NETIMPRESS acorde

Hardware Manual

DTS INSIGHT CORPORATION

REVISION HISTORY

Edition	Date of Issue	Modifications
1st Edition	29 Nov, 2019	Initial publication
2nd Edition	1 Jun, 2020	Correction of errors
3rd Edition	28 Oct, 2020	Added “Setting” to the section of Note Corrected error of “Dimension of the main unit”, added “Bottom side fixing holes dimensions” to “2. Base unit” Added description of PHX401 to “6. Accessory”.
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6th Edition	23 Aug, 2021	Changed exterior photos of PHX series because of adding “Ground Terminal” description
7h Edition	28 Dec, 2023	Added description of fixing hole on bottom side Corrected PHX401 equivalent circuit error Added PHX400 and PHX401 TCK equivalent circuit Corrected PHX400 and PHX401 QSPI signal names

Note

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(2) The contents of this manual are subject to change without prior notice due to improvement of the functionality.

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INTRODUCTION

NETIMPRESS acorde Hardware Manual (hereinafter “manual”) describes specification of hardware of NETIMPRESS acorde series products, and the precautions.

ICON

The following table describes the meaning of icons used in this guide.

	It indicates very important information. Be sure to perform an operation with extra care.
	It indicates useful information and tips for operation.
	It indicates references. Please see the referenced chapter of this manual and other manuals, if you needed.

FOR YOUR SAFETY

In order to ensure the proper and safety use of NETIMPRESS acorde please be sure to follow the safety precaution mentioned below as operating NETIMPRESS acorde. DTS INSIGHT CORPORATION has no responsibility or guarantee for any injuries which occur as a result of the violation of these safety caution and warnings.

■This manual uses the icons as below to use NETIMPRESS acorde safety.

	It indicates not only that there is a danger to human as well as to the equipment, but also that it is necessary to refer to the instruction manual.
	It indicates a safety ground terminal. As this terminal is on the main unit, please be sure to connect this terminal to the ground before operating.
Warning	In order to avoid the risk of death or serious injury which may occur as a result of an incorrect use.
Note	In order to avoid the risk of minor or material damage which may occur as a result of an incorrect use.

■To avoid the risk of death or serious injury to users, such as electrocution or any other accidents, as well as the risk of damage to NETIMPRESS acorde, please follow the warnings mentioned below.

⚠ Warning

Use in Chemical Gases

Do not use NETIMPRESS acorde in an environment where are combustible or explosive gases or steam.

Using NETIMPRESS acorde in such environment is extremely dangerous.

Usage environment

This programmer is only for indoor use. Use it at an altitude of 2000 meters or less.

Available voltage range and power-supply frequency must not exceed the rated voltage ± 10%, 50/60 Hz±2 Hz.

We are assuming NETIMPRESS acorde will be used under Overvoltage category II and Pollution Degree 2.

Install it around an electric outlet so that you can unplug it to shut down the power easily.

Power

Confirm that the supply-side voltage matches to the rated power supply voltage for a power supply pack of NETIMPRESS acorde.

Use the AC cable provided with NETIMPRESS acorde to ensure safe operation.

Do not use damaged AC cable.

Do not remove the case

Only qualified service engineers should remove the case of NETIMPRESS acorde

because of the high voltage.

Action to be taken if abnormality is found

If any failure is found, such as smoke or burnt odor, disconnect NETIMPRESS acorde and the target. And then turn off the power of main unit. Contact the support center of DTS INSIGHT Corporation.

■NETIMPRESS acorde is an electronic device which consists of high-precision electronic components. Please be sure to understand and follow the caution listed below in order to avoid any accidents and as well as to make the most of your NETIMPRESS acorde

Note

Power On Sequence

Make sure to follow the switch ON/OFF order of each way of a host computer, NETIMPRESS acorde, and a target system.

The Switch ON / Switch OFF sequence should be followed in order to avoid major damages to a target system and NETIMPRESS acorde itself.

<Power On Sequence>

① Host computer

② NETIMPRESS acorde

③ Target system

<Power Down Sequence>

① Target system

② NETIMPRESS acorde

③ Host computer

Connecting the Probe and Connector

All probes and cables are designed to prevent an incorrect connection. Never force them to plug in nor unplug. Confirm the position and direction.

Inserting and Removing of the cable

To avoid major damages to a target system and NETIMPRESS acorde itself, be sure the following

To insert or remove the cable, be sure to turn off the power of NETIMPRESS acorde.

(Especially be careful to insert and remove M12 cable with this equipment and adapter.)

Disassembling NETIMPRESS acorde

Since NETIMPRESS acorde contains printed circuit boards with minute patterns, never remove screws or disassemble NETIMPRESS acorde.

If the product is disassembled or modified by the user, it will not be covered under the warranty or support services.

Neutralization

Make sure to neutralize the charge before operating NETIMPRESS acorde.

Carrying

Be sure to grip the side handle tightly to avoid injury when you carry this equipment.

Be careful not to get stuck your hand between wall or installation area when you install.

Be sure to power off and unplug all the cables when you move this equipment.

Setting

There is an exhaust fan on the back.

Please install NETIMPRESS acorde in a place where you can keep enough space on the back side.

EU DIRECTIVE

CE marking

Item	Compliant standards
CE Marking *1	[EMC Directive] Emissions: EN61326-1 Class A Immunity: EN61326-1 Table 2 (for use in industrial locations) [RoHS Directive] EN50581:2012

***1 THE PRODUCT IN WHICH CE MARKING IS INDICATED ON THE PRODUCT SERIAL LABEL IS A TARGET.**

CAUTION

THIS INSTRUMENT IS A CLASS A PRODUCT, AND IT IS DESIGNED FOR USE IN THE INDUSTRIAL ENVIRONMENT. PLEASE USE THIS INSTRUMENT IN THE INDUSTRIAL ENVIRONMENT ONLY.

WEEE MARKING
WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT DIRECTIVE (2012/19/EU)

Waste Electrical and Electronic Equipment Directive (WEEE) is for EU countries.

NETIMPRESS acorde compiles with WEEE Directive (2012/19/EU). Electric/electronic products carrying this mark must be disposed of separately from normal household wastes.

Product category:

With reference to the equipment types in the WEEE directive Annex 1, this product is classified as a “Monitoring and Control instrumentation” product. When disposing products in the EU, contact your local distributor. Do not dispose in domestic household waste.

IMPORTANT

Thank you for your purchasing “NETIMPRESS acorde”.

To make the most of NETIMPRESS acorde, please read and understand this manual and other operation manual before use. After reading this manual, please keep it for the further reference whenever required. Please ensure that NETIMPRESS acorde should be used only by persons who have read and understood the manuals. We strongly recommend that the first-time users receive a proper instruction from those who have a good knowledge of NETIMPRESS acorde.

NETIMPRESS acorde refers to NETIMPRESS acorde main unit and other related products manufactured by DTS INSIGHT Corporation. A target system and the host computer are strictly excluded.

NETIMPRESS acorde is an electronic device which consists of high-precision electronic components. In order to make the most of NETIMPRESS acorde and also to prevent any accidents, please follow the caution listed below.

A certain repair fee is required regarding the equipment damages resulted from an incorrect use or connection, etc. Please aware that it may require a few months for repairs.

Regarding software products and manuals, DTS INSIGHT Corporation guarantees only if there are any damages of media provided by DTS INSIGHT Corporation or manual defects.

If proved that there are failures or that there are problems apart from those listed above, the action will be taken based on the maintenance agreement.

⚠ Warning

Before Switching ON the power supply, be sure to confirm whether the direction of Pin 1 in the probe tip matches to Pin 1 Socket in a target system.

An incorrect connection may result in an explosion or ignition of NETIMPRESS acorde or a target system.

CAUTION

As particular parts of electronic circuits in the probe and cable tip are exposed, NETIMPRESS acorde should be used only in environments where are protected from a static electricity.

Using NETIMPRESS acorde in such environment as without static electric protection may result in destroying NETIMPRESS acorde or a target system.

Glossary

Ward and Terms	Description
NETIMPRESS acorde	It means “Multichannel writing programmer” in combination with AFX2xx series.
Base unit（AFX200）	It is an Item for based on NETIMPRESS acorde, and available for connecting maximum 9ch programs and DI/O unit. It is impossible for operating any AFX2xx without Base unit.
Programmer unit （AFX210）	It is an item for writing to flash memory.
DI/O unit （AFX220）	It is an item for control digital input-output. One unit can control 32 each input-output ports.
Maintenance unit （AFX230）	It is an item for using program and DI/O unit as stand-alone operation control.

Table of Contents

FOR YOUR SAFETY 4

EU DIRECTIVE 8

IMPORTANT 9

Glossary 10

Table of Contents 11

1. Overview 14

1.1. NETIMPRESS acorde overview 14

1.2. General Precautions 14

1.3. Communication Environment 15

2. Base Unit（AFX200） 16

2.1. Part Names and Functional Description 16

2.1.1. Front panel 16

2.1.2. Rear Panel 18

2.1.3. Bottom Panel 20

2.2. Mechanical Conditions 21

2.3. Specifications 22

2.3.1. Basic Specifications 22

2.3.2. Reset Interface 23

3. Programmer Unit (AFX210) 26

3.1. Part Names and Functional Description 27

3.1.1. Front Panel 27

3.2. LED Display 29

3.2.1. Description of LED 29

3.2.2. LED lighting status during operation 30

3.2.3. LED Lighting Status in Case of Error 31

3.3. General Specification 32

3.3.1. Basic specifications 32

3.3.2. Target Interface 32

4. DI/O Unit (AFX220) 33

4.1. Part Names and Functional Description 33

4.1.1. Front Panel 33

4.2. LED Display 34

4.2.1. Description of LED 34

4.3. Overcurrent detection function 34
4.4. General Specification 35
4.4.1. Basic Specification 35
4.4.2. DIO Interface 35
5. Maintenance Unit（AFX230） 39
5.1. Part Names and Functional Description 39
5.1.1. Upper side 39
5.1.2. Back side 40
5.1.3. Front side 41
5.2. Specification 41
5.2.1. Basic Specification 41
6. Accessary（Optional） 42
6.1.1. Power cable for AFX200（OCX20x） 42
6.1.2. DI/O cable for AFX220 (OCX220) 43
6.1.3. Maintenance Cable for AFX230 45
6.1.4. Reset Cable（OCX290） 45
6.1.5. SD Card (AFM700/_ _G) 47
6.1.6. PROBE for SERIAL/JTAG/QSPI (PHX400) 48
6.1.7. PROBE for Low-Voltage QSPI (PHX401) 61
6.1.8. PROBE for CAN-FD（PHX410） 70
7. Assembling Unit 75
8. Remote control 77
8.1. Preparations for the Host Computer 77
8.2. Connecting with the Host computer 78
8.2.1. Preparation for the connection 78
8.2.2. Setting IP address 80
9. Stand-alone Operation 82
9.1. Preparation for NETIMPRESS acorde 83
9.1.1. Starting Up 84
9.1.2. Basic Operation 85
9.1.3. About each command 85
9.1.4. About change of operation object unit 85
10. Command Sequence Function 86
10.1. Functional overview 86

10.2. EXT key setting 87
10.2.1. Command Sequence File（*.CSB） 87
10.2.2. Command Sequence File（*.CSB）Format 87
10.2.3. Error Message 88
10.3. Device Command Definitions 89
11. Error Code List 90
12. Contact 102

1. Overview

1.1. NETIMPRESS acorde overview

This NETIMPRESS acorde is a Flash Micom Programmer that supports the simultaneous writing of multiple units (up to nine units). The NETIMPRESS acorde consists of four products, base unit (AFX200), DIO unit (AFX220), programmer unit (AFX210), and maintenance unit (AFX 230).

1.2. General Precautions

(1) Only use AC adapters that DTS INSIGHT CORPORATION has approved. When you connect the power cord to the outlet, make sure that the Power Switch has been turned off.

(2) Do not use the NETIMPRESS acorde in dusty areas, where there is direct sunlight, or where corrosive gas is generated.

(3) Use the NETIMPRESS acorde in an environment with a temperature between 5 and 40°C and between 20 and 80% humidity.

(4) If there is noise in the AC current line then use a noise filter to eliminate the noise.

(5) Turn off the NETIMPRESS acorde power switch before replacing the SD card.

(6) The procedure for turning the power on is to turn the NETIMPRESS acorde on first and the user system second. The power should be turned off in the reverse order.

(7) The NETIMPRESS acorde can be operated with the dedicated SD cards connected to the specified SD card connector.

The NETIMPRESS acorde can not be operated with the SD cards removed.

(8) Be sure to switch OFF the power supply before installing or removing the provided unit (AFX210, AFX220 and AFX230) onto/from the base unit (AFX200).

Visit our home page for information about how to use this equipment and related products and for the latest information.

Flash Programmer home page:
https://www.dts-insight.co.jp/en/support/support_netimpress/top/

1.3. Communication Environment

Standard Ethernet TCP/IP can be used for communication between NETIMPRESS acorde and a host PC. Therefore, a host PC is required to have a corresponding interface. If there is no interface, you need to add it.

The terminal at the side of NETIMPRESS main unit conforms to the 10BASE-T/ 100BASE-TX /1000BASE-T standards.

2. Base Unit（AFX200）

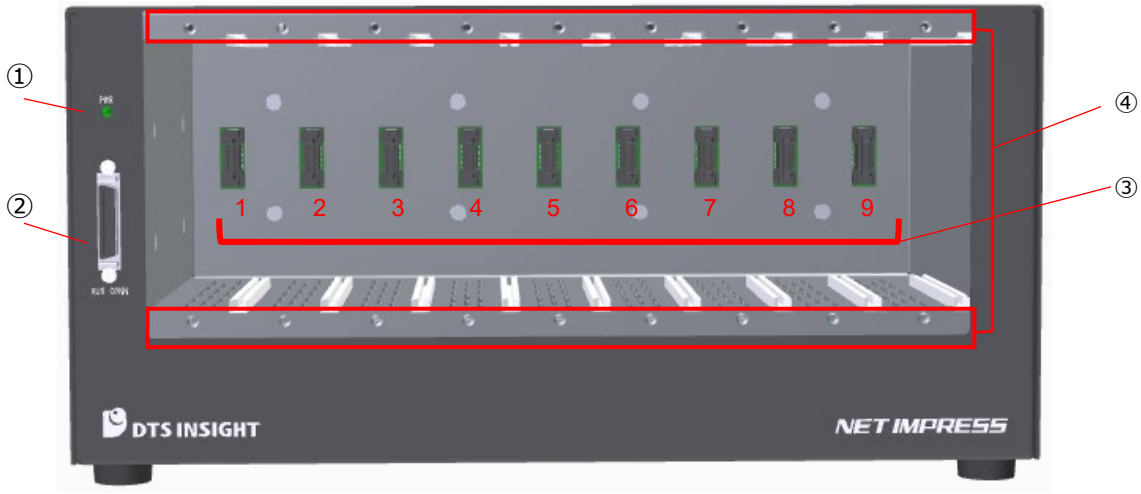
Overview

Base unit (AFX200) is a unit that can control up to nine channel programmer units (or DIO unit). Each unit connecting this equipment can control individually.

