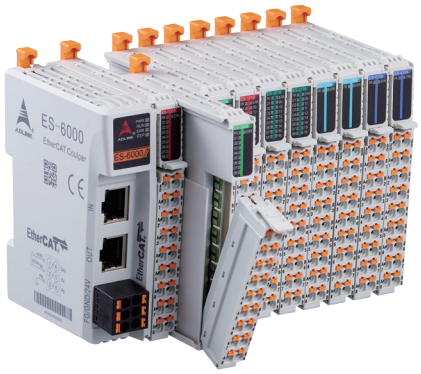
ES Series

EtherCAT Slice I/O Module



Features

- Compliance with EtherCAT standard
- Optimization with ADLINK EtherCAT MainDevice (250μs cycle time)
- Comprehensive SubDevice modules, including coupler, digital I/O, analog I/O, power supply and terminal shield
- DO/AO can choose whether to maintain the output state when disconnected
- Compliance with industrial IEC standard
- Excellent scalability powered by modularized and slice-type design
- Spring-clamp type pluggable terminal block

Introduction

The ADLINK ES Series complete EtherCAT solution, from hardware to middleware to software, with every element tailored for dedicated EtherCAT functionality, includes PCIe-833x and SuperCAT master controllers, ECAT & ES slave systems, and remote monitoring and control providers. ADLINK's SoftMotion one-stop control kernel also delivers flexible and easy-to-use intelligent platforms for driving next-generation smart factories.

ADLINK's ES slave system brings powerful flexibility to EtherCAT environments. State-of-the-art modular construction allows the EtherCAT slave to be configured to fulfill the needs of both small local applications and expansive distributed platforms.

The ES system incorporates and controls nearly any type of I/O device. Uniquely designed for full operability in environments ranging from -20°C to 60°C, the ES slave system is also fully compliant with the EN 61000-6 for heavy industrial EMC protection, and it holds an emission certificate.

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Ordering Information

- ES-6000
  EtherCAT Bus Coupler
- ES-1008
  8-ch sinking / sourcing type digital input EtherCAT module
- ES-1016
  16-ch sinking / sourcing type digital input EtherCAT module
- ES-2108
  8-ch sinking type digital output EtherCAT module
- ES-2116
  16-ch sinking type digital output EtherCAT module
- ES-3104
  4-ch -10V to 10V analog input EtherCAT module
- ES-3504
  4-ch TC/RTD temperature acquisition EtherCAT module
- ES-4104
  4-ch -10V to 10V analog output EtherCAT module
- ES-5003
  1-ch, Modbus RTU communication EtherCAT module
- ES-0012
  5V/2A extended power EtherCAT module
- ES-0040
  4 x RJ45 (1 in, 3 out) EtherCAT switch hub

Specifications

Bus Coupler

Model Name	ES-6000	ES-0012	ES-0040
Type	**EtherCAT Bus Coupler**	**Extended Power**	**EtherCAT Switch Hub**
Technical Specification			
System input voltage	24VDC (18V to 36V)		
System input current	Max: 600mA @ 24VDC	Max: 500mA @ 24VDC	80mA
Bus protocol	S-Link	-	-
Bus power output	5VDC / Max: 2A		
SubDevice supported	32	-	
Device supported	Depends on Master support		
Data transmission cable	Ethernet/EtherCAT Cat5 cable		Ethernet/EtherCAT Cat5 cable
Transmission rate	100Mbps		100Mbps
EtherCAT cycle time	Min: 250μs		-
Transmission distance	≤ 100m		≤ 100m
Bus interface	2 × RJ45		4 x RJ45 (1 in, 3 out)
General Specification			
Isolation voltage	500VAC		
Rated current consumption	2A	2A	80mA
Power consumption	10W	10W	1.9W
LED indicator	PWR, RUN, ERR, EEP	PR	PWR, IN1, OUT2, OUT3, OUT4
Operating temperature	-20°C to 60°C		-10°C to 60°C
Storage temperature	-40°C to 80°C		-20°C to 75°C
Humidity	95% none-condensing		
Certification	CE, RoHS		
Dimension (WxHxD: mm)	25.55 x 107 x 80	15.7x107x80.7	28 x 112 x 76
Weight	~100g	~70g	~110g

