



EtherCAT®

Real-time Ethernet Technology
for Control Automation

Sigma-5 EtherCAT Network Module

The EtherCAT Network Module for Sigma-5 servoamplifiers (SGDV-OCA01A) provides a real-time Ethernet interface for an EtherCAT communication network with the communication protocol CANopen (CoE = CAN application layer over EtherCAT) and offers a wide range of functions based on the IEC 61158 Type12, IEC 61800-7 CiA 402 Drive Profile.

EtherCAT Network Module features

- ▶ Profile position mode
- ▶ Profile velocity mode
- ▶ Profile torque mode
- ▶ Interpolated position mode
- ▶ Homing mode
- ▶ Cyclic synchronous position mode
- ▶ Cyclic synchronous velocity mode
- ▶ Cyclic synchronous torque mode
- ▶ Touch probe function
- ▶ Torque limit function
- ▶ Communication rate of 100 Mbps
- ▶ 2 Standard RJ45 connectors
- ▶ 4 LEDs for status indication

Topology

Flexible topologies enable the application for various system architectures, such as cascade connection, line connection, star connection, and ring connection.

The CoE interface enables the user to achieve very high-speed synchronous distributed control with a high level of reliability. The distributed clock of the EtherCAT Network Module synchronizes the controller and the servo drive (synchronization jitter between servo axes: 1µs or less).

Components of the SGDV-OCA01A hardware interface



- EtherCAT secondary address
- LED Indicators ERR and RUN
- EtherCAT Link/Activity Indicators
- EtherCAT communication port (Input, CN11A)
- EtherCAT communication port (Output, CN11B)
- Reserved (CN12. Do not use.)

SGDV-OCA01A is an add-on board, compatible with Sigma-5 series servo drives SGDV - □□□□ E □ A.

YASKAWA Europe GmbH
 Drives & Motion Division
 Hauptstr. 185
 65760 Eschborn
 Germany
 Tel: + 49 (0) 6196-569 300
 Fax: + 49 (0) 6196-569 399
 info@yaskawa.eu.com
 www.yaskawa.eu.com

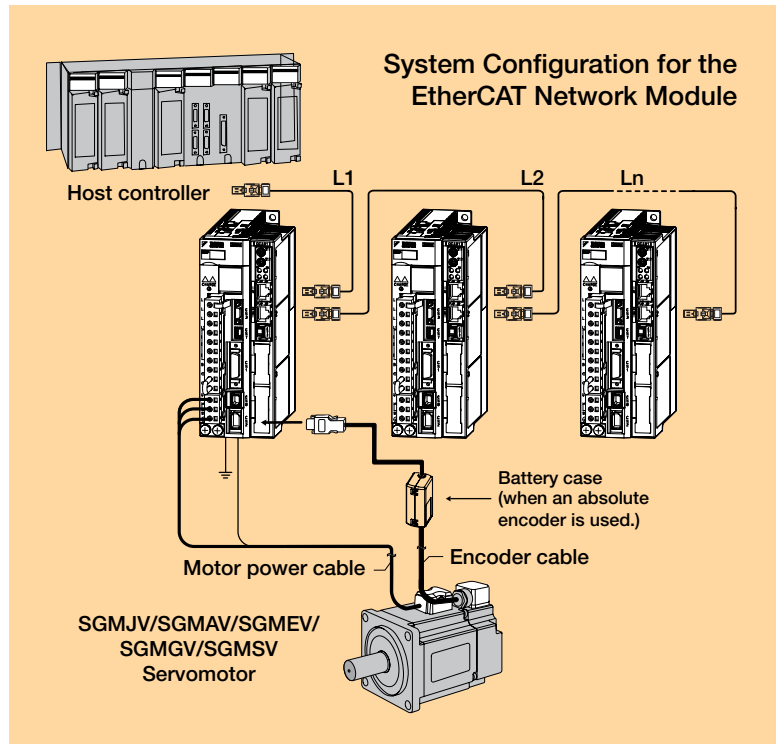


Standard Specifications

Items	Specifications
Applicable SERVOPACK	Σ-V Series SGD-V-□□□□E□A SERVOPACK, all models
Placement	Attached to the SERVOPACK
Power Specification	Supplied from the control power supply of the SGD-V SERVOPACK
Applicable communication standards	IEC 61158 Type12, IEC 61800-7 CiA402 Drive Profile
Physical Layer	100BASE-TX (IEEE802.3)
Fieldbus Connection	CN11A (RJ45): EtherCAT Signal IN CN11B (RJ45): EtherCAT Signal OUT
Cable	SF-UTP/Cat 5e min. Note: Cables are automatically recognized by the AUTO MDIX function.
SyncManager	SM0: Mailbox output, SM1: Mailbox input SM2: Process data outputs, SM3: Process data inputs
FMMU	FMMU0: Mapped to the process data output (RxPDO) area. FMMU1: Mapped to the process data input (TxPDO) area. FMMU2: Mapped to the mailbox status
EtherCAT Commands (Data Link Layer)	APRD, FPRD, BRD, LRD, APWR, FPWR, BWR, LWR, ARMW, FRMW Note: APRW, FPRW, BRW, LRW Commands are not supported.
Process Data	Variable PDO mapping
Mailbox (CoE)	Emergency Message, SDO Request, SDO Response, SDO information Note: TxPDO/RxPDO and Remote TxPDO/RxPDO are not supported.
Distributed Clocks	Free-run, DC mode (Can be selected.) Supported DC cycle: 125 μs to 4ms (every 125-μs cycle)
Slave Information IF	256 bytes (For reading only)
LED Display	EtherCAT Link/Activity indicator (L/A) x 2 EtherCAT RUN indicator (RUN) x 1 EtherCAT ERR indicator (ERR) x 1
Drive Profile	<ul style="list-style-type: none"> • Homing mode • Profile position mode • Profile torque mode • Profile velocity mode • Interpolated position mode • Cyclic synchronous position mode • Cyclic synchronous velocity mode • Cyclic synchronous torque mode • Touch probe function • Torque limit function

Best in Class Servo Drives

The Sigma-5 servo system fits in motion applications demanding high dynamic and accuracy, fast positioning and perfect multi-axes synchronisation.



Note: EtherCAT is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.