General Specifications

Model NFLF111
FOUNDATION™ fieldbus
Communication Module

STARDOM™
FCN

GS 34P02Q55-01E

■ GENERAL

This document describes the hardware specifications of the NFLF111 FOUNDATION fieldbus communication module to be installed in an FCN (field control node) autonomous controller. The NFLF111 functions as a link master (LM) device capable of controlling communication schedules on the H1 fieldbus segment connected to each of its port and performs data exchange between the FCN and fieldbus devices.

Notation in this document:
• The term "FCN" refers to the module consisting type autonomous controllers.
• The term "FCN-500" refers to the autonomous controllers with NFCP501/NFCP502 CPU module.
• The term "FCN-100" refers to the autonomous controllers with NFCP100 CPU module.
• The term "FCN-RTU" refers to the low power autonomous controllers with NFCP050 CPU module.

■ GENERAL SPECIFICATIONS

● NFLF111 FOUNDATION fieldbus Communication Module

Table. General Specifications of NFLF111

Item		Specifications
Model		NFLF111(*1)
Interface		FOUNDATION fieldbus H1
Ports		4 ports per module
Baud rate		31.25 kbps
Functions		Link active scheduler (LAS) functionality
Power	Power supply voltage (*2)	5 V DC ± 5 %
	Maximum current dissipation	0.5 A
Bus connection		Pressure clamp terminals (*2)
Indicators		LED status indicators
Installation		To be installed in a base module.
Weight		0.4 kg
Size	Dimensions	32.8 x 130.0 x 127.5 mm (W x H x D)
	Occupying slots	1
Isolation		Field-to-system isolated with a withstanding voltage up to 1500 V AC for 1 minute
Redundancy	FCN-500, FCN-100	Available (*3) (*4)
	FCN-RTU	Unavailable
Number of modules	FCN-500, FCN-100	Up to 8 or 8 duplexed pairs of NFLF111
	FCN-RTU	Up to 8
Number of FF BlockViews		Up to 100 blocks per NFLF111 (*5) Up to 800 blocks per FCN
Inputs/outputs		48 points per port
Linkable fieldbus devices		16 devices per port

*1: Can also be installed in an extension unit.
*2: Needs a pressure clamp terminal block (below) to be installed. The block has built-in terminators that can be switched on and off individually.

*3: Duplexing the NFLF111 requires Model NT730AJ Software License for Duplexed Field Network Module for each FCN-100, and it allows up to eight duplexed pairs to be configured in the same FCN-100. This software license for FCN-500 is bundled with CPU modules.
*4: When duplexing the NFLF111, install one NFLF111 in an odd-numbered slot and the other NFLF111 of the duplexed pair in the next slot to the right.
*5: The total sum of fieldbus function blocks defined to access via all ports of each NFLF111 (or each pair of NFLF111 when duplexed).

● NFTF9S Pressure Clamp Terminal Block for Fieldbus Connections

Table. General Specifications of NFTF9S

Item	Specifications
Model	NFTF9S
Applicable module	NFLF111
Connections	4 ports
Weight	0.1 kg
Dimensions	32.6 x 112.0 x 32.5 mm (W x H x D)
Surge absorbers	Not provided
Terminator	Incorporated for each port (can be switched on and off).

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● **Installation Limitation of Other I/O Modules**

When installing NFLF111 modules, even if there are free slots, number of other I/O module installed may be limited.

Use formula below to check whether I/O module configuration is acceptable.

$$12 \times N_{(FF-H1)} + 3 \times N_{(HART)} + N_{(AIO)} + N_{(DIO)} \leq 100$$

$N_{(FF-H1)}$:   Number of NFLF111 modules or NFLF111 duplex pairs

$N_{(HART)}$:   Number of HART enabled analog I/O modules

$N_{(AIO)}$:   Number of analog I/O modules

$N_{(DIO)}$:   Number of digital I/O modules

*1: If no NFLF111 modules are installed, the maximum installable number of I/O modules is only limited by the number of free slots.
*2: This limitation does not apply to the number of serial communication modules.
*3: Here "12" and "3" are the coefficient.

If more than 7 or 7 pairs of NFLF111 modules and no HART enabled modules are installed, following limitation applies.

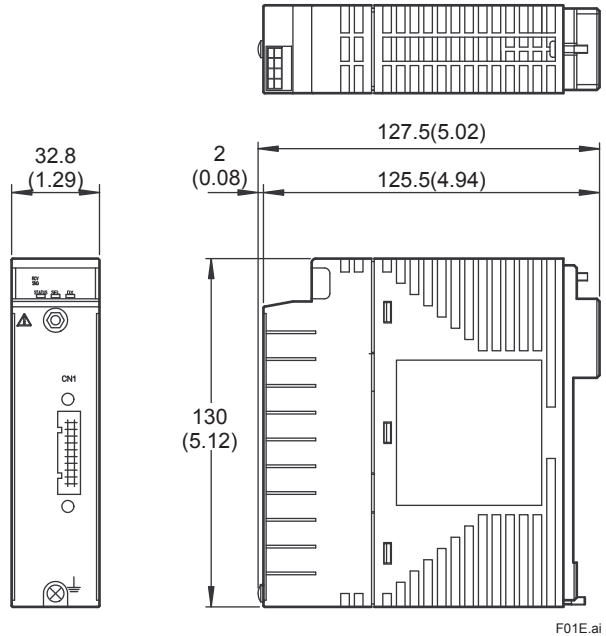**Table   Examples in case of installing no HART enabled analog I/O modules**