It is impossible to operate programmer, DI/O, Maintenance unit without Base unit.

2.1. Part Names and Functional Description

2.1.1.Front panel



① Power LED

This LED is lit while the power is supplied to the base unit (AF710)

② Maintenance Unit connector

Connect Maintenance Unit (AFX230) with the use of supplied cable.

③ Programmer , DIO unit connector

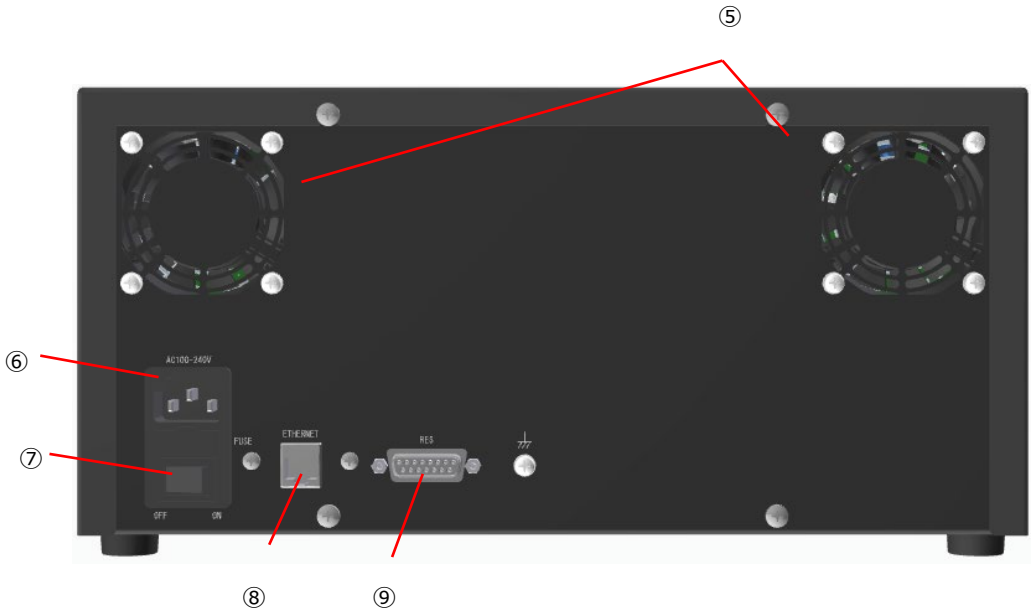
Connect the programmer unit (AFX210) or DIO unit (AFX220) to this connector. There are slots, SLOT1 to 9.

④ Programmer, DIO unit fixing screw holes

Use the screws supplied with the programmer unit (AFX210) or DIO unit (AFX220) to secure the base unit (AFX200).

⚠ **CAUTION**	Switch OFF the power supply of Flash Programmer and the target system before installing or removing the base unit (AFX200) and programmer unit (AFX210/AFX220/AFX230). Do not connect a unit other than the programmer unit (AFX210 or AFX220) to SLOT1 to 9. Be sure to attach the connector covers supplied with the programmer unit to SLOTs, to which the programmer unit (AFX210 or AFX220) is not connected. Be sure to secure the programmer/DIO unit (AFX210 or AFX220) to the base unit (AFX200) with the screws supplied with the programmer unit (AFX210 or AFX220). When the programmer/DIO unit (AFX210 or AFX220) is connected, check the power supply status using the LED on each unit

2.1.2.Rear Panel



⑤ Cooling fan blow port

This port is a cooling fan blow port. To prevent malfunction or trouble, never block this port during operation.

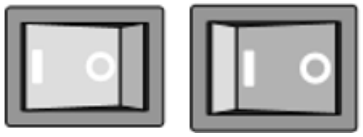
⑥ Inlet

Connect the power cord supplied with the base unit to this inlet. Be sure to connect the power plug to a 3-pole type outlet with the grounding terminal.

⑦ POWER switch

This switch is intended to turn ON or OFF the power.

Enlarged drawing of POWER switch



ON OFF

⚠ CAUTION

Be sure to operate the base unit under the specified power supply conditions. If the base unit is operated under the conditions other than those specified, this may cause damage to the NETIMPRESS.

If the power LED on the base unit (AFX200) (or the LED on the programmer / DIO unit (AFX210 or AFX220) is not lit, incorrect connection or short-circuit status may be the cause. Immediately turn OFF the POWER switch, check the connection of each cable, and that the power is supplied to the outlet properly. After that, turn ON the POWER switch again.

If any odor or smoke is found after the power has been turned ON, immediately turn OFF the POWER switch, disconnect the power cable, and contact our Maintenance Service Division.

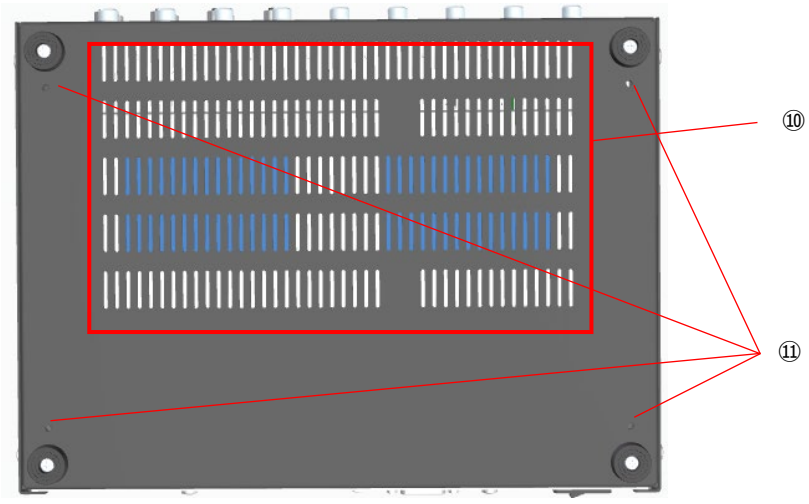
⑧ ETHERNET

This connector is intended to connect the base unit to the Ethernet.

⑨ RESET signal connector

This is the Connector for Reset cable (OCX290).

2.1.3.Bottom Panel



⑩ Air intake port

This port is an air intake port.

When installing the base unit, be careful not to block this air intake port.

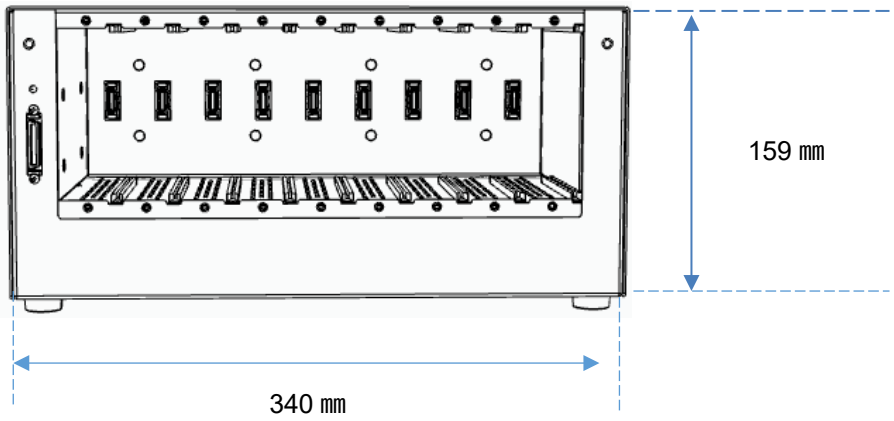
⑪ Bottom fixing holes

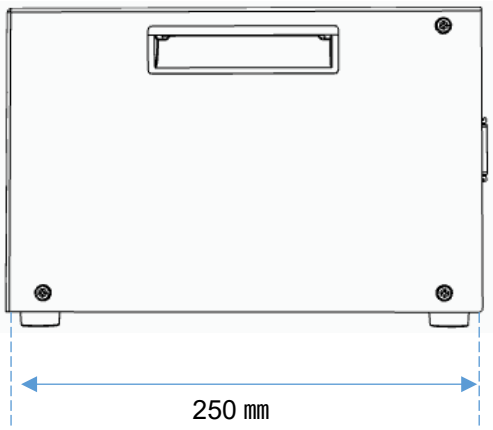
Please use it to secure the machine as necessary.

The screw standard is M4.

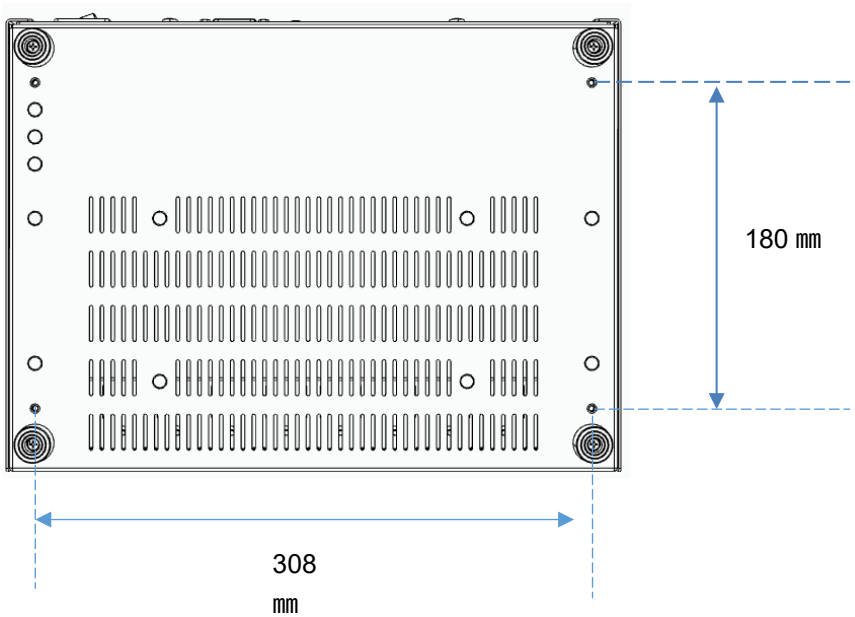
2.2. Mechanical Conditions

Outside Dimensions





Bottom side fixing holes dimensions



2.3. Specifications

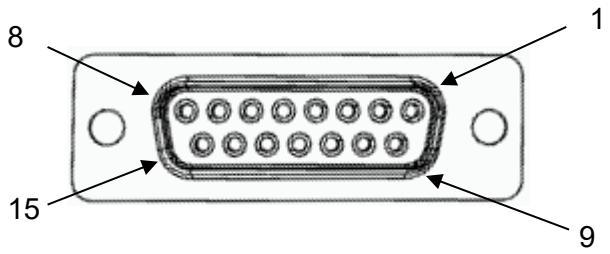
2.3.1.Basic Specifications

Item	Specifications	
Interface		【Host Interface】 ・ ETHERNET （10BASE-T/100BASE-TX/1000BASE-T,Auto-Negotiation, Auto MDI/MDI-X） ・internal 9-PORT HUB
Storage environment	Ambient temperature	-5~50℃
Operation environment	Ambient temperature	5～40℃
	Ambient humidity	20～80%（no condensation）
External dimensions	340(W)×250(D)×159(H)	
Weight	7600g	
Electrical specification	【Input voltage range】 AC100-240V 50-60Hz 【Consumed power】 2.8A MAX	

2.3.2.Reset Interface

Item	Specifications	
Target connector	Type	DA-15SF-N（Japan Aviation Electronics）
	Male/female	Female
	Number of port	1

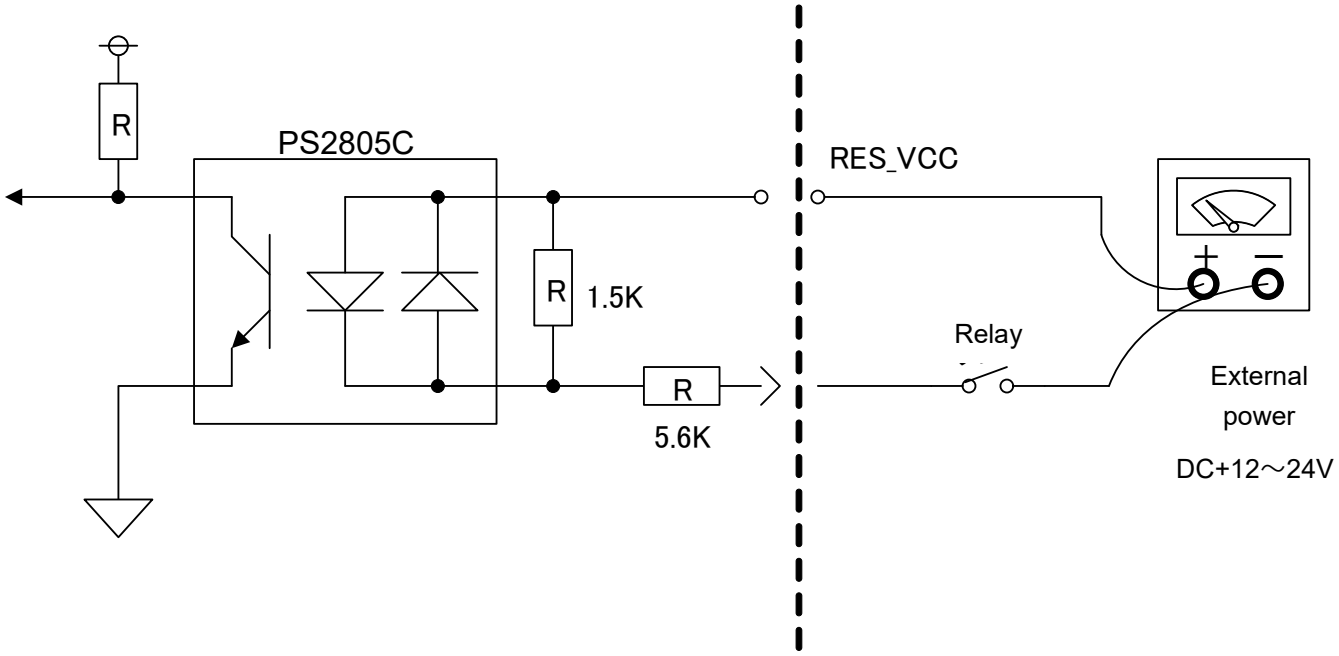
Pin arrangement



Pin assignment

CN1 Pin No	Signal Name	Definition	I/O	Type
1	M_RST9	Reset signal for SLOT9 (Low: Reset H, Hiz: other than above)	I	A
2	M_RST8	Reset signal for SLOT8 (Low: Reset H, Hiz: other than above)	I	A
3	M_RST7	Reset signal for SLOT7 (Low: Reset H, Hiz: other than above)	I	A
4	M_RST6	Reset signal for SLOT6 (Low: Reset H, Hiz: other than above)	I	A
5	M_RST5	Reset signal for SLOT5 (Low: Reset H, Hiz: other than above)	I	A
6	M_RST4	Reset signal for SLOT4 (Low: Reset H, Hiz: other than above)	I	A
7	M_RST3	Reset signal for SLOT3 (Low: Reset H, Hiz: other than above)	I	A
8	M_RST2	Reset signal for SLOT2 (Low: Reset H, Hiz: other than above)	I	A
9	M_RST1	Reset signal for SLOT1 (Low: Reset H, Hiz: other than above)	I	A
10	RES_VCC	Power supply for reset signal	I	-
11	RES_VCC	Power supply for reset signal	I	-
12	RES_VCC	Power supply for reset signal	I	-
13	RES_VCC	Power supply for reset signal	I	-
14	RES_VCC	Power supply for reset signal	I	-
15	RES_VCC	Power supply for reset signal	I	-

【TYPE A】



3. Programmer Unit (AFX210)

Overview

Programmer unit (AFX210) is a unit for fast programming to microcomputer with internal flash ROM and flash ROM connected with microcomputer external bus.