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Specifications

Digital I/O

Model Name	ES-1008	ES-1016	ES-2108	ES-2116	ES-5003
Type	**Digital Input**		**Digital Output**		**Communication**
Technical Specification					
Bus input voltage	5VDC (4.5V to 5.5V)				
Bus input current	≤ 40mA	≤ 50mA	≤ 65mA	≤ 75mA	170mA
Input voltage	24VDC (20.4V to 28.8V)		24VDC (20.4V to 28.8V)		N/A
Input current	5mA @ 24VDC		-		
Channel	8	16	8	16	1
Interface type	Souring (PNP) / Sinking (NPN)		Sinking (NPN)		RS232 / RS485 / RS422
Logic0 voltage/current	-3V to +5V / <0.9mA		N/A		N/A
Logic1 voltage/current	11V to 30V / >2.1mA				
Response time	< 50μs				
Input filter	Default 3ms, Configurable range 0.1ms to 20ms				
Max input frequency	150Hz @ filter time 3ms				
Input impedance	5.4KΩ				
Output voltage drop	N/A		< 1V		
Rated current			500mA per channel		
Leakage current			< 10μA		
Response time			< 150μs		
Communication protocol	N/A				Modbus RTU / Modbus ASCII
Baud rate					1200bps to 115200bps
General Specification					
Isolation voltage	500VAC				
Rated current consumption	40mA	50mA	65mA	75mA	170mA
Power consumption	0.2W	0.25W	0.325W	0.375W	0.85W
LED indicator	PR, RUN, DI status		PR, RUN, DO status		PR, RUN, TX, RX
Operating temperature	-20°C to 60°C				
Storage temperature	-40°C to 80°C				
Humidity	95% none-condensing				
Certification	CE, RoHS				
Dimension (WxHxD: mm)	15.7x107x80.7				
Weight	~85g				~65g

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Specifications

Analog I/O

Model Name	ES-3104	ES-4104	ES-3504		
Type	**Analog Input**	**Analog Output**	**TC**	**RTD**	**R**
Technical Specification					
Bus input voltage	5VDC (4.5V to 5.5V)				
Bus input current	≤ 145mA	≤ 30mA	75mA		
Input voltage	-	24VDC (20.4V to 28.8V)	N/A		
Voltage range	-10V to 10V	-10V to 10V			
Channel	4	4	4		
Input/Output type	Voltage	Voltage	TC	RTD	R
Interface	Single-ended	Single-ended	2-wire	2-wire / 3-wire	2-wire
Conversion time	230μs/ch, 380μs/4ch	200μs/ch, 200μs/4ch	20ms/ch, 110ms/4ch	80ms/ch, 330ms/4ch	
Resolution	16 bits				
Sampling rate (All channel)	≤1kS/s	-			
Accuracy	±0.1% @25°C (F.S.) ±0.3% @-20 to 60°C (F.S.)		±0.3% @25°C (F.S.) ±0.5% @-20 to 60°C (F.S.)	±0.1% @25°C (F.S.) ±0.3% @-20 to 60°C (F.S.)	
Sensitivity	-		0.1°C		±0.1Ω
Input impedance	≥ 400kΩ	≥ 2kΩ	≥10KΩ		
Signal input voltage	Max: 30V	-			
Over-voltage Protection	±30V	-	±30V		
Sensor code and range	N/A		B: 50 to 1800°C E: -200 to 1000°C J: -200 to 1200°C K: -200 to 1370°C S: -50 to 1690°C	Pt100: –200 to 850°C Pt200: –200 to 850°C Pt500: –200 to 850°C Pt1000: –200 to 850°C Ni100: -60 to 250°C Ni1000: -60 to 250°C	15Ω to 3kΩ
Noise suppression	-		50Hz, 60Hz, 10Hz, Non		
General Specification					
Isolation voltage	500VAC				
Rated current consumption	145mA	30mA	75mA		
Power consumption	0.725W	0.15W	0.375W		
LED indicator	PR, RUN				
Operating temperature	-20°C to 60°C				
Storage temperature	-40°C to 80°C				
Humidity	95% none-condensing				
Certification	CE, RoHS				
Dimension (WxHxD: mm)	15.7x107x80.7				
Weight	~85g		~65g		

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