$N_{(FF-H1)}$	$N_{(AIO)}$+$N_{(DIO)}$ (*1)	Remarks
8	Up to 4	
7	Up to 16	Up to 11 if there are seven NFLF111 duplex pairs.
6 or less	Number of free slots	

*1: Number of slots is up to 25 using the extension unit of FCN when single CPU applied.
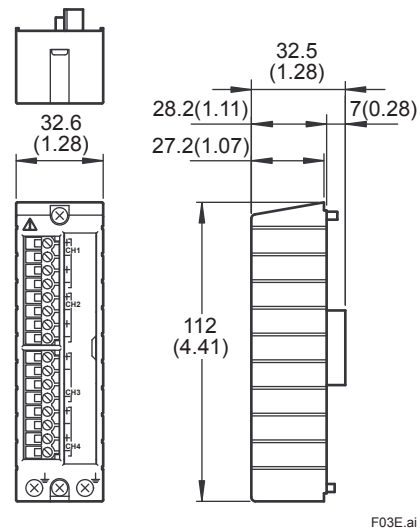
■ DIMENSIONS

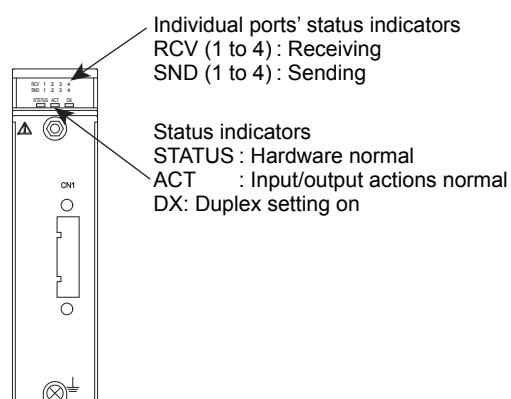● **NFLF111 FOUNDATION fieldbus Communication Module**

Unit: mm (inch)

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● **NFTF9S Pressure Clamp Terminal Block for Fieldbus Connections**

Unit: mm (inch)

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■ TERMINALS AND LEDS
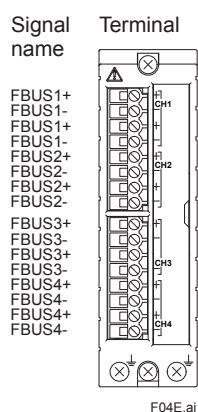
● NFLF111 FOUNDATION fieldbus Communication Module

Individual ports' status indicators
RCV (1 to 4) : Receiving
SND (1 to 4) : Sending

Status indicators
STATUS : Hardware normal
ACT   : Input/output actions normal
DX: Duplex setting on

CN1

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Table Individual Ports' Status Indicators

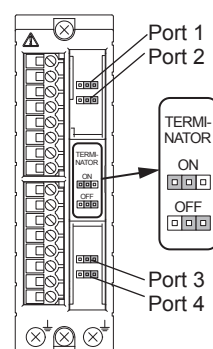| LED	Color	Description
STATUS	Green	Lights when the hardware is normal.
ACT	Green	Lights when input/output actions are carried out.
DX	Green	Lights when the module is duplexed.

Table Status Indicator LEDs

LED	Color	Description
RCV	Green	Receiving
SND	Green	Sending

● Terminal Arrangement of NFTF9S Pressure Clamp Terminal Block for Fieldbus Connections

Signal name   Terminal

FBUS1+
FBUS1-
FBUS1+
FBUS1-   CH1
FBUS2+
FBUS2-
FBUS2+
FBUS2-   CH2

FBUS3+
FBUS3-
FBUS3+
FBUS3-   CH3
FBUS4+
FBUS4-
FBUS4+
FBUS4-   CH4

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● Terminator Switches on NFTF9S Pressure Clamp Terminal Block for Fieldbus Connections

Port 1
Port 2

TERMI-
NATOR

ON

OFF

Port 3
Port 4

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■ MODEL AND SUFFIX CODES

● NFLF111 FOUNDATION fieldbus Communication Module

		Description
Model	NFLF111	FOUNDATION fieldbus communication module
Suffix Codes	-S	Standard type
	5	With no explosion protection
	E	With explosion protection
	0	Basic type
	1	With ISA Standard G3 option
	4	With Extended Temperature range (–40 to +70 ˚C) option
	5	With Extended Temperature range (–40 to +70 ˚C) and ISA Standard G3 option
Option Codes	/F9S00	With pressure clamp terminal block for FOUNDATION fieldbus (Model: NFTF9S-00)

● NFTF9S Pressure Clamp Terminal Block for FOUNDATION fieldbus

		Description
Model	NFTF9S	Pressure clamp terminal block for FOUNDATION fieldbus (for NFLF111)
Suffix Codes	-0	Without surge absorber
	0	Always 0

■ CONNECTIONS TO FIELDBUSES

For connections between an NFLF111 module and fieldbuses, see "Fieldbus Technical Information" (TI 38K03A01-01E). Throughout this Technical Information, refer to only portions pertaining to fieldbuses and read "FCU" as "FCN-500, FCN-100 or FCN-RTU" and "ACF11" as "NFLF111."

■ ORDERING INFORMATION

Specify the model and suffix codes.
For selecting the right products for explosion protection, please refer to "STARDOM FCN/FCJ Installation Guide" (TI 34P02Q91-01E) without fail.

■ TRADEMARKS

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