It can be accepted any device (ECU) by adding any microcomputer firm data (definition program) for programming into dedicated SD card.

You can add programming target device by your programming condition license grant.

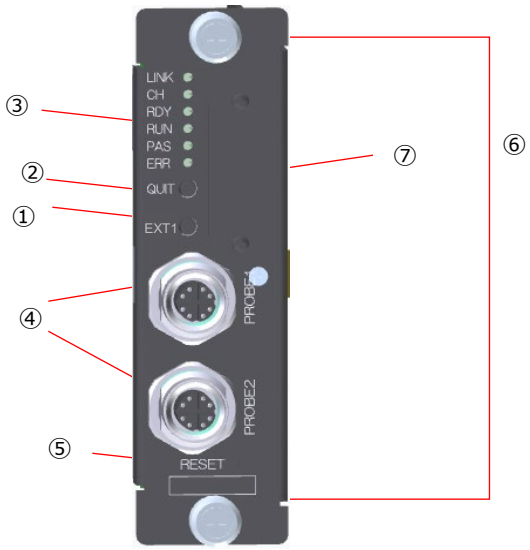
This unit can be set programming condition and control programmer main unit on host PC with using SWX600 (remote controller software).

And you can use as stand-alone (PC less) because of programming condition will be saved in SD card.

It is available for build out automatic control production lines if SWX610 (remote package, paid software) will be used.

3.1. Part Names and Functional Description

3.1.1.Front Panel



① LED

This LED shows the status of the programmer unit (AFX210).

For details, see Section 4.3. LED Display

② QUIT key

This key is used to clear the operation interruption or error display.

The remote operation is also cancelled at the same time.

③ EXT key

Various commands can be assigned to the EXE key. For details, see Chapter 10.Command Sequence Function

④ PROBE connector

This is a PHX4xx series connector for connecting target.

⑤ RESET key

This key is for restart of this equipment.

⑥ SD card insertion slot

This is an insertion slot for dedicated SD card.

⑦ Unit fixing screw

This is screw to fix this with base unit. For details, see

7.Assembling Unit

3.2. LED Display

3.2.1.Description of LED

It shows operating conditions of Programmer unit (AX210) by six LEDs (「LINK」、「CH」、「RDY」、「RUN」、「PAS」、「ERR」)

LED name	Description
LINK	Lit when Ether is connecting
CH	Lit when channel is selected from Maintenance unit.（No light on during other unit selected.）
RDY	Lit when waiting for command or key entry.
RUN	Lit while the device function is running.
PAS	Lit when the device function is terminated successfully.
ERR	Lit when the device function is terminated with error.

CAUTION

Any or six LEDs or multiple LEDs are lit when the power is supplied to the programmer unit (AFX210).
All LEDs are off if the power is not supplied.
Be sure to secure the programmer unit (AFX210) to the base unit (AFX200) with the screws (M3 x 5) supplied with the programmer unit (AFX210).
Be sure to power off this equipment and target system with following operation.
Install and remove each unit (AFX210/AFX220/AFX230).
Insert and remove SD card.
Install and remove cables.

3.2.2.LED lighting status during operation

① The following describes the LED lightning status during operating time

ALL LEDs are lit immediately after power ON

RDY is blinking during initialization process.

RDY is lit after start completion

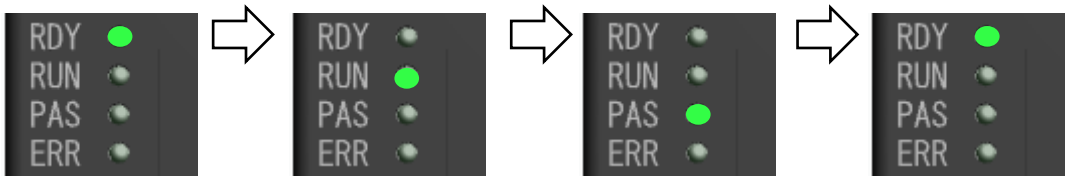
② During execution of function and one action key.

RDY is lit while waiting for command.

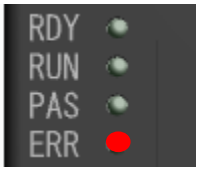
RUN is lit while executing.

PAS is lit when terminated successfully.

RDY is lit while waiting for command.



ERR is lit when terminated with error



Press QUIT key/MENU key

3.2.3.LED Lighting Status in Case of Error

The following describes the LED lightening status if an error occurs.

LED display	Error No.	Error message
	1010	HPARAM CONST ERR： Please contact our support center
	102A	CM FORMAT ERR： Definition program may be corrupted. Please download definition program.
	1016	ADDRESS WARNING： Check the area designation
	1002	NO LICENCE： Necessary to add licence
	-	NO SD CARD This error occurs if the SD card is not inserted into the Programmer. Insert the SD card into the Programmer.
	-	Other error This error can be reset by pressing the RESET key. Press the RESET key.

3.3. General Specification

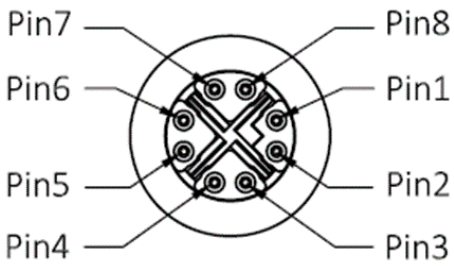
3.3.1.Basic specifications

Item	Specifications	
Storage environment	Ambient temperature	-5 to 50℃
	Ambient humidity	20 to 80% RH, no condensation
Operation environment	Ambient temperature	5 to 40℃
	Ambient humidity	20 to 80 % RH, no condensation
Outside Dimensions	31(W)×165(D) ×113(H)mm	
Weight	300g	

3.3.2.Target Interface

Item	**Specification**	
Target connector	Type	M12
	Male/Female	Female
	Number of port	2

- Pin arrangement



Connector signal table

pin No	Signal Name	definition	I/O
1	TX1+	Dend data 1+ Output	O
2	TX1-	Dend data 1- Output	O
3	RX1+	Received data 1+ Input	I
4	RX1-	Received data 1- Input	I
5	Reserved	Received signal line	-
6	Reserved	Received signal line	-
7	PWR	Power	O
8	GND	GND	-

4. DI/O Unit (AFX220)

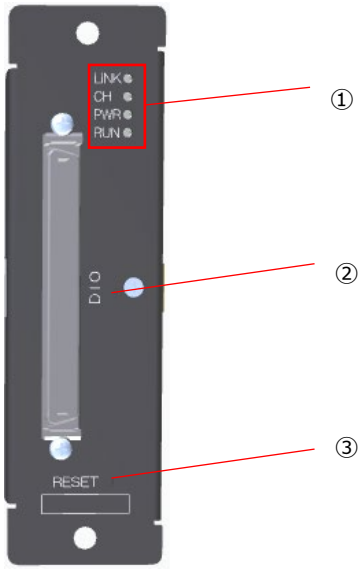
Overview

DI/O unit controls digital input and output each 32 ports.

No writing function to flash ROM.

4.1. Part Names and Functional Description

4.1.1.Front Panel



① LED

This LED is lit while the power is supplied to the DI/O unit (AX210), For details, see. 4.2LED Display

② DI/O Cable connector

This is a connector for connect OCX220 cable.

③ RESET key

This key is for restart of this equipment

4.2. LED Display

4.2.1.Description of LED

It shows DI/O Unit (AFX220) operating conditions by four LEDs (“LINK”,”CH” ,”PWR”, ”RUN”).

LED name	Description
LINK	Lit when Ethernet is connected
CH	Lit when channel is selected from Maintenance unit.
PWR	Lit while power is on
RUN	Lit during monitoring execution of DI/O status by using remote operation software (SWX630, SWX640).

4.3. Overcurrent detection function

Overview

AFX220 has a function for notify in case over-current generates.
In case of overcurrent generate, AFX220 will switch off DO port output automatically,

then it will output overcurrent notification signal.

Please be sure not to generate overcurrent to this signal while using this function.

Signals for this function

・Over-current notification alarm (OVC_ALM) ・・・ output in case of over-current generation

・Over-current notification clear signal (OVC_CLR)・・・ input this signal, then OVC_ALM will be cleared

For more detail, please see Signal List of this chapter

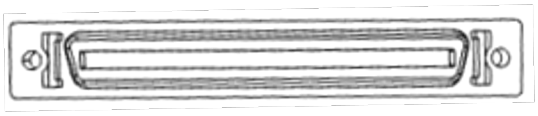
4.4. General Specification

4.4.1.Basic Specification

Item	Specifications	
Storage environment	Ambient temperature	-5 to 50℃
	Ambient humidity	20 to 80% RH, no condensation
Operation environment	Ambient temperature	5 to 40℃
	Ambient humidity	20 to 80 % RH, no condensation
External dimensions	31 (W) x 158 (D) x 112 (H) mm	
Weight	300 g	

4.4.2.DIO Interface

Connector Type



Item	Specification	
DIO Connector	Type	DX20-80S (Hirose Electric Co., Ltd..)
	Male / Female	Female
	Number of Port	1
	Maximum output load current	100mA / port

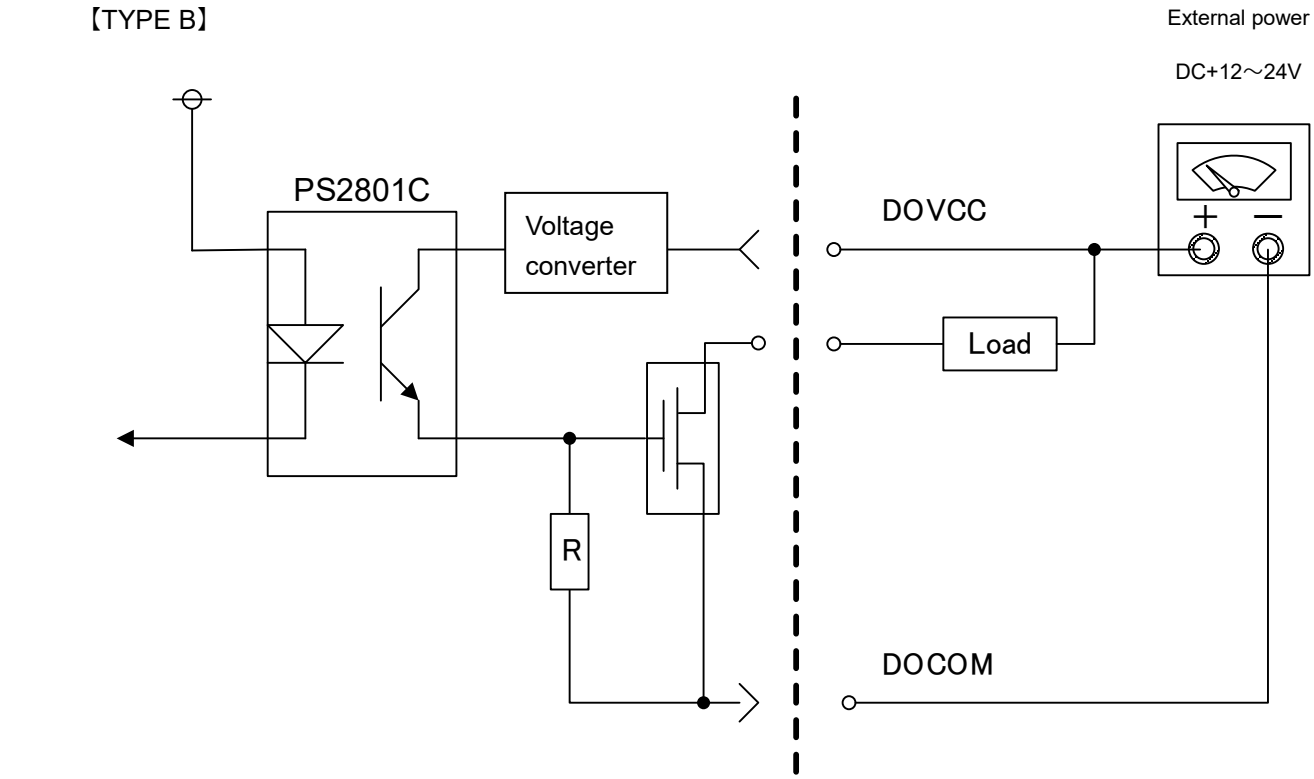
Signal List

pin No	Signal name	definition	I/O	I/O
1	DO_VCC	Power supply of overcurrent protection circuit	-	-
2	DO0	Output signal	O	B
3	DO1	Output signal	O	B
4	DO2	Output signal	O	B
5	DO3	Output signal	O	B
6	DO4	Output signal	O	B
7	DO5	Output signal	O	B
8	DO6	Output signal	O	B
9	DO7	Output signal	O	B
10	DOCOM	Isolation ground for DO0～32	-	-
11	DO8	Output signal	O	B
12	DO9	Output signal	O	B
13	DO10	Output signal	O	B
14	DO11	Output signal	O	B
15	DO12	Output signal	O	B
16	DO13	Output signal	O	B
17	DO14	Output signal	O	B
18	DO15	Output signal	O	B
19	DOCOM	Isolation ground for DO0～32	-	-
20	DO16	Output signal	O	B
21	DO17	Output signal	O	B
22	DO18	Output signal	O	B
23	DO19	Output signal	O	B
24	DO20	Output signal	O	B
25	DO21	Output signal	O	B
26	DO22	Output signal	O	B
27	DO23	Output signal	O	B
28	DOCOM	Isolation ground for DO0～32	-	-
29	DO24	Output signal	O	B
30	DO25	Output signal	O	B
31	DO26	Output signal	O	B
32	DO27	Output signal	O	B
33	DO28	Output signal	O	B
34	DO29	Output signal	O	B
35	DO30	Output signal	O	B
36	DO31	Output signal	O	B
37	OVC_ALM	Over-current notification alarm Low: Over-current notification Hiz / High: except for the above	O	B
38	reserved	-	-	-
39	reserved	-	-	-
40	DO_VCC	Power supply of overcurrent protection circuit	-	-

