Yokogawa EC402-50

2-Port ESB Bus Coupler Module

Yokogawa EC402-50 provides two ESB bus connections between a CENTUM field control unit and supported I/O nodes. The upper and lower ports give the system separate ESB connection paths for node expansion while retaining the supported single or dual-redundant coupler arrangement. EC402-50 is a system-bus interface rather than an Ethernet switch. Its node capacity must be checked against the exact field-control-unit and system release, because the higher per-port allowance is limited to a specific configuration.



Technical Specifications

Product Identity	
Manufacturer	Yokogawa
Complete model	EC402-50
Ordering code	-50: standard, no explosion protection, basic type
Dimensions (W × H × D)	32.8 × 130 × 129.5 mm
Functional Configuration	
Function	ESB bus coupler for N-IO/FIO
Ports	2 ESB bus ports; upper and lower
Standard node capacity	9 upper + 9 lower specified node/interface units
Special node-capacity condition	12 per port only for the specified A2FV50S/D star connection, ANT4[variant]1 and CENTUM VP R6.06 or later
Single / redundant arrangement	Single module in slot 7; redundant modules in slots 7 and 8
Performance & Power	
I/O data transmission speed	128 Mbps
Maximum ESB cable length	10 m per port path; 20 m combined
Current consumption	0.5 A
Environment	
Protection option	Standard version without explosion protection

Selected original manufacturer pages follow on pages 3–4.

Compatibility & Selection Guide

System compatibility. EC402-50 supports the specified AFV30/AFV40, A2FV50 and A2FV70 field control units. The allowance of twelve nodes per port applies only to the specified A2FV50S/D star connection using ANT4[variant]1 and CENTUM VP R6.06 or later. Match the field control unit, release, node/interface types and redundancy arrangement; do not apply that exception to every installation.

Wiring & Installation Reference

Signal and connection checks

Upper ESB path. 10 m maximum · Standard allowance 9 specified nodes

Lower ESB path. 10 m maximum · Standard allowance 9 specified nodes

Special capacity. 12 per port conditionally · A2FV50 star / ANT4[variant]1 / R6.06 or later

Module fit and configuration

Single configuration.. Install the coupler in slot 7 with the specified dummy module in slot 8.

Dual-redundant configuration.. Use the specified pair in slots 7 and 8; confirm the existing node and bus arrangement.

Check the system conditions.. Match the two-port ESB topology and system release; the 12-nodes-per-port exception applies only to the specified A2FV50 star configuration.

Installation precautions. Apply the higher node limit only when every specified A2FV50 star-connection condition is satisfied. Confirm each cable path separately and match the single or dual-redundant slot arrangement.

View connection specifications (PDF) · PDF page 3 | View mounting dimensions (PDF) · PDF page 4

Manufacturer sources: Model EC402 ESB Bus Coupler Module (for N-IO/FIO, 2-Port).

General Specifications

Model EC402
ESB Bus Coupler Module
(for N-IO/FIO, 2-Port)

CENTUM VP

GS 33J60E51-01EN

[Release 6]

■ GENERAL

The ESB Bus Coupler Module is a communication module to connect the Field Control Unit and the Node Unit for ESB Bus via the ESB bus.
This module can be installed in the Field Control Unit for FIO (AFV30S, AFV30D, AFV40S, AFV40D, A2FV50S, A2FV50D, A2FV70S, A2FV70D).
By installing two modules in the Field Control Unit for FIO, dual-redundant ESB bus can be configured.
EC402 has two ESB bus connector ports on the front of the module and accommodates a larger number of connected nodes than EC401, so it can offer a longer transmission distance.

■ STANDARD SPECIFICATIONS

Function: ESB bus master interface function
Number of connectable units (*1): Max. 9 units on the upper side, Max. 9 units on the lower side
Transmission speed: 128 Mbps (I/O module data transmission)
Transmission distance: Max.10 m on the upper side, Max. 10 m on the lower side, total of Max. 20 m
Current consumption: 0.5 A
Weight: Approx. 0.24 kg

*1: The number of ANB10S, ANB10D, ANT401, ANT411, and ANT421 which can be connected to the upper or lower port is up to 9.
The following connection is possible only when A2FV50S or A2FV50D is used for FCU and star connection is configured with ANT4□1. (Supported by CENTUM VP R6.06 or later.)
Upper side : Max. 12 units, Lower side : Max 12 units
For the maximum number of connectable node units, refer to “Integrated Production Control System CENTUM VP System Overview” (GS 33J01A10-01EN.)

