	x	x	x			x	x	x	x	x
Products										
L = Low Inertia 230Vac										
Supply Voltage										
2 = 200-240 Vac single/Three Phase										
Motor Size / power										
040 = size 40mm 100 W										
060 = size 60mm 400 W										
080 = size 80mm 750 W										
Feedback										
E = Encoder 2500 ppr										
Shaft and Connectors										
D = Standard keyway - Non-Sealed Connector										
Brake option										
N = No brake										
B = brake										
Customization										
00 = Standard										

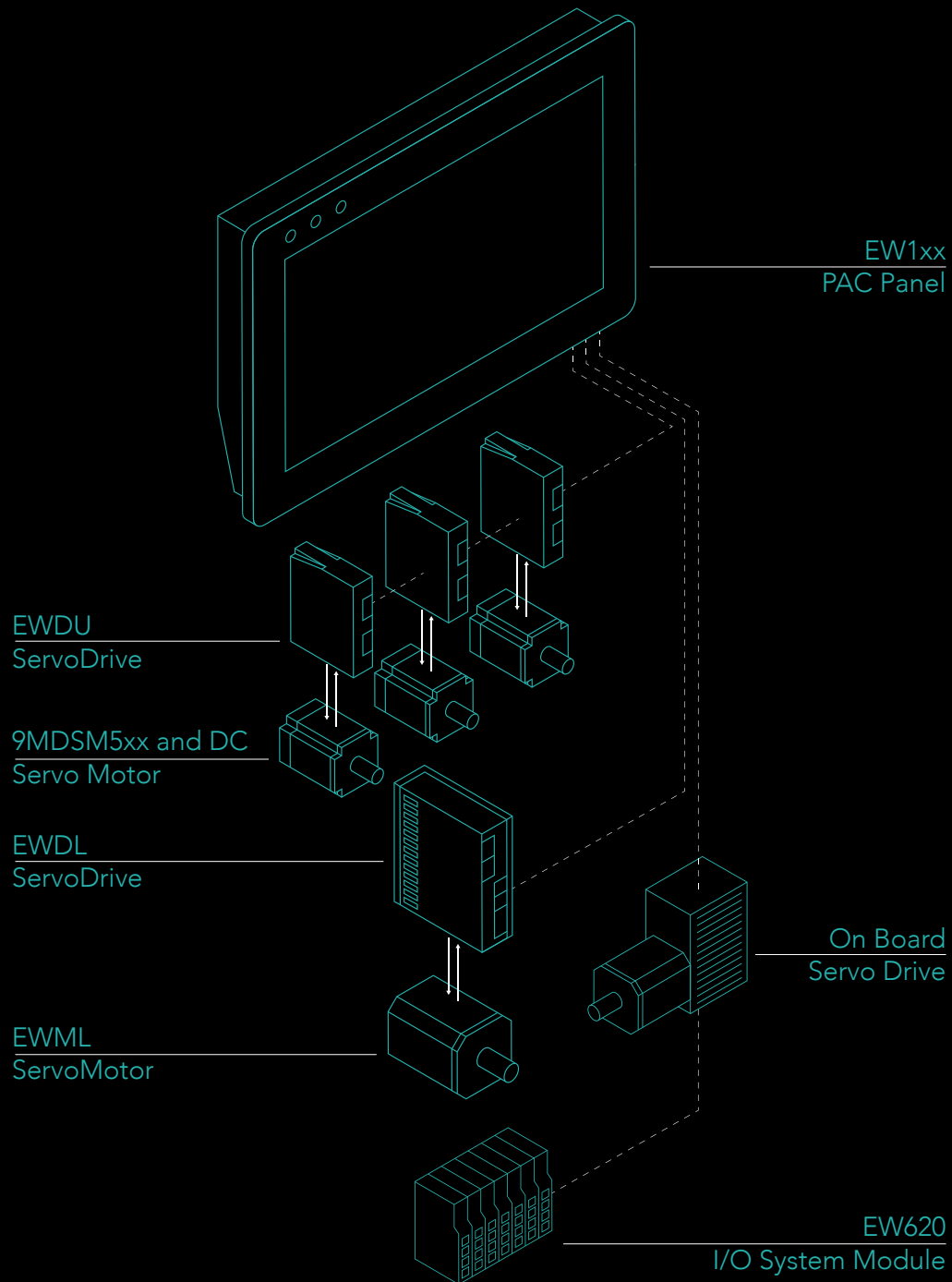
Dimensions

EWML2040EDN00 without Brake L1=109	EWML2040EDB00 with Brake L1=147
EWML2060EDN00 without Brake L1=125	EWML2060EDB00 with Brake L1=165
EWML2080EDN00 without Brake L1=131	EWML2080EDB00 with Brake L1=178

