

SPiiPlusES

High Performance Multi-Axis EtherCAT® Controller & DS402 Multi-Axis EtherCAT® Drive Node

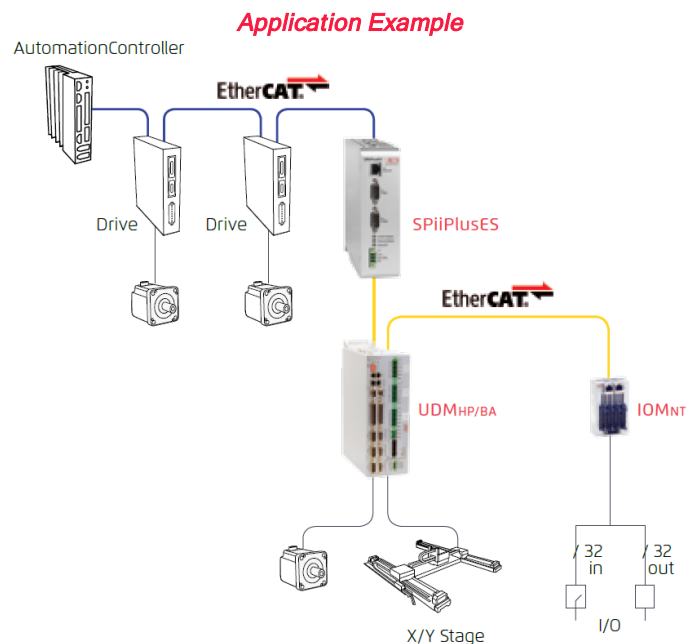


SPiiPlusES as a DS402 Multi-Axis EtherCAT Drive Node

- > Can be managed by any EtherCAT Automation Controller
- > Up to 8 axes utilizing standard DS402 CoE drive commands
- > Up to 64 axes utilizing manufacturer's specific DS402 CoE drive commands
- > Distributed clock
- > Up to 5kHz EtherCAT cycle rate

SPiiPlusES as an EtherCAT Master

- > Identical to SPiiPlusEC, powerful EtherCAT Motion Controller
- > Up to 64 axes and many I/Os
- > Up to 5kHz EtherCAT cycle rates
- > **NetworkBoost™** for cable failure detection and recovery
- > Can be synchronized to the distributed clock of the external network



The SPiiPlusES is a high performance programmable motion controller and EtherCAT Master that can be connected as a node to any EtherCAT network utilizing the standard DS402 CAN Over EtherCAT (CoE) protocol. To the external EtherCAT Master it looks like a highly programmable multi-Axis motor drive.

The SPiiPlusES expands the capability of any EtherCAT Automation Controller to manage up to 64 axes and thousands of I/O utilizing ACS EtherCAT sub-network. With up to 8 drives/axes, standard DS402 commands are used. For additional drives/axes, up to 64, DS402 manufacturer's specific commands are used. It supports distributed clock and the ability to synchronize the two EtherCAT networks. Any application in the fields of Semiconductors, Laser micro-machining, Electronics manufacturing, digital printing and more, that uses an EtherCAT automation controller will benefit from the unique and advanced capabilities of ACS programmable motion controller and wide range of drives to enhanced accuracy and throughput.

Specifications

Number of Axes

As a Master: Up to 64 axes
As a Slave: Up to 64 axes, Thousands of I/O's

Motion Types

- > Multi-axis point-to-point, jog, tracking and sequential multi-point motion
- > Multi-axis segmented motion with look-ahead
- > Arbitrary path with PVT cubic interpolation
- > Third order profiles (S-curve)
- > Smooth on-the-fly change of target position or velocity
- > Inverse/Forward kinematics and coordinate transformations (at application level)
- > Master-slave with position and velocity locking (electronic gear/cam)

Programming

- > ACSPL+ powerful motion language
 - > Real-time program(s) execution
 - > Up to 64 simultaneously running programs / threads
- > NC programs (G-code)
- > C/C++, .NET and many others standard languages