If ESB bus is non- redundant, the ESB Bus Coupler Module needs to be installed in the 7th slot of AFV30S, AFV30D, AFV40S, or AFV40D, A2FV50S, A2FV50D, A2FV70S, A2FV70D, and slot 8th must be covered by a dummy module. And when ESB bus is dual-redundant, the modules need to be installed in both the 7th and 8th slots.

■ REQUIREMENTS FOR USING SEM (Sequence of Events Manager)

For using SEM, the hardware requires some conditions.

For details, refer to the GS “SEM Sequence of Events Manager” (GS 33J30D10-01EN).

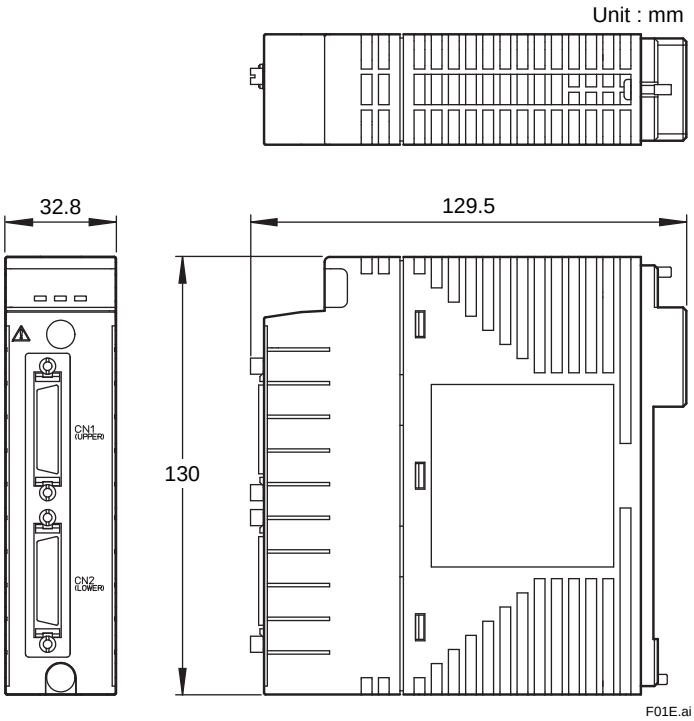
YOKOGAWA

Yokogawa Electric Corporation
2-9-32, Nakacho, Musashino-shi, Tokyo, 180-8750 Japan

GS 33J60E51-01EN
©Copyright Feb. 2015 (YK)
5th Edition Nov. 5, 2020 (YK)

■ EXTERNAL DIMENSION

Unit : mm



Nominal Tolerances :

When the reference dimension is over 0.5 mm and equal or less than 120 mm, its nominal tolerance is ± 0.8 mm, while its combination of nominal tolerance is ± 1.5 mm.

When the reference dimension is over 120 mm, its nominal tolerance is in accordance with JEM 1459.

■ MODEL AND SUFFIX CODES

		Description
Model	EC402	ESB Bus Coupler Module (for N-IO/FIO, 2-Port)
Suffix Codes	-5	Standard type with no explosion protection
	-E	Standard type with explosion protection
	0	Basic type
	1	With ISA Standard G3 option

■ APPLICABLE STANDARDS

Refer to the GS “Integrated Production Control System CENTUM VP System Overview” (GS 33J01A10-01EN).

■ ORDERING INFORMATION

Specify the model and suffix code(s).
For selecting the right products for explosion protection, please refer to TI 33Q01J30-01E without fail.

■ TRADEMARK ACKNOWLEDGMENT

The names of corporations, organizations, products and logos herein are either registered trademarks or trademarks of Yokogawa Electric Corporation and their respective holders.

All Rights Reserved. Copyright © 2015, Yokogawa Electric Corporation
Subject to change without notice.