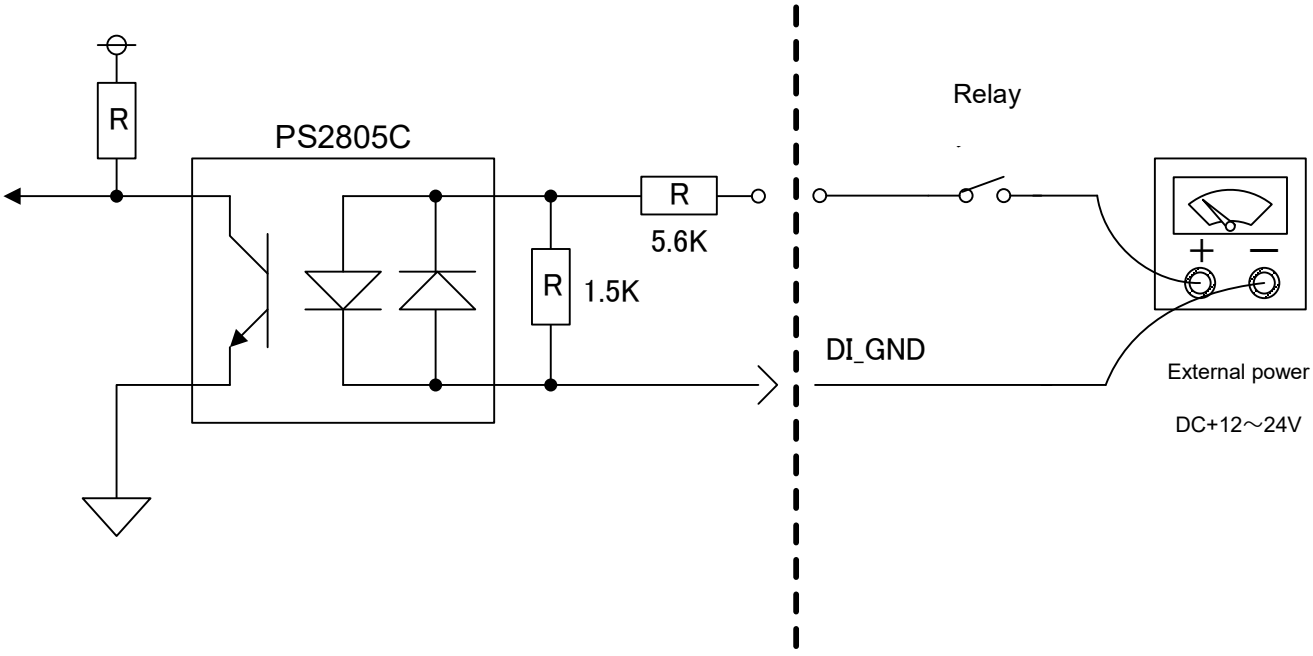
pin No	Signal name	definition	I/O	I/O
41	DI_GND	Ground for input	-	-
42	DI0	Input signal	I	C
43	DI1	Input signal	I	C
44	DI2	Input signal	I	C
45	DI3	Input signal	I	C
46	DI4	Input signal	I	C
47	DI5	Input signal	I	C
48	DI6	Input signal	I	C
49	DI7	Input signal	I	C
50	DI_GND	Ground for input	-	-
51	DI8	Input signal	I	C
52	DI9	Input signal	I	C
53	DI10	Input signal	I	C
54	DI11	Input signal	I	C
55	DI12	Input signal	I	C
56	DI13	Input signal	I	C
57	DI14	Input signal	I	C
58	DI15	Input signal	I	C
59	DI_GND	Ground for input	-	-
60	DI16	Input signal	I	C
61	DI17	Input signal	I	C
62	DI18	Input signal	I	C
63	DI19	Input signal	I	C
64	DI20	Input signal	I	C
65	DI21	Input signal	I	C
66	DI22	Input signal	I	C
67	DI23	Input signal	I	C
68	DI_GND	Ground for input	-	-
69	DI24	Input signal	I	C
70	DI25	Input signal	I	C
71	DI26	Input signal	I	C
72	DI27	Input signal	I	C
73	DI28	Input signal	I	C
74	DI29	Input signal	I	C
75	DI30	Input signal	I	C
76	DI31	Input signal	I	C
77	OVC_CLR	Signal to clear over-current notification alarm High:OVC_ALM Clear Hiz / Low: except for the above	I	C
78	DI_GND	Ground for input	-	-
79	reserved	-	-	-
80	reserved	-	-	-

Circuit specification

【TYPE B】



【TYPE C】



5. Maintenance Unit（AFX230）

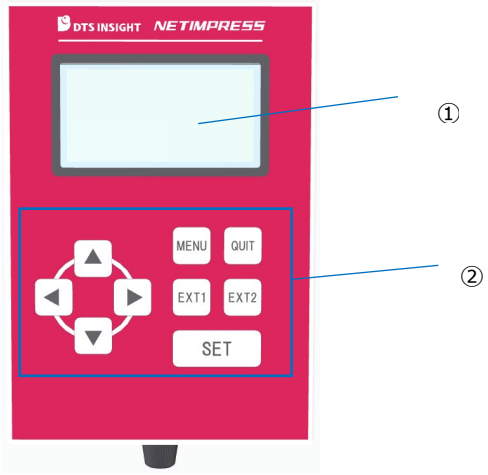
It is a unit to operate Programmer Unit and DI/O unit as stand-alone. You can change the unit for stand-alone operation by toggle switch at the bottom.

One Base unit is available for connecting one Maintenance unit.

Therefore, not available for more than one unit as stand-alone operation simultaneously.

5.1. Part Names and Functional Description

5.1.1.Upper side



① LCD

Displays various information, such as model name of definition program and address etc.

② KEY

This is used when operating NETIMPRESS acorde as a stand-alone. Details for each key's description is below.

・QUIT QUIT button is used when you want to stop the operation.

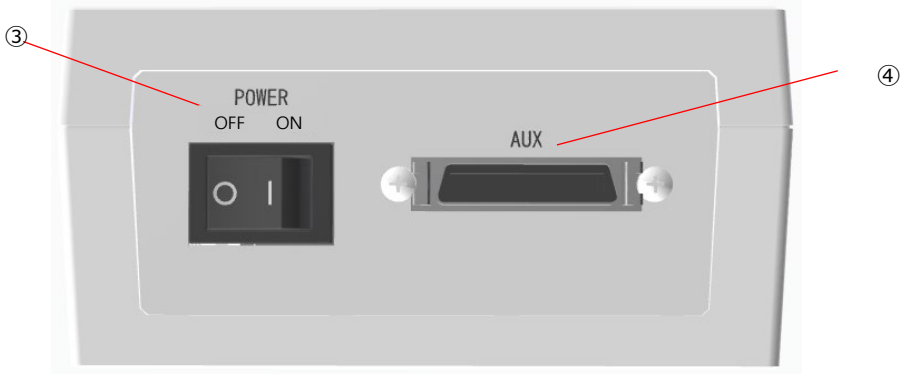
When you are operating MENU, it backs to the previous item by pressing the button.

- SET — SET button is used when you want to set and execute the settings.
- MENU — MENU button is used when you want to display the menu window
- EXT1/EXT2 — EXT1/EXT2 buttons are used to read corresponding execution file and sequence it.

EXT1/EXT2 key is not for AFX220.

- ▲▼◀▶ — For selecting MENU.

5.1.2. Back side



③ Power Switch

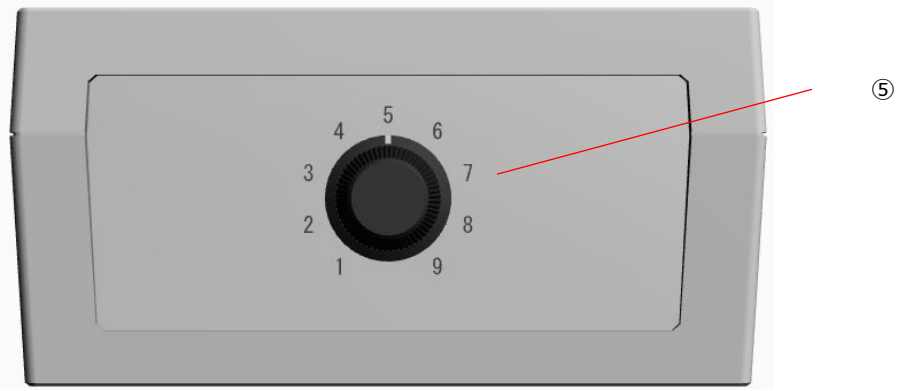
For turning on/off.

Be sure to power off during connecting maintenance unit.

④ Maintenance cable connector.

Maintenance cable for connecting AFX200.

5.1.3.Front side



① Toggle switch for changing CH

This is a switch for select target unit as stand-alone operation.

See “2.1.1 Front Panel “ for corresponding CH details.

5.2. Specification

5.2.1.Basic Specification

Item	Specification	
Storage environment	Ambient temperature	-5～50℃
	Ambient humidity	20 ～ 80% RH, no condensation
Operation environment	Ambient temperature	5～40℃
	Ambient humidity	20 ～ 80% RH, no condensation
External dimensions	54(W)×108(D) ×171(H)mm	
Weight	450g	

6. Accessary（Optional）

6.1.1.Power cable for AFX200（OCX20x）

Power-supply cable to AFX200（Product name for Japan is OCX200）

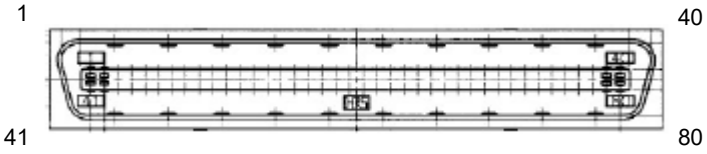
Cable type differs according to county.

For inquiry, please contact your distributor or DTS INSIGHT CORPORARION.

6.1.2.DI/O cable for AFX220 (OCX220)

Using for connect DI/O unit and your DI/O control device.

Connector detail



DX-80-CV（Hirose Electric Co. LTD.）

DX30A-80P(50)(Hirose Electric Co. LTD.）

Pin Assignment

Pin No.	Insulator color	Dot mark	Dot mark color
1	orange	-	red
41			black
2	gray	-	red
42			black
3	white	-	red
43			black
4	yellow	-	red
44			black
5	pink	-	red
45			black
6	orange	--	red
46			black
7	gray	--	red
47			black
8	white	--	red
48			black
9	yellow	--	red
49			black
10	pink	--	red
50			black
11	orange	---	red
51			black
12	gray	---	red
52			black
13	white	---	red
53			black
14	yellow	---	red
54			black
15	pink	---	red
55			black
16	orange	----	red
56			black
17	gray	----	red
57			black
18	white	----	red
58			black
19	yellow	----	red
59			black
20	pink	----	red
60			black

Pin No.	Insulator color	Dot mark	Dot mark color
21	orange	-----	red
61			black
22	gray	-----	red
62			black
23	white	-----	red
63			black
24	yellow	-----	red
64			black
25	pink	-----	red
65			black
26	orange	—	red
66			black
27	gray	—	red
67			black
28	white	—	red
68			black
29	yellow	—	red
69			black
30	pink	—	red
70			black
31	orange	——	red
71			black
32	gray	——	red
72			black
33	white	——	red
73			black
34	yellow	——	red
74			black
35	pink	——	red
75			black
36	orange	———	red
76			black
37	gray	———	red
77			black
38	white	———	red
78			black
39	yellow	———	red
79			black
40	pink	———	red
80			black

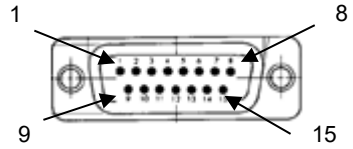
6.1.3.Maintenance Cable for AFX230

Using for connect Maintenance unit (AFX230) and Base unit (AFX200).

6.1.4.Reset Cable（OCX290）

Reset cable for AFX200.

Connector Detail



DA-15PF-N(Japan Aviation Electronics Industry, Limited)

DA-C4-J10-F(Japan Aviation Electronics Industry, Limited)

Wiring Specification

CN1 Pin No	Insulator color	Dot mark	Dot mark color	Signal name
1	Orange	-	Red	M_RST9
2			Black	M_RST8
3	Grey	-	Red	M_RST7
4			Black	M_RST6
5	White	-	Red	M_RST5
6			Black	M_RST4
7	Yellow	-	Red	M_RST3
8			Black	M_RST2
9	Pink	-	Red	M_RST1
10			Black	RES_VCC
11	Orange	--	Red	RES_VCC
12			Black	RES_VCC
13	Grey	--	Red	RES_VCC
14			Black	RES_VCC
15	White	--	Red	RES_VCC
16			Black	-

6.1.5.SD Card (AFM700/_ _G)

This SD card is for AFX series.

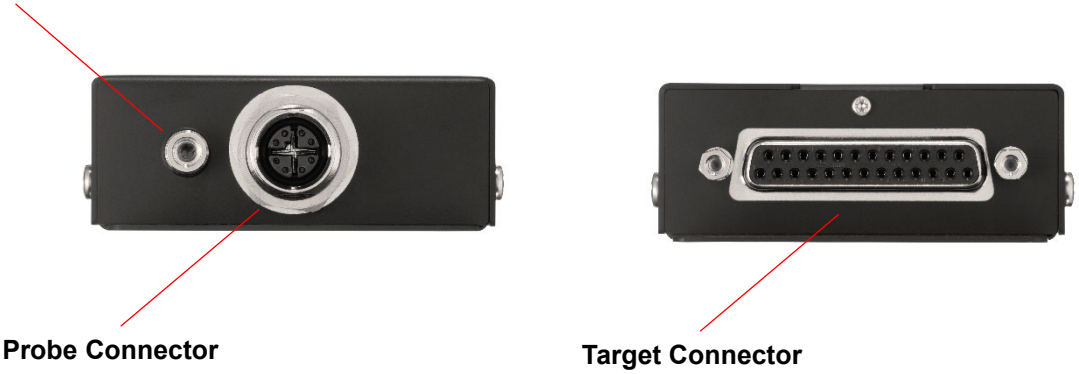
型名	概要
AFM700/4G	Dedicated SD card(4GB)
AFM700/32G	Dedicated SD card(32GB)

6.1.6.PROBE for SERIAL/JTAG/QSPI (PHX400)

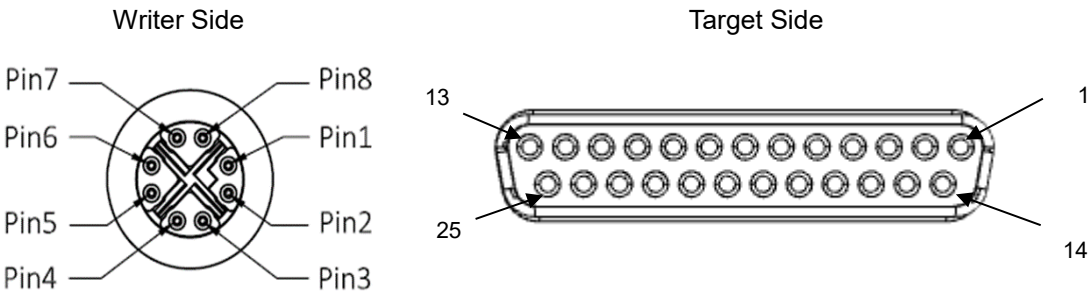
This is for SERIAL/JTAG/QSPI communication writing.