Accessories
Cable and Connectors

CODE	DESCRIPTION	
Standard Cables		
EWDL0CB01000		EWDL Brake Standard Cable, 1 Meter
EWDL0CB03000		EWDL Brake Standard Cable, 3 Meters
EWDL0CB05000		EWDL Brake Standard Cable, 5 Meters
EWDL0CB10000		EWDL Brake Standard Cable, 10 Meters
EWDL0CP01000		EWDL Motor Standard Cable, 1 Meter
EWDL0CP03000		EWDL Motor Standard Cable, 3 Meters
EWDL0CP05000		EWDL Motor Standard Cable, 5 Meters
EWDL0CP10000		EWDL Motor Standard Cable, 10 Meters
EWDL0CF01000		EWDL Encoder Standard Cable(9 Wires), 1 Meter
EWDL0CF03000		EWDL Encoder Standard Cable(9 Wires), 3 Meter
EWDL0CF05000		EWDL Encoder Standard Cable(9 Wires), 5 Meter
EWDL0CF10000		EWDL Encoder Standard Cable(9 Wires), 10 Meter
EWDL0CE01000		EWDL EtherCat Encoder Standard Cable(9 Wires), 1 Meter
EWDL0CE03000		EWDL EtherCat Encoder Standard Cable(9 Wires), 3 Meters
EWDL0CE05000		EWDL EtherCat Encoder Standard Cable(9 Wires), 5 Meters
EWDL0CE10000		EWDL EtherCat Encoder Standard Cable(9 Wires), 10 Meters
High Flex Cables		
EWDLHCB01000		EWDL Brake High Flex Cable, 1 Meter
EWDLHCB03000		EWDL Brake High Flex Cable, 3 Meters
EWDLHCB05000		EWDL Brake High Flex Cable, 5 Meters
EWDLHCB10000		EWDL Brake High Flex Cable, 10 Meters
EWDLHCP01000		EWDL Motor High Flex Cable, 1 Meter
EWDLHCP03000		EWDL Motor High Flex Cable, 3 Meters
EWDLHCP05000		EWDL Motor High Flex Cable, 5 Meters
EWDLHCP10000		EWDL Motor High Flex Cable, 10 Meters
EWDLHCF01000		EWDL Encoder High Flex Cable(9 Wires), 1 Meter
EWDLHCF03000		EWDL Encoder High Flex Cable(9 Wires), 3 Meter
EWDLHCF05000		EWDL Encoder High Flex Cable(9 Wires), 5 Meter
EWDLHCF10000		EWDL Encoder High Flex Cable(9 Wires), 10 Meter
EWDLHCE01000		EWDL EtherCat Encoder High Flex Cable(9 Wires), 1 Meter
EWDLHCE03000		EWDL EtherCat Encoder High Flex Cable(9 Wires), 3 Meters
EWDLHCE05000		EWDL EtherCat Encoder High Flex Cable(9 Wires), 5 Meters
Connectors		
EWDLIOC50P00		I/O Connector
EMC Filter		
9XCNW10206		EMC Filter 1Ph 6A
9XCNW10210		EMC Filter 1ph 10A

SYSTEM ARCHITECTURE



EW1xxA(B)7CN

HMI software developed with Crew

PLC software developed with IEC61131 environment (Codesys)

Codesys library for simple motion (example SAP Positioning without interpolation)

EtherCAT communication (I/O and drives)



ESA S.p.A. | Headquarters
Via Padre Masciadri 4/A
22066 Mariano Comense (CO) Italy
Tel. +39 031 757400
Fax. +39 031 751777
info@esa-automation.com

ESA energy S.r.l.
Via Fortunato Zeni 8
38068 Rovereto (TN) - Italy
Tel. +39 0464 443272
Fax. +39 0464 443273

ESA Europa S.L.U.
Passeig del Ferrocarril, 335
08860 Castelldefels (Barcelona) - España
Tel. +34 936455014
Fax. +34 936455013

ESA Automation Technology (Shanghai) Co. Ltd
Address: Room 1503, JinYuan Center, #28
Yuanwen Road, Minhang District, Shanghai, China.
Tel: 021-60907250
Fax: 021-60907258
Post code: 201199

ESA S.p.A. | LBU
Via Molise, 1 - Z.I. Gello
56025 Pontedera (PI) - Italy
Tel. +39 0587 296014
Fax. +39 0587 294240

ESA S.p.A. | LBU
Via Monari Sardè 3
40010 Bentivoglio (BO)
Tel. +39 051 6640464

ESA Elettronica GmbH
Carl-Zeiss-Strasse, 35
63322 Rödermark - Deutschland
Tel. +49 6074 486 45 0
Fax. +49 6074 486 45 66

ESA Software & Automation India Pvt. Ltd
1st Floor, 2nd Main, HRBR Layout,
3 rd Block, Kalyan Nagar Post,
Bangalore 560 043 - India
Tel. +91 80 25435656

ESA Elektronik Technology Ticaret Limited Şirketi
Mahmutbey Mahallesi Taşocağı yolu caddesi
Ağaoğlu 212 My Office No:3 Ofis No:239
Bağcılar/Istanbul - Türkiye
Tel: +90(212) 809 49 00-01
Fax: +90(212) 809 49 02

Connect
ideas.
Shape
solutions.

ESA S.p.A. | www.esa-automation.com |