PDI_CL

EtherCAT® Two/Four Axis Pulse-Direction Drive Interface Module with Feedback

- Step motor control with position feedback verification

- Position feedback: Up to four incremental digital or absolute (EnDat 2.1(Digital)/2.2, Smart-Abs, Panasonic, BiSS, SSI)

- Drive interface:
  › Speed up to 4M pulses per second
  › Programmable pulse width from 80nS to 80μS

- Digital I/O:
  › Four general purpose inputs
  › Four Registration MARK (High Speed Position Capture)
  › Four motor brake outputs, 24V, 0.2A
  › One PEG (Position Event Generator)
  › All specific I/Os can be used as general purpose I/Os

- Small enclosure: 121x100x48 mm³

The PDI_CL (Pulse-direction Drive Interface) provides the ability to connect step motor drives and servo motor drives with Pulse-Direction interface to EtherCAT networks that are controlled by ACS' motion controller and EtherCAT master.
The PDI_CL includes incremental and optionally absolute digital encoder interfaces for position verification and closed loop operation.
It can be used also as a general purpose EtherCAT incremental and absolute encoder interface.
The product is offered in two versions: 2-axis and 4-axis.
The PDI_CL is an effective solution to OEMs of multi-axis machinery that use an ACS EtherCAT master and need to control additional axes using drives with Pulse-Direction interface.
A comprehensive set of software support tools, the MMI Application Studio is provided for setup, programming and diagnostics.

CE

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ACS MOTION CONTROL

Specifications

Number of Axes
2 or 4

Control Supply
Input voltage: 24Vdc ± 10%
Input current: <0.7A (including 4 encoders)

Drive Interface
- Pulse-Direction: RS422
- Maximum pulse rate: 4,000,000 pulses per second
- Pulse Width: programmable, 80ns to 80µS
- Drive Fault: two-terminal opto-isolated 24V, 14mA input, set by user as sink or source
- Drive enable: two-terminal opto-isolated output, 5V and 24V, 20mA, set by the user as sink or source

Feedback
Total number of encoder interfaces is equal to the number of axes, 2 or 4

Incremental Digital Encoder
One interface per axis
Format: AqB,I; Clk/Dir,I, RS-422,
Maximum rate: 50 million encoder counts/second
Protection: Encoder error, Encoder not connected
Encoder supply: 5V, 1.6A total (all encoders)
Encoder phases (A,B) for axis 0,1 are available as buffered outputs

Absolute Encoder (optional)
One interface per axis
Types: EnDat 2.1(Digital)/2.2, Smart-Abs, Panasonic, BiSS, SSI

Digital I/O
General Purpose Inputs
Four, Single ended, opto-isolated. 24V (+/-20%) source
Sink type can be specified by the user

Safety Inputs
Left and right limit inputs per axis
Single ended, opto-isolated, 24V (+/-20%) source
Sink type can be specified by the user
E-Stop: 24V±20%,opto isolated, two-terminal
Unused safety inputs can be used as general purpose inputs

Registration MARK (High Speed Position Capture)
Four, Two-terminal, 24V±20%, fast opto-isolation
Flexible assignment to any incremental encoder axis
Can be used as general purpose inputs

Motor Brake Outputs
Four, single ended, opto-isolated, 0.2A per output
Can be used as general purpose outputs

PEG (Position Event Generator)
One output, RS422
Pulse width: 26.6nSec to 1.75mSec
Maximum rate: 10MHz
Flexible assignment to any incremental encoder axis

EtherCAT Communication
Two ports, In and Out

Dimensions
121x100x48 mm³

Weight
250 gr

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

Accessories
PDIcl-ACC1 Mating connectors for drives, encoders and I/Os
PDIcl-ACC2 Din-rail mounting kit

Ordering Options

Ordering options	Field	Example	Optional Values (copied from Pricelist)
Number of axes	1	4	2,4
Total number of feedback channels	2	4	2,4
Absolute encoders type	3	E	U - All, N - None, E - EnDat 2.2 & 2.1 digital only, S - Smart Abs(S), P - Panasonic, B - BiSS-A/B/C, I - SSI, A - Sanyo ABS
Number of Absolute encoders interface	4	1	0,1,2,3,4
I/O Configuration	5	N	**N- Inputs & limits**: 24V/SOURCE (PNP), **Outputs:** 24V/SOURCE (PNP) **S- Inputs & limits**: 24V/SINK (NPN). **Outputs:** 24V/SINK (NPN) **T- Inputs & limits**: 5V/SINK (NPN). **Outputs:** 5V/SOURCE (PNP)

Example: PDIcl44E1N

Field		1	2	3	4	5
PN	PDIcl	4	4	E	1	N

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ACS
MOTION CONTROL