Ground Terminal

*Recommended screw size: M4 x 3mm + (thickness of the plain washer)



Connector Detail



Signal description（Probe Connector）

pin No	Signal Name	definition	I/O
1	RX1+	Received data 1 + Input	I
2	RX1-	Received data 1 - Output	I
3	TX1+	Send data 1 + Output	O
4	TX1-	Send data 1 - Output	O
5	Reserved	Reserved signal line	-
6	Reserved	Reserved signal line	-
7	PWR	Power	O
8	GND	GND	-

Signal description（Serial communication）

Below shows description of I/O signal from target side during CSI/UART I/O communication

（”I/O” means input and output direction from view of probe side.）

Signal Name	Serial Mode	Meaning	I/O	Type
IO1	TCK	Clock output for clock synchronous communication	O	G
IO2	TTXD	Transmitted data output for serial communication	O(I/O)	A
IO3	TRXD	Received data input for serial communication	I(I/O)	A
IO4	TBUSY	BUSY input	I(I/O)	A
IO5	TAUX	I/O terminal (definition varies according to definition program)	I/O	A
IO6	TAUX2	I/O terminal (definition varies according to definition program)	I/O	A
IO7	TAUX3	I/O terminal (definition varies according to definition program)	I/O	A
IO8	TAUX4	I/O terminal (definition varies according to definition program)	I/O	B
IO9	TMODE	I/O terminal (definition varies according to definition program)	I/O	B
IO10	/TICS	I/O terminal (definition varies according to definition program)	I/O	B
VCC		5V output (MAX 100mA)	O	C
/TRES		Re-set output of negative logic (open collector output) (*1)	O	D
WDT		Watchdog timer output (open collector output) (*1)	O	D
TVccd		User power input (driver power for I/F)	I	E
PROBE SELECT		Terminal selection signal of target probe	I	F
GND		GND	–	–

*1 /TRES,WDT are open collector signal with 1MΩ pull down.
Please note that no voltage output to target side.

Signal description (JTAG communication)

Below shows description of I/O signal from target side during JTAG communication

("I/O" means input and output direction from view of probe side.)

Signal Name	JTAG Mode	Meaning	I/O	Type
IO1	TCK	TCK output of JTAG	O	G
IO2	TDI	Transmitted data output of JTAG	O(I/O)	A
IO3	TDO	Received data input of JTAG	I(I/O)	A
IO4	TMS	TMS output of JTAG	O(I/O)	A
IO5	nTRST	nTRES output of JTAG	O(I/O)	A
IO6	TAUX2	I/O terminal (definition varies according to definition program)	I/O	A
IO7	TAUX3	I/O terminal (definition varies according to definition program)	I/O	A
IO8	TAUX4	I/O terminal (definition varies according to definition program)	I/O	B
IO9	TMODE	I/O terminal (definition varies according to definition program)	I/O	B
IO10	/TICS	I/O terminal (definition varies according to definition program)	I/O	B
VCC		5V output (MAX 100mA)	O	C
/TRES		Re-set output of negative logic (open collector output) (*1)	O	D
WDT		Watchdog timer output (open collector output) (*1)	O	D
TVccd		User power input (driver power for I/F)	I	E
PROBE SELECT		Terminal selection signal of target probe	I	F
GND		GND	–	–

*1 /TRES, WDT are open collector signal with 1MΩ pull down.

Please note that no voltage output to target side.

Signal description (QSPI communication)

Below shows description of I/O signal from target side during QSPI communication

(”I/O” means input and output direction from view of probe side.)

Signal Name	QSPI Mode	Meaning	I/O	Type
IO1	SCK	SCK output of SPI	O	G
IO2	SI/IO0	Transmitted data output of SPI	O	A
		Input / output in dual or quad modes	I/O	
IO3	SO/IO1	Received data input of SPI	I	A
		Input / output in dual or quad modes	I/O	
IO4	WP#/IO2	WP output of negative logic SPI	O	A
		Input / output in dual or quad modes	I/O	
IO5	HOLD#/IO3	HOLD output of negative logic SPI	O	A
		Input / output in dual or quad modes	I/O	
IO6	CS#	chip select output of negative logic	O	A
IO7	TAUX3	I/O terminal (definition varies according to definition program)	I/O	A
IO8	TAUX4	I/O terminal (definition varies according to definition program)	I/O	B
IO9	TMODE	I/O terminal (definition varies according to definition program)	I/O	B
IO10	/TICS	I/O terminal (definition varies according to definition program)	I/O	B
VCC		5V output (MAX 100mA)	O	C
/TRES		Re-set output of negative logic (open collector output) (*1)	O	D
WDT		Watchdog timer output (open collector output) (*1)	O	D
TVccd		User power input (driver power for I/F)	I	E
PROBE SELECT		Terminal selection signal of target probe	I	F
GND		GND	–	–

*1 /TRES, WDT are open collector signal with 1MΩ pull down.

Please note that no voltage output to target side.

Signal description (SWD communication)

Below shows description of I/O signal from target side during SWD communication

("I/O" means input and output direction from view of probe side.)

Signal Name	SWD Mode	Meaning	I/O	Type
IO1	SWCLK	SWD CLK output	O	G
IO2	SWDIO	SWD data input / output	I/O	A
IO3	IO3	I/O terminal (definition varies according to definition program)	I/O	A
IO4	IO4	I/O terminal (definition varies according to definition program)	I/O	A
IO5	IO5	I/O terminal (definition varies according to definition program)	I/O	A
IO6	TAUX2	I/O terminal (definition varies according to definition program)	I/O	A
IO7	TAUX3	I/O terminal (definition varies according to definition program)	I/O	A
IO8	TAUX4	I/O terminal (definition varies according to definition program)	I/O	B
IO9	TMODE	I/O terminal (definition varies according to definition program)	I/O	B
IO10	/TICS	I/O terminal (definition varies according to definition program)	I/O	B
VCC		5V output (MAX 100mA)	O	C
/TRES		Re-set output of negative logic (open collector output) (*1)	O	D
WDT		Watchdog timer output (open collector output) (*1)	O	D
TVccd		User power input (driver power for I/F)	I	E
PROBE SELECT		Terminal selection signal of target probe	I	F
GND		GND	–	–

*1 /TRES, WDT are open collector signal with 1MΩ pull down.

Please note that no voltage output to target side.

Signal description (BDM communication)

Below shows description of I/O signal from target side during BDM communication

("I/O" means input and output direction from view of probe side.)

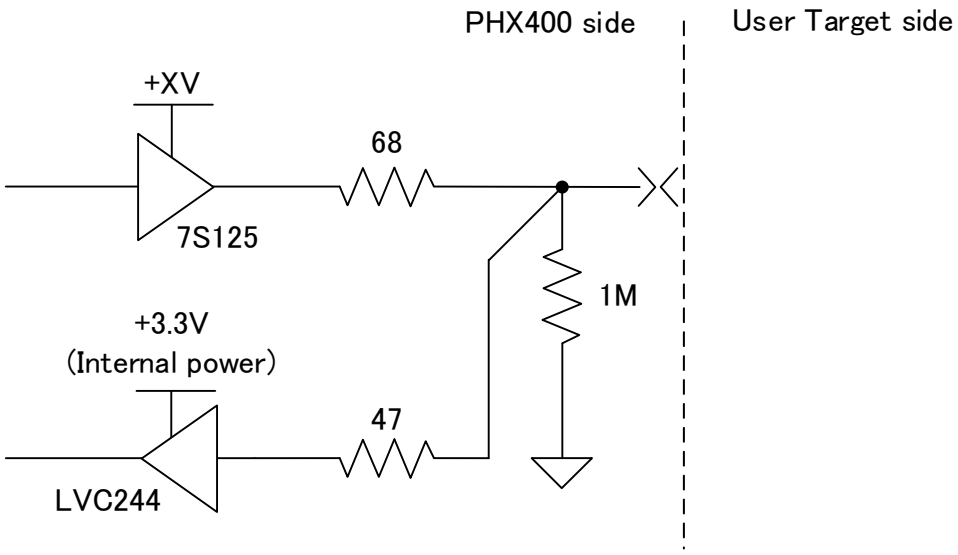
Signal Name	SWD Mode	Meaning	I/O	Type
IO1	IO1	I/O terminal (definition varies according to definition program)	I/O	G
IO2	BKGD	BDM data input / output	I/O	A
IO3	IO3	I/O terminal (definition varies according to definition program)	I/O	A
IO4	IO4	I/O terminal (definition varies according to definition program)	I/O	A
IO5	IO5	I/O terminal (definition varies according to definition program)	I/O	A
IO6	TAUX2	I/O terminal (definition varies according to definition program)	I/O	A
IO7	TAUX3	I/O terminal (definition varies according to definition program)	I/O	A
IO8	TAUX4	I/O terminal (definition varies according to definition program)	I/O	B
IO9	TMODE	I/O terminal (definition varies according to definition program)	I/O	B
IO10	/TICS	I/O terminal (definition varies according to definition program)	I/O	B
VCC		5V output (MAX 100mA)	O	C
/TRES		Re-set output of negative logic (open collector output) (*1)	O	D
WDT		Watchdog timer output (open collector output) (*1)	O	D
TVccd		User power input (driver power for I/F)	I	E
PROBE SELECT		Terminal selection signal of target probe	I	F
GND		GND	–	–

*1 /TRES, WDT are open collector signal with 1MΩ pull down.

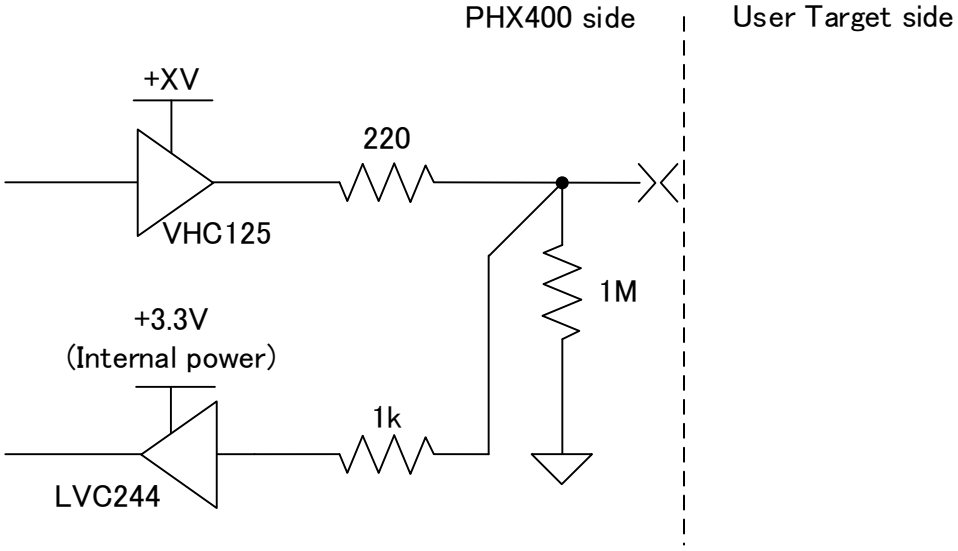
Please note that no voltage output to target side.

Interface circuit specification

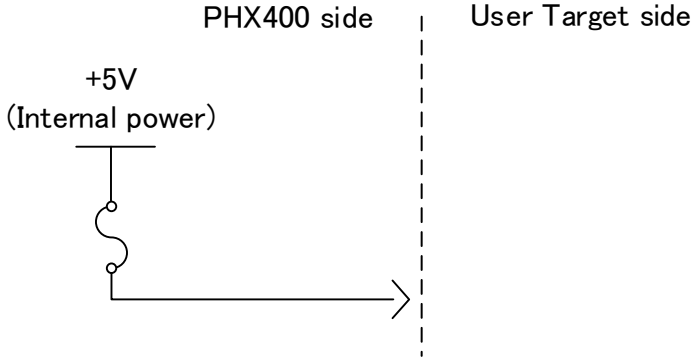
[Type A]



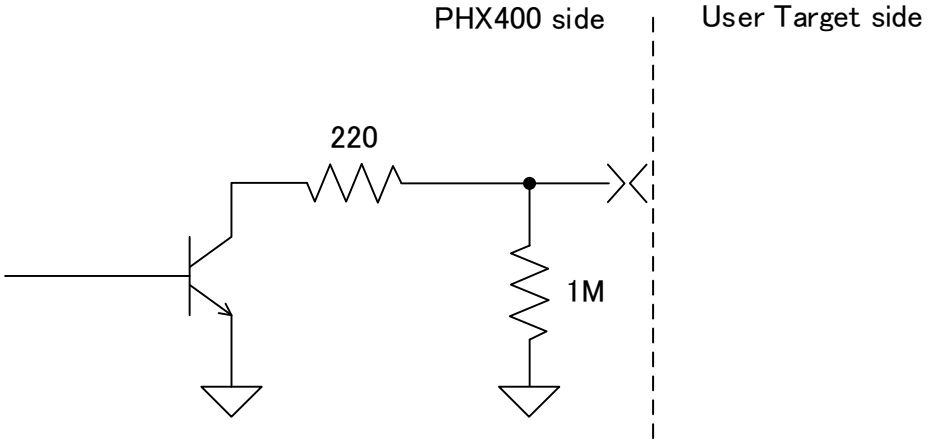
[Type B]



