



ETHERNET 
POWERLINK

Real-time Ethernet Technology
 for Control Automation

Sigma-5 POWERLINK Network Module

The POWERLINK Network Module for Sigma-5 servoamplifiers (SGDV-OCB02A) extends Ethernet according to the IEEE 802.3 standard with mechanisms to transfer data with predictable timing and precise synchronization.

POWERLINK Network Module functions

The POWERLINK Network Module offers a wide range of functions based on the EPSG DS 301 and the CiA 402 Drive Profile Standards:

- ▶ Profile position/velocity/torque mode
- ▶ Interpolated position mode
- ▶ Homing mode
- ▶ Touch probe function

It is equipped with 4 LEDs for status indication, 2 standard RJ45 connectors and provides a communication rate of 100 Mbps.

Features

- ▶ Ease-of-Use to be handled by typical automation engineers without in-depth Ethernet network knowledge
- ▶ Up to 240 networked real-time nodes in one network segment
- ▶ Deterministic communication guaranteed
- ▶ Integration with CANopen profiles according to EN 50325-4
- ▶ Collision-free communication due to the POWERLINK special feature SCNM (Slot Communication Network Management)
- ▶ Direct peer-to-peer communication of all nodes
- ▶ "Hot Plugging" functionality
- ▶ Seamless integration into other networks via routing

This communication profile meets timing demands typical for high-performance automation and motion applications. It does not change basic principles of the Fast Ethernet Standard IEEE 802.3 but extends it towards Real-Time Ethernet (RTE).

Components of the SGDV-OCB02A hardware interface



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

SGDV-OCB02A is an add-on board, compatible with Sigma-5 series servo drives SGDV - □□□□ E □ A.

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Standard Specifications

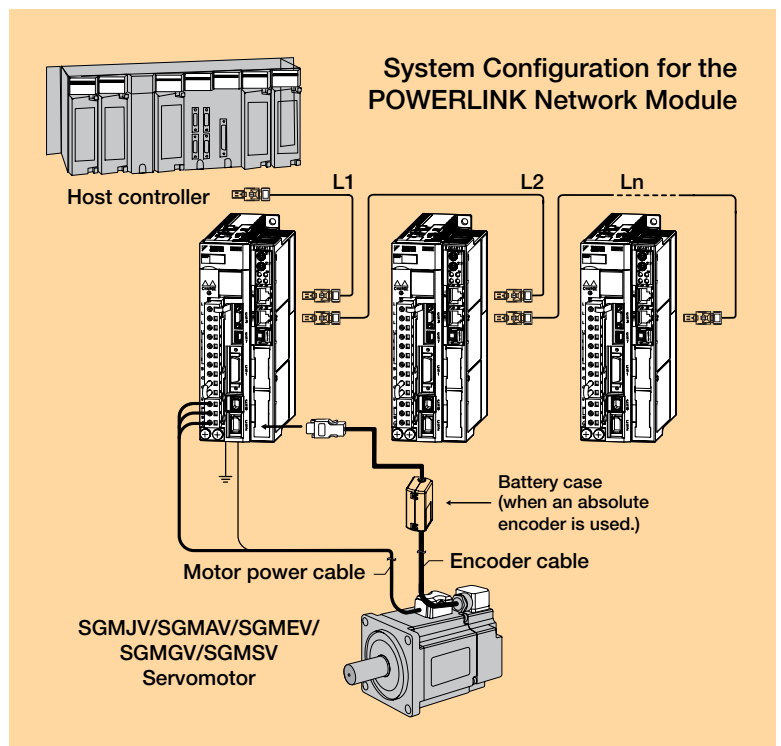
Items	Specifications
Applicable SERVOPACK	Σ -V Series SGDV-□□□□E□A SERVOPACK, all models
Placement	Attached to the SERVOPACK
Power Specification	Supplied from the control power supply of the SGDV SERVOPACK
Communication profile	Ethernet POWERLINK version V2 IEC 61800-7-1/2/3 Committee Draft
Physical Layer	100BASE-TX (IEEE802.3)
Fieldbus Connection	CN11A (RJ45): POWERLINK Signal IN CN11B (RJ45): POWERLINK Signal OUT
Cable	SF-UTP/Cat 5e min. Note: Cables are automatically recognized by the AUTO MDIX function.
Cable Length between Nodes	100 m max.
Topology	Cascade, star, tree, ring, line
Baud rate setting	100 MBit/s, half-duplex
Max. No. of Stations	240 stations
Node address setting	Select the address from 1 to 239 using rotary switches: S1, S2
Node type	Slave (CN = Controlled Node)
SDO communication	1 server SDO over ASND and UDP
PDO communication	Set of pre-defined PDOs type: Set for Servo drive. Supported RPDOs: 1 Supported TPDOs: 1
PDO mapping	Dynamic with max. 8 mapping entries, default setting according to IEC 61800-7-301
MN guarding	By timeout-monitoring of SoC frames.
LED Display	POWERLINK Link/Activity indicator (L/A) x 2 POWERLINK RUN indicator (RUN) x 1 POWERLINK 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 • Touch probe 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.



Specifications are subject to change without notice for ongoing product modifications and improvements.
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Note: Originally developed by B&R, POWERLINK is now specified and further developed by the Ethernet POWERLINK Standardization Group (EPG). The specification of the protocol is open and freely accessible.

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