Working Under SPiiPlusES EtherCAT Master

All ACS EtherCAT Network Modules

Refer to ACS web site for an updated list of modules
www.acsmotioncontrol.com/products

Non ACS Modules

ACS qualifies drives and I/O modules made by other vendors
Refer to ACS web site for an updated list of other vendor's supported modules www.acsmotioncontrol.com/downloads
Other vendor's drives supported mode is Cyclic Synchronous Position (CSP)
Additional modes are supported by some drives
Contact ACS for details: sales@acsmotioncontrol.com

Motion Processor Unit (MPU)

Processor Type: Multi-core Intel Atom CPU (model depends on controller configuration)
RAM: 1GB
Flash: 2GB

MPU/EtherCAT Cycle Rate

The following options are available for MPU Cycle Rate:
For Maximum Number of Axes = 2, 4, or 8: 2 kHz (default), 4 kHz, 5 kHz
For Maximum Number of Axes = 16 or 32: 2 kHz (default), 4 kHz
For Maximum Number of Axes = 64: 1 kHz (default), 2 kHz
NetworkBoost™ and Segmented Motion (XSEG) features functionality can be limited as a function of MPU Cycle Rate and Number of Axes. Please refer to Software Documentation or contact ACS for more details.

EtherCAT Ports

Communication with an External EtherCAT Master:
EtherCAT In & EtherCAT Out, RJ45 connectors
DS402 protocol
As an EtherCAT Master:
EtherCAT In & EtherCAT Out, RJ45 connectors
NetworkBoost™ (optional) - Automatic network failure detection and recovery using ring topology and redundancy

Power Supply

Input: 24Vdc ± 20%, < 0.8A
Protection: reverse polarity

Environment

Operating range: 0 to +50°C
Storage and transportation range: -25 to +60°C
Humidity (operating range): 5% to 90% non-condensing

Dimensions

158 x 48 x 149 mm³

Weight

700 gr.

Accessories

Din rail mounting kit (DINM-13-ACC) included with product

Certifications

CE: Yes
EMC: EN 61326-1

Ordering Options

	Field	Example selection by user	Optional Values
Maximum number of axes	1	08	2,4,8,16,32,64
ECAT 3rd party Servo Drive	2	04	Up to the maximum number of axes
ECAT 3rd party Step motor Drive (open & closed loop)	3	04	Up to the maximum number of axes
ECAT 3rd party IO EtherCAT node	4	32	32 (FOC), 64 (FOC)
G-Code	5	N	N - None, G - G-code
ServoBoost™ , number of axes supported	6	A	N - 0, A - 4, B - 8, C - 12, ..., P - 60, Q - 64
Input shaping	7	Y	Y- Yes, N- No
Maximum MPU cycle rate (kHz)	8	4	D - Default, 2 - 2kHz*, 4 - 4kHz, 5 - 5kHz
NetworkBoost™ - Flexible configuration	9	N	N - None, A - NetworkBoost, B - Flexible configuration, C - Both
Number of ACSPL+ buffers	10	A	D - Default, A - 16, B - 32, C - 64
Board level version	11	N	Reserved
XL Scan (unit per scanner)	12	N	None(N), 1,2,...9,10(A),11(B),12(C),13(D),14(E),15(F),16(G)

*Only relevant for controllers with Max Number of Axes = 64

Example: SP+ES-08040432NAY4NANN

Field	1	2	3	4	5	6	7	8	9	10	11	12
PN SP+ES-	08	04	04	32	N	A	Y	4	N	A	N	N

Field Upgrades

For controllers ordered from the factory with Maximum Number of Axes equal to 32 or less and Maximum MPU Cycle Rate of 2kHz (default), the following field upgrade options are available:

Maximum Number of Axes	Maximum MPU Cycle (kHz)
2	4, 5
4	4, 5
8	4
16	4
32	2

It is not possible to field upgrade a controller ordered with 32 axes or less to 64 axes.

For controllers ordered from the factory with Maximum Number of Axes equal to 64 and Maximum MPU Cycle Rate of 1kHz (default), the following field upgrade options are available:

Maximum Number of Axes	Maximum MPU Cycle (kHz)
64	2