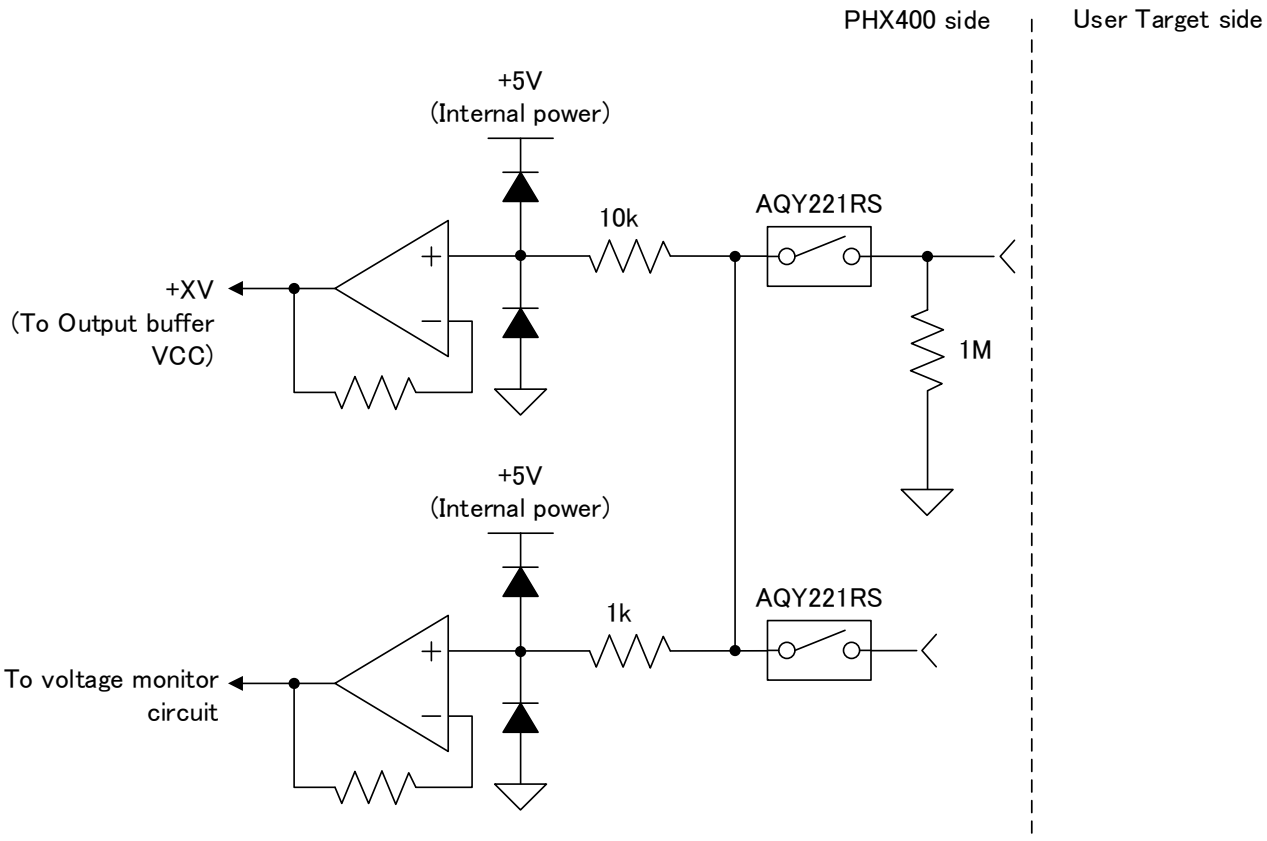
[Type C]



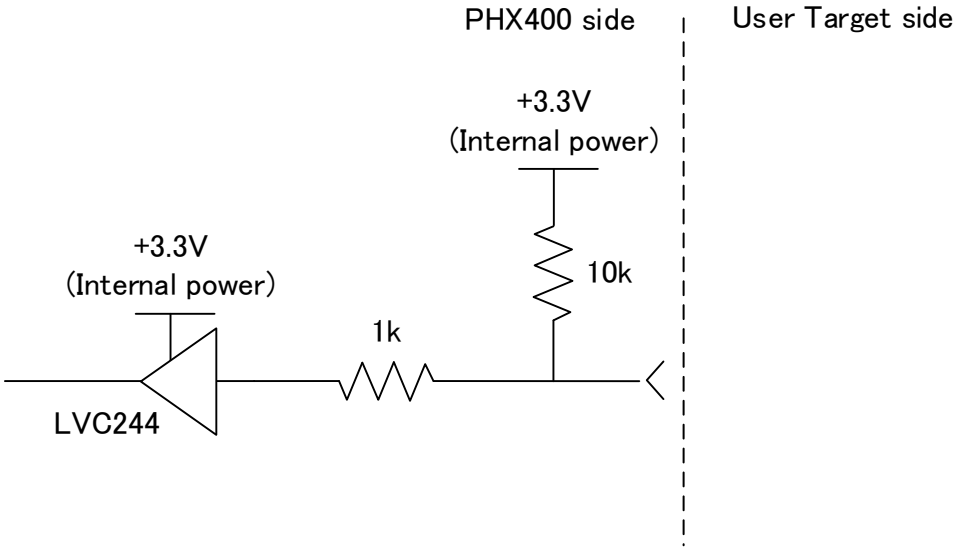
[Type D]


PHX400 side
User Target side
220
1M

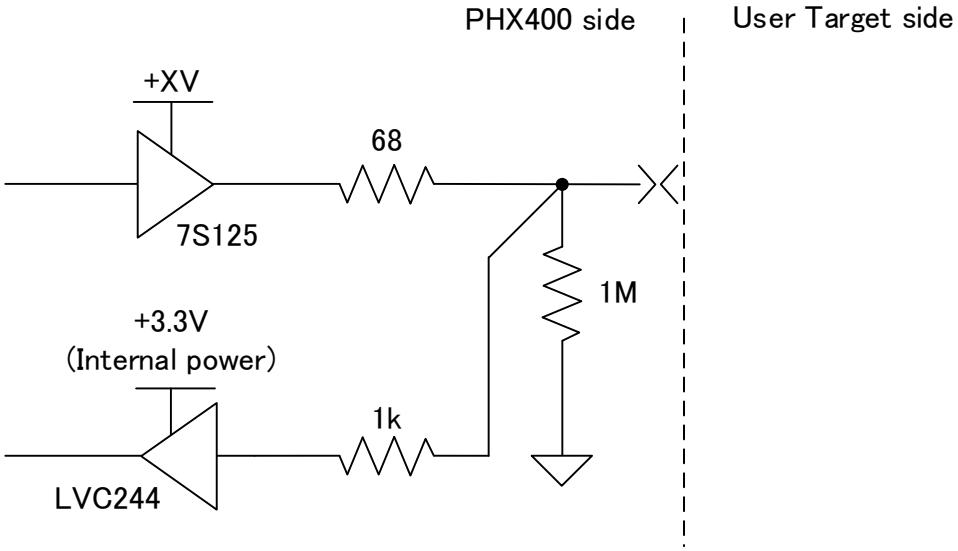
[Type E]


PHX400 side
User Target side
+5V
(Internal power)
10k
AQY221RS
+XV
(To Output buffer
VCC)
1M
+5V
(Internal power)
1k
AQY221RS
To voltage monitor
circuit

[Type F]


PHX400 side
User Target side
+3.3V
(Internal power)
10k
+3.3V
(Internal power)
1k
LVC244

[Type G]


PHX400 side
User Target side
+XV
68
7S125
1M
+3.3V
(Internal power)
1k
LVC244

Pin Assignment

This table is the Pin assignment from Target side connector.

Pin No	I/O	Signal Name					Circuit Type	lead color
		Serial mode	JTAG mode	QSPI mode	SWD mode	BDM mode		
1	O	TCK	TCK	SCK	SWCLK	IO1	G	white
14	-	GND					-	white/black
2	I/O	TTXD	TDI	SI/IO0	SWDIO	BKGD	A	red
15	-	GND					-	red/black
3	I/O	TRXD	TDO	SO/IO1	IO3	IO3	A	green
16	-	GND					-	green/black
4	I/O	TBUSY	TMS	WP#/IO2	IO4	IO4	A	yellow
17	-	GND					-	yellow/black
5	I/O	TAUX	nTRST	HOLD#/IO3	IO5	IO5	A	brown
18	-	GND					-	brown/black
6	I/O	TAUX2	TAUX2	CS#	TAUX2	TAUX2	A	blue
19	-	GND					-	blue/black
7	I/O	TAUX3					A	orange
20	-	GND					-	orange/black
8	I/O	TAUX4					B	grey
21	I/O	TMODE					B	grey/black
9	O	VCC					C	purple
22	-	GND					-	purple/black
10	I/O	/TICS					B	light blue
23	O	/TRES					D	light blue/black
11	-	GND					-	pink/black
24	O	WDT					D	pink
12	-	GND					-	black
25	I	TVccd					E	yellow/green
13	I	PROBE SELECT					F	light blue/white

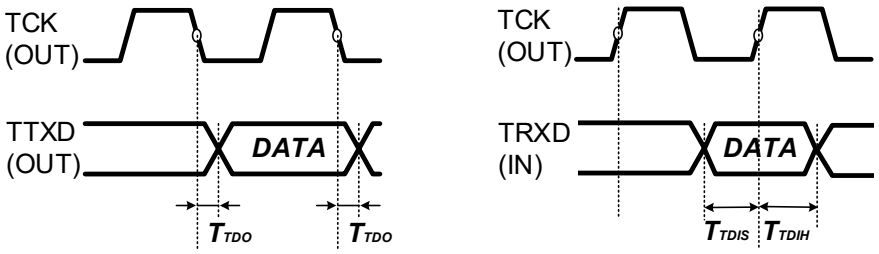
DC characteristics

Below shows DC characteristics.+TV in the table is power source voltage for output buffer which generated from TVccd. Output voltage fluctuates by voltage drop due to serial resistance in probe and type of input circuit of target system side

Signal	Item				Min	Max	Unit
TVccd	Input Voltage	Vin		Maximum absolute rating	-0.3	5.25	V
				Operating range	2.0	5.0	
	Input current	Iin		–	–	300	uA
/TRES	Input voltage	Vin		Maximum absolute rating	–	7.0	V
WDT	Output	VoL	Isink=-3mA	–	–	0.7	V
IO1～IO7	Output voltage	VoH	IoH=-100uA	+XV=2.3V	2.2	–	V
				+XV=3.0V	2.9	–	
				+XV=4.5V	4.4	–	
		VoL	IoH=100uA	+XV=2.3V	–	0.1	
				+XV=3.0V	–	0.1	
				+XV=4.5V	–	0.1	
	Output current	Iout		+XV=2.3V	–	±8	mA
				+XV=3V	–	±24	
				+XV=4.5V	–	±32	
	Input voltage	Vin		Maximum absolute rating	-0.3	5.25	V
		ViH		–	2.0	–	
		ViL		–	–	0.8	
	Input current	Iin		–	–	12	uA
IO8～IO10	Output voltage	VoH	IoH=-50uA	+XV=2.0V	1.9	–	V
				+XV=3.0V	2.9	–	
				+XV=4.5V	4.4	–	
		VoL	IoH=50uA	+XV=2.3V	–	0.1	
				+XV=3.0V	–	0.1	
				+XV=4.5V	–	0.1	
	Output current	Iout		+XV=2.3V	–	±8	mA
				+XV=3V	–	±24	
				+XV=4.5V	–	±32	
	Input voltage	Vin		Maximum absolute rating	-0.3	5.25	V
		ViH		–	2.0	–	
		ViL		–	–	0.8	
	Input current	Iin		–	–	12	uA

※/TRES、WDT are open collector output.

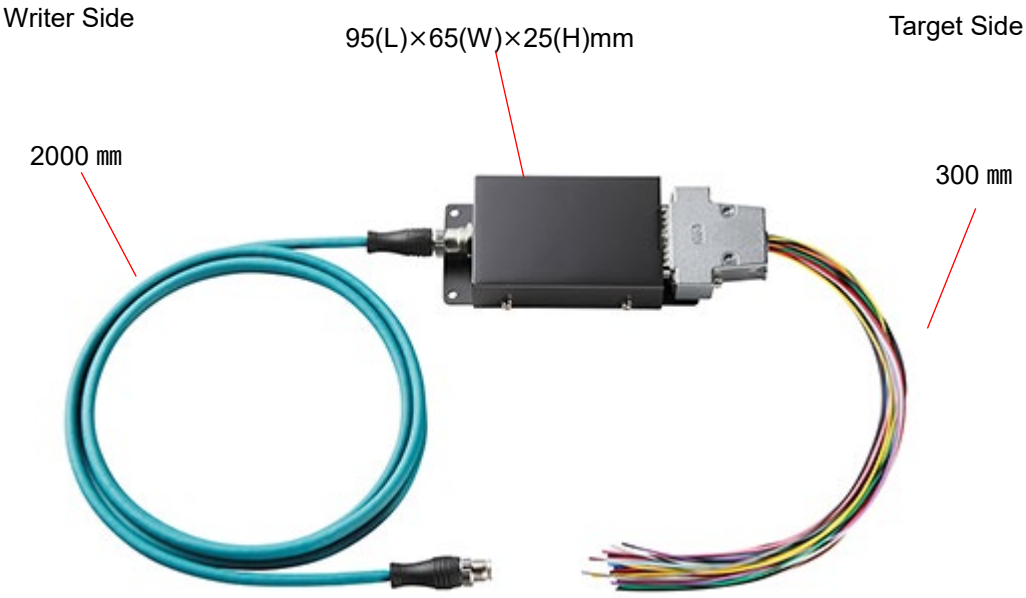
AC characteristic



Parameter	Item	Criteria	Condition
T_{TDO}	TTXD output delay time when TCK is falling.	Max. 6ns	This does not depend on the baud rate settings
T_{TDIS}	TRXD setup time when TCK is rising.	Min. 0ns	This does not depend on the baud rate settings
T_{TDIH}	TRXD hold time when TCK is rising.	Min. 12.5ns	This does not depend on the baud rate settings

6.1.7.PROBE for Low-Voltage QSPI (PHX401)

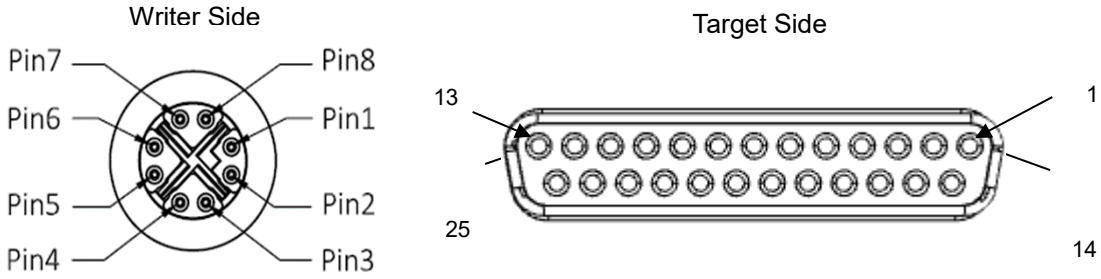
This is for Low-Voltage QSPI communication writing.



Ground Terminal

*Recommended screw size: M4 x 3mm + (thickness of the plain washer)

Connector Detail



Signal description（Probe Connector）

pin No	Signal Name	definition	I/O
1	RX1+	Received data1+Input	I
2	RX1-	Received data1-Input	I
3	TX1+	Send data1+出力	O
4	TX1-	Send data1-出力	O
5	Reserved	Reserved signal line	-
6	Reserved	Received signal line	-
7	PWR	Power	O
8	GND	GND	-

Signal description (QSPI communication)

Below shows description of I/O signal from target side during QSPI communication

（"I/O" means input and output direction from view of probe side.）

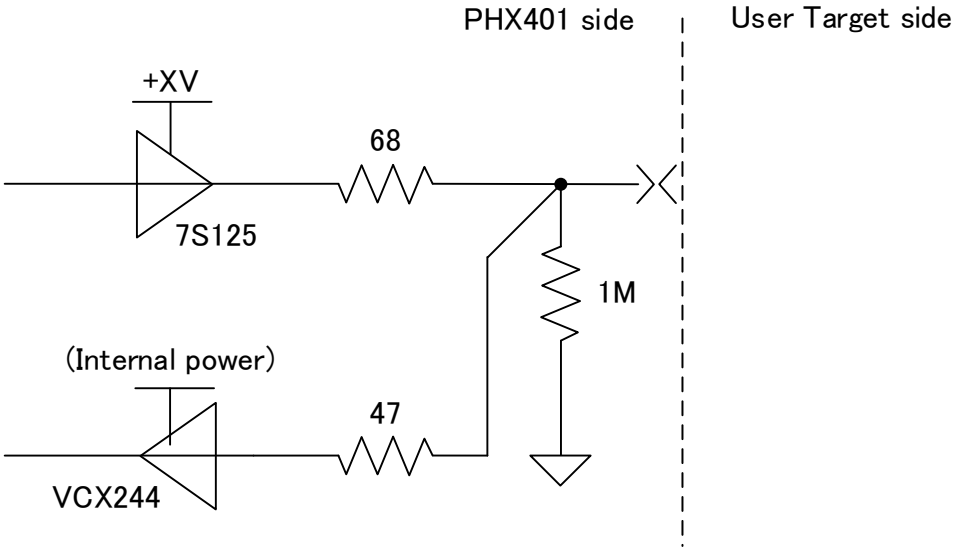
Signal Name	QSPI Mode	Meaning	I/O	Type
IO1	SCK	SCK output of SPI	O	G
IO2	SI/IO0	Send data output of SPI	O	A
		Input /output in dual or quad modes	I/O	
IO3	SO/IO1	Received data input of SPI	I	A
		Input /output in dual or quad modes	I/O	
IO4	WP#/IO2	WP output of negative logic SPI	O	A
		Input / output in quad mode	I/O	
IO5	HOLD#/IO3	HOLD output of negative logic SPI	O	A
		Input / output in quad mode	I/O	
IO6	CS#	Chip select output of negative logic	O	A
IO7	TAUX3	I/O terminal (definition varies according to definition program)	I/O	A
IO8	TAUX4	I/O terminal (definition varies according to definition program)	I/O	B
IO9	TMODE	I/O terminal (definition varies according to definition program)	I/O	B
IO10	/TICS	I/O terminal (definition varies according to definition program)	I/O	B
VCC		5V output (MAX100mA)	O	C
/TRES		Re-set output of negative logic (open collector output) (*1)	O	D
WDT		Watchdog timer output (open collector output) (*1)	O	D
TVccd		User power input (driver power for I/F)	I	E
PROBE SELECT		Terminal selection signal of target probe	I	F
GND		GND	–	–

*1 /TRES,WDT are open collector signal with 1MΩ pull down.

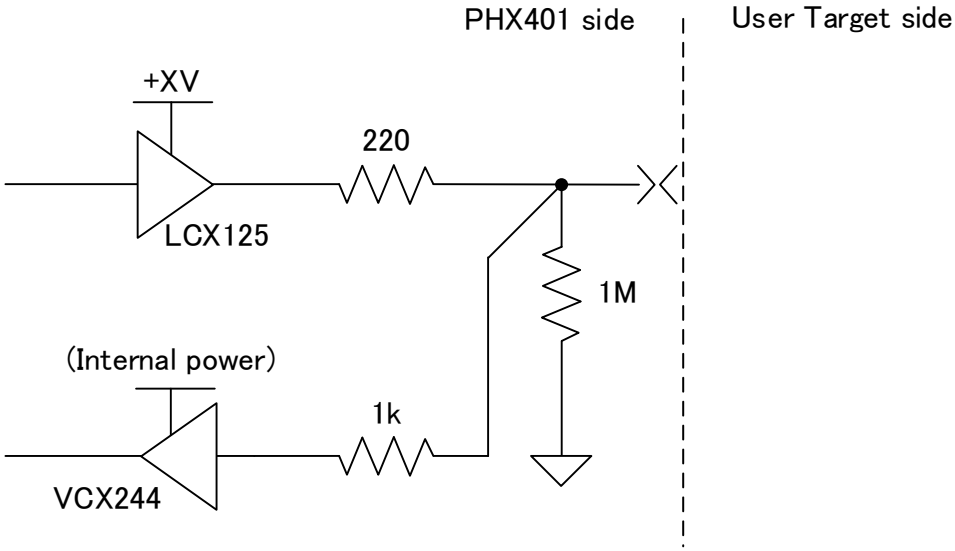
Please note that no voltage output to target side.

Interface Circuit

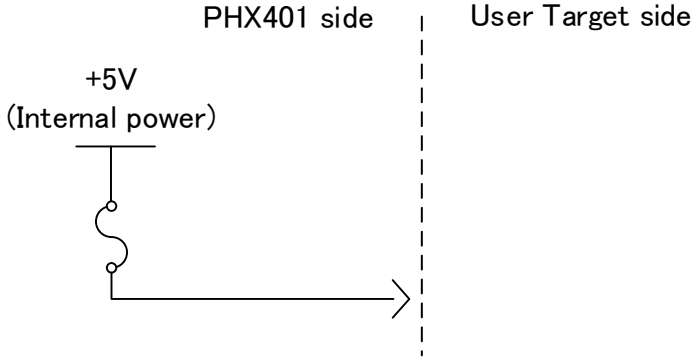
[Type A]



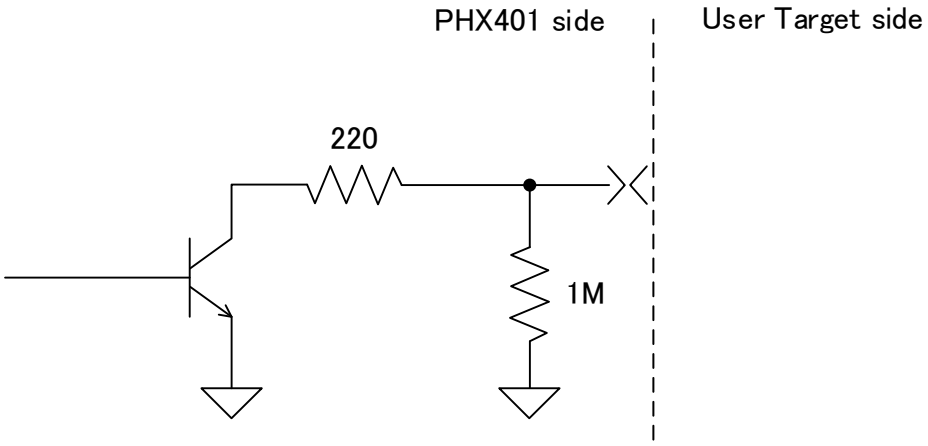
[Type B]



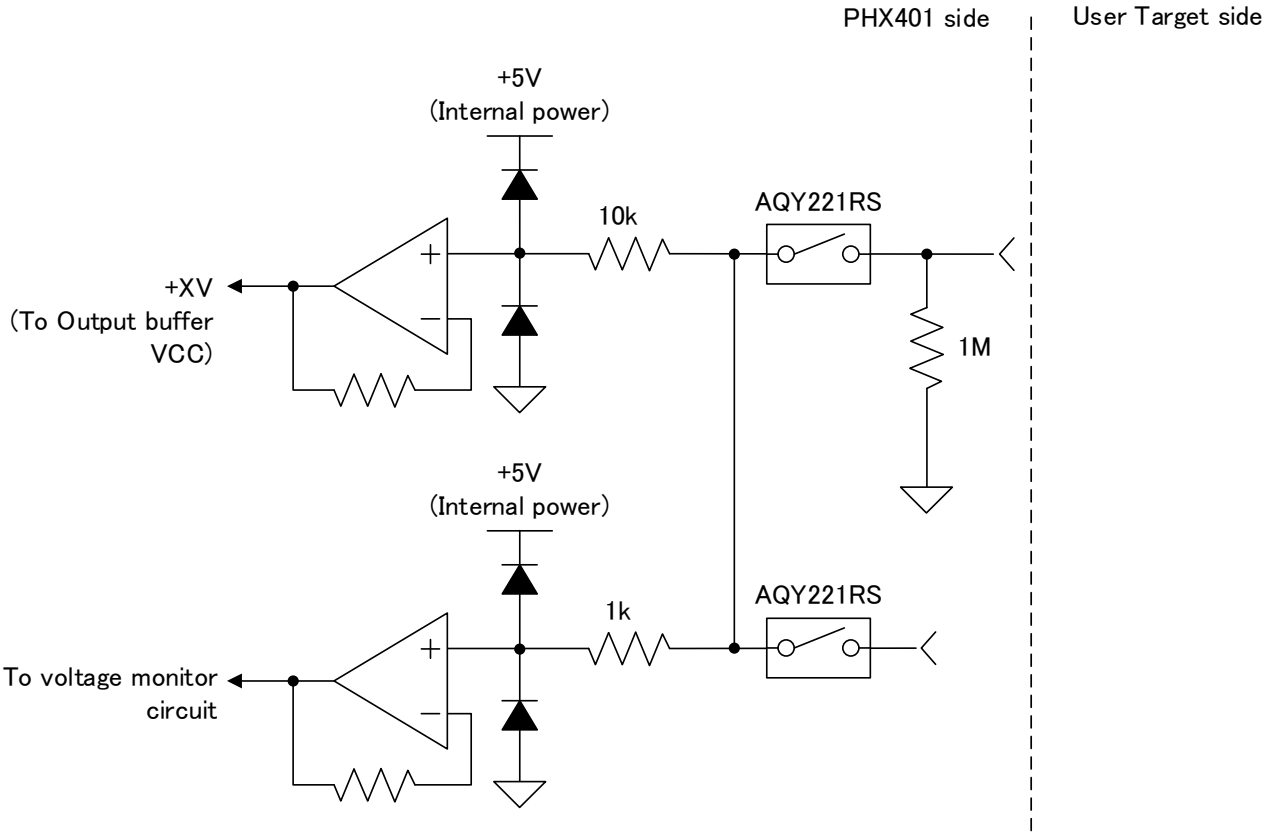
[Type C]



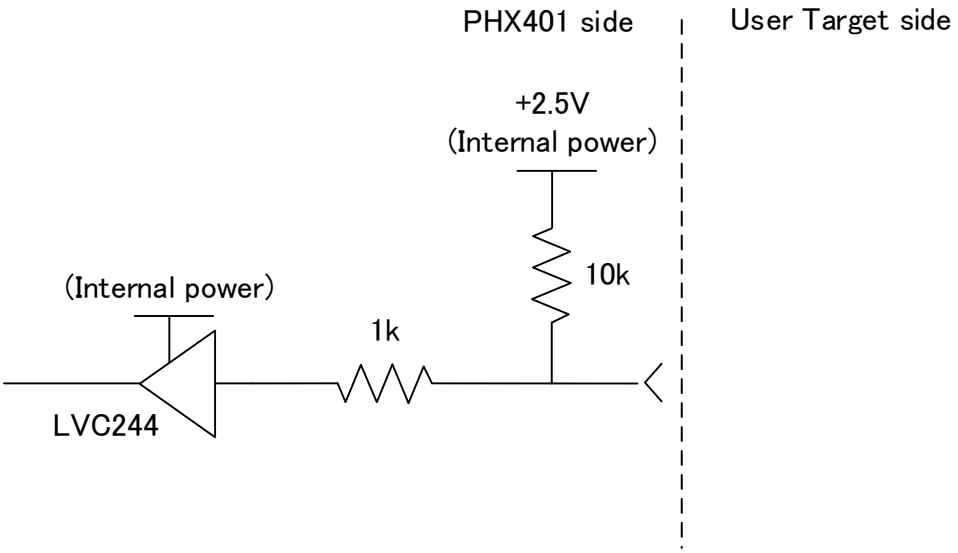
[Type D]


PHX401 side
User Target side
220
1M

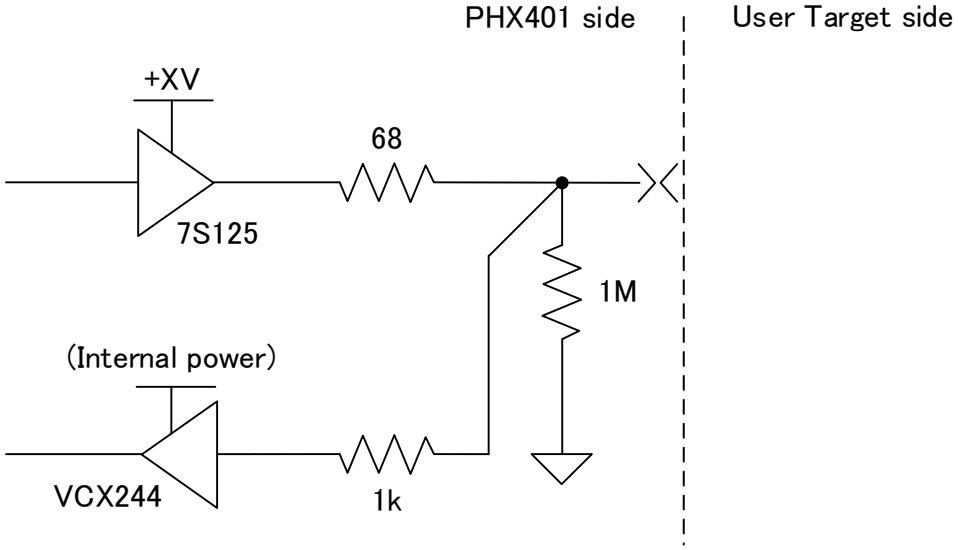
[Type E]


PHX401 side
User Target side
+5V
(Internal power)
10k
AQY221RS
+XV
(To Output buffer
VCC)
1M
+5V
(Internal power)
1k
AQY221RS
To voltage monitor
circuit

[Type F]


PHX401 side
User Target side
+2.5V
(Internal power)
10k
(Internal power)
1k
LVC244

[Type G]


PHX401 side
User Target side
+XV
68
7S125
1M
(Internal power)
VCX244
1k

- Pin assignment

Pin No	I/O	Signal Name	QSPI mode	Circuit Type	lead color
1	O	IO1	SCK	G	white
14	-	GND		-	white/black
2	I/O	IO2	SI/IO0	A	red
15	-	GND		-	red/black
3	I/O	IO3	SO/IO1	A	green
16	-	GND		-	green/black
4	I/O	IO4	WP#/IO2	A	yellow
17	-	GND		-	yellow/black
5	I/O	IO5	HOLD#/IO3	A	brown
18	-	GND		-	brown/black
6	I/O	IO6	CS#	A	blue
19	-	GND		-	blue/black
7	I/O	IO7	TAUX3	A	orange
20	-	GND		-	orange/black
8	I/O	IO8	TAUX4	B	gray
21	I/O	IO9	TMODE	B	gray/black
9	O	VCC		C	purple
22	-	GND		-	purple/black
10	I/O	IO10	/TICS	B	light blue
23	O	/TRES		D	light blue/black
11	-	GND		-	pink/black
24	O	WDT		D	pink
12	-	GND		-	black
25	I	TVccd		E	yellow/green
13	I	PROBE SELECT		F	light blue/white

DC characteristics

Below shows DC characteristics.

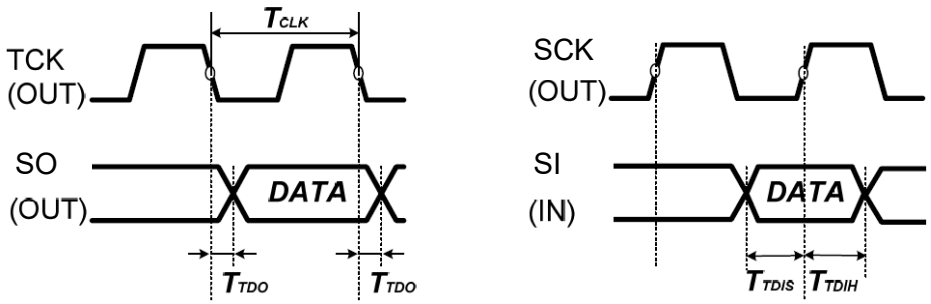
+TV in the table is power source voltage for output buffer which generated from TVccd. Output voltage fluctuates by voltage drop due to serial resistance in probe and type of input circuit of target system side

Signal	Item				Min	Max	Unit
TVccd	Input Voltage	Vin		Maximum absolute rating	-0.3	3.6	V
				Operating range	1.7	3.3	
	Input current	Iin		–	–	300	uA
/TRES	Input voltage	Vin		Maximum absolute rating	–	4.6	V
WDT	Output voltage	VoL	Isink=-3mA	–	–	0.7	V
IO1～IO7	Output voltage	VoH	IoH=-100uA	+XV=1.8V	1.6	–	V
				+XV=2.3V	2.1	–	
				+XV=3.0V	2.8	–	
		VoL	IoH=100uA	+XV=1.8V	–	0.2	
				+XV=2.3V	–	0.2	
				+XV=3.0V	–	0.2	
	Output current	Iout		+XV=2.3V	–	±8	mA
				+XV=3V	–	±24	
	Input voltage	Vin		絶対定格	-0.5	4.6	V
		ViH		–	1.5	–	
		ViL		–	–	0.4	
	Input current	Iin		–	–	12	uA
IO8～IO10	Output voltage	VoH	IoH=-100uA	+XV=1.8V	1.6	–	V
				+XV=2.3V	2.1	–	
				+XV=3.0V	2.8	–	
		VoL	IoH=100uA	+XV=1.8V	–	0.2	
				+XV=2.3V	–	0.2	
				+XV=3.0V	–	0.2	
	Output current	Iout		+XV=2.3V	–	±8	mA
				+XV=3V	–	±24	
	Input voltage	Vin		絶対定格	-0.5	4.6	V
		ViH		–	1.5	–	
		ViL		–	–	0.4	
	Input current	Iin		–	–	12	uA

※/TRES、WDT are open collector output.

AC characteristic

In the case of the target which outputs when SCK is falling.



Parameter	Item	Criteria	Condition
T_{TDO}	SO output delay time when SCK is falling.	Max. 15ns	This does not depend on the baud rate settings TVCC = 1.8V
T_{CLK}	SCK cycle time	Min. 50ns	This does not depend on the baud rate settings SCK = 20MHz
T_{TDIS}	SI setup time when SCK is rising.	Min. 9ns	This does not depend on the baud rate settings
T_{TDIH}	SI hold time when SCK is rising.	Min. 6ns	This does not depend on the baud rate settings

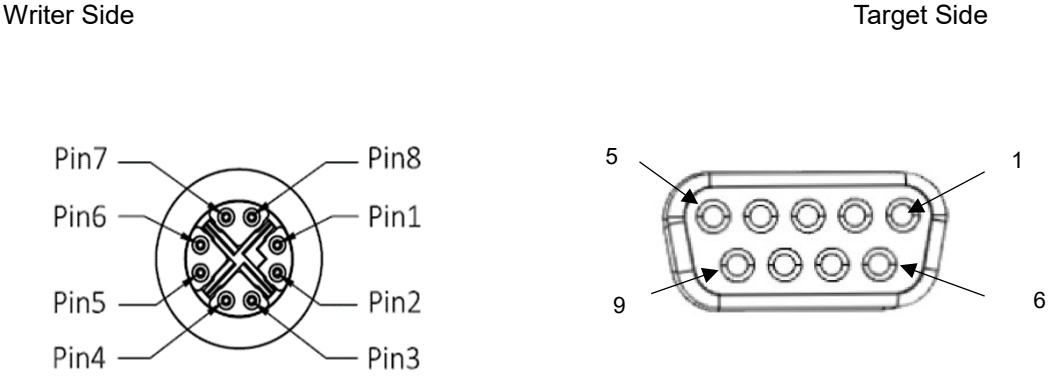
6.1.8.PROBE for CAN-FD（PHX410）

This is for CAN-FD communication writing.

Ground Terminal

*Recommended screw size: M4 x 3mm + (thickness of the plain washer)

Connector Detail



Signal description（Probe Connector）

pin No	Signal Name	definition	I/O
1	RX1+	Received data 1 + Input	I
2	RX1-	Received data 1 - Output	I
3	TX1+	Send data 1 + Output	O
4	TX1-	Send data 1 - Output	O
5	Reserved	Reserved signal line	-
6	Reserved	Reserved signal line	-
7	PWR	Power	O
8	GND	GND	-

Signal description (CAN communication)

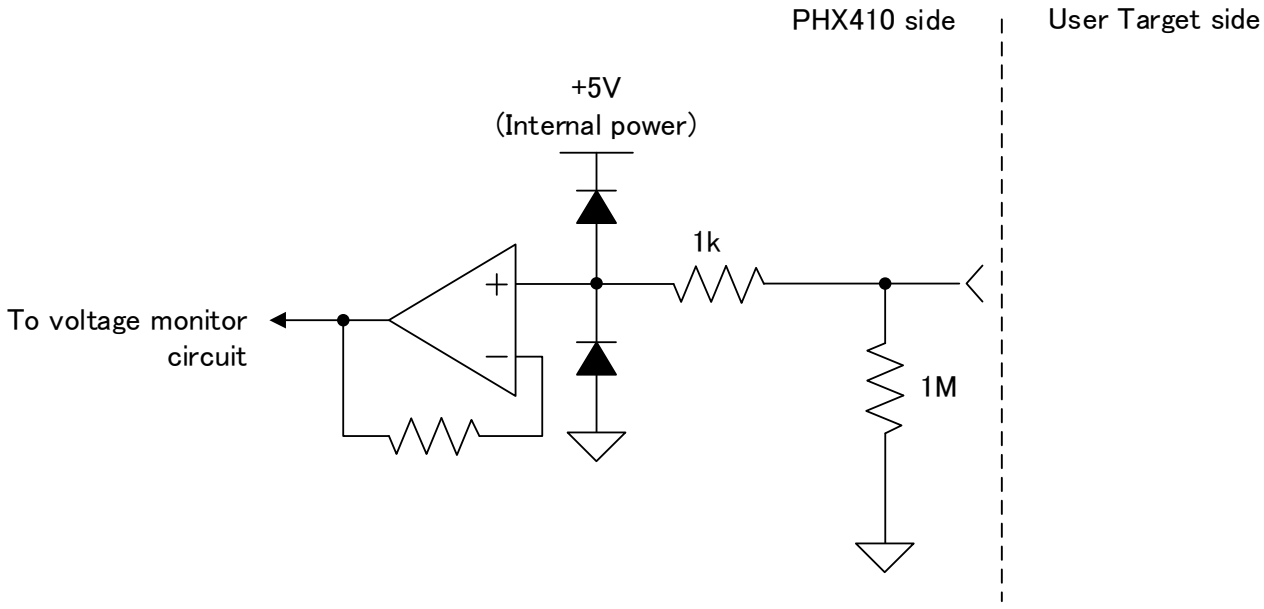
Below shows description of I/O signal from target side during CAN communication

(”I/O” means input and output direction from view of probe side.)

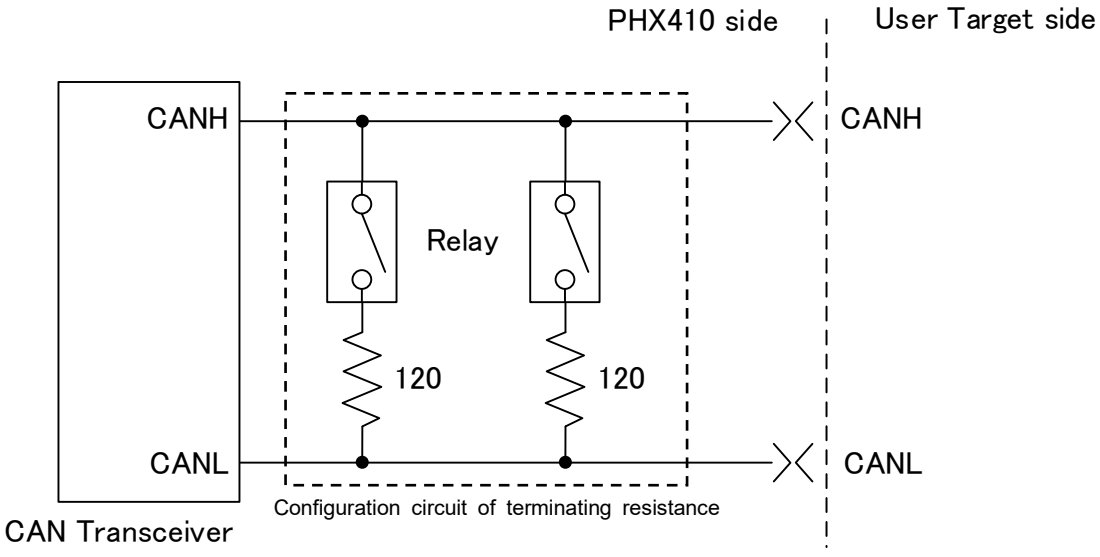
Signal Name	Meaning	I/O	Type
TVCCS	User power monitor input	I	A
CANH	High level signal for CAN communication	I/O	B
CANL	Low level signal for CAN communication	I/O	B
TIO	I/O terminal (definition varies according to definition program)	I/O	C
TMODE	I/O terminal (definition varies according to definition program)	I/O	C
PROBE SELECT	Terminal selection signal of target probe	I	D
Reserve	Reserve signal (do not connect anything from target side)	–	–
GND	GND	–	–

Interface circuit specification

[Type A]

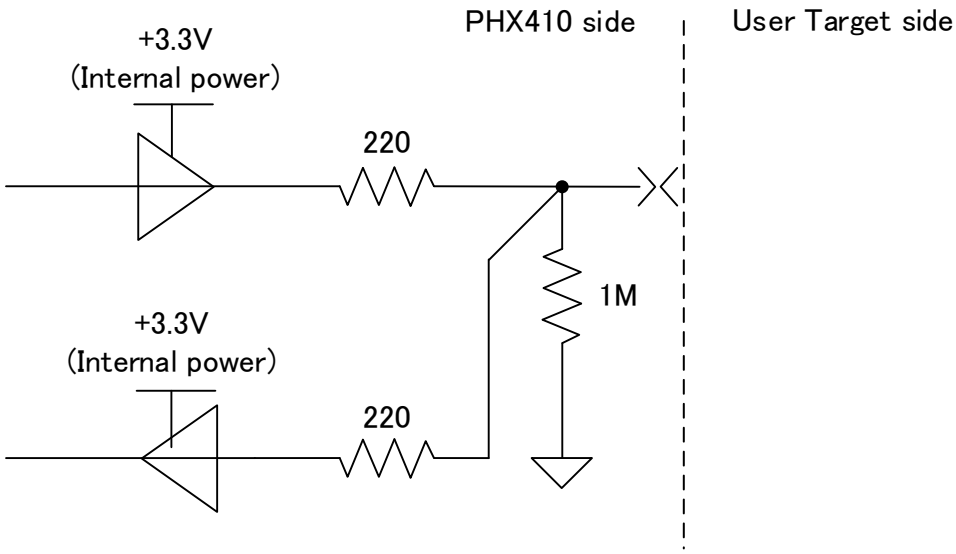


[Type B]

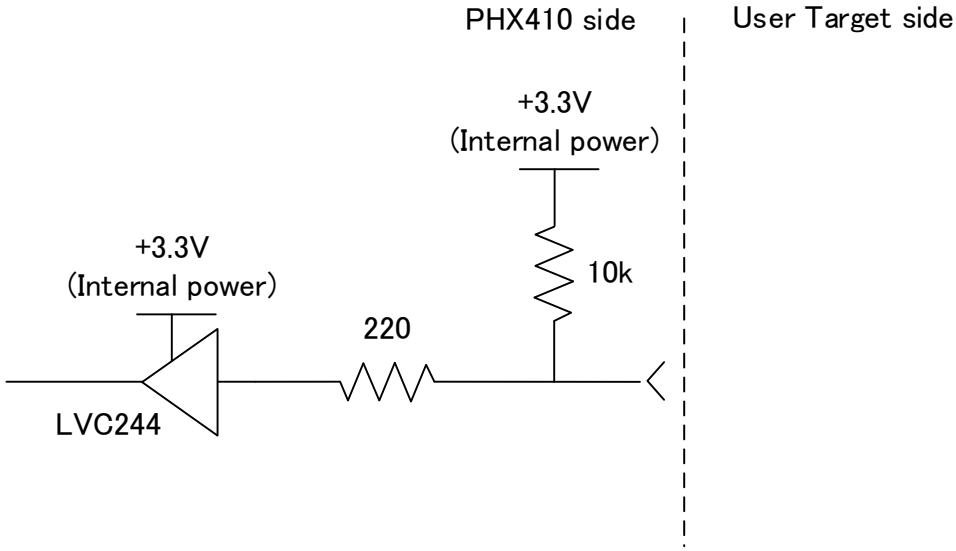


Relay's initial condition is "OFF" ("OPEN" condition: No terminating resistance).

[Type C]


PHX410 side
User Target side
+3.3V
(Internal power)
220
1M
+3.3V
(Internal power)
220

[Type D]


PHX410 side
User Target side
+3.3V
(Internal power)
10k
+3.3V
(Internal power)
220
LVC244

- **Pin assignment**

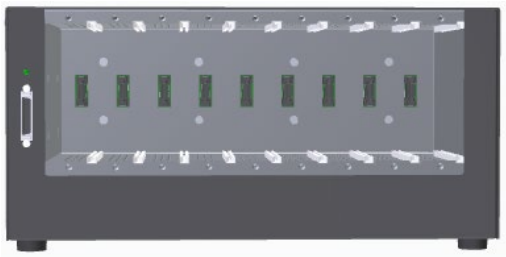
Pin No.	I/O	Signal Name	Circuit Type	lead color
1	I	TVCCS	A	white
2	I/O	CANL	B	red
3	-	GND	-	black
4	-	Reserved	-	blue
5	-	Reserved	-	purple
6	I/O	TIO	C	orange
7	I/O	CANH	B	yellow
8	I/O	TMODE	C	grey
9	I	PROBE SELECT	D	light blue

7. Assembling Unit

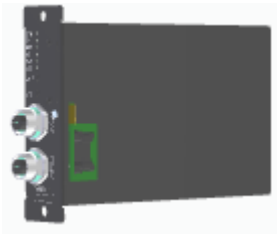
e.g., how to connect Programmer unit. (DIO unit is same as below.)

(1) Prepare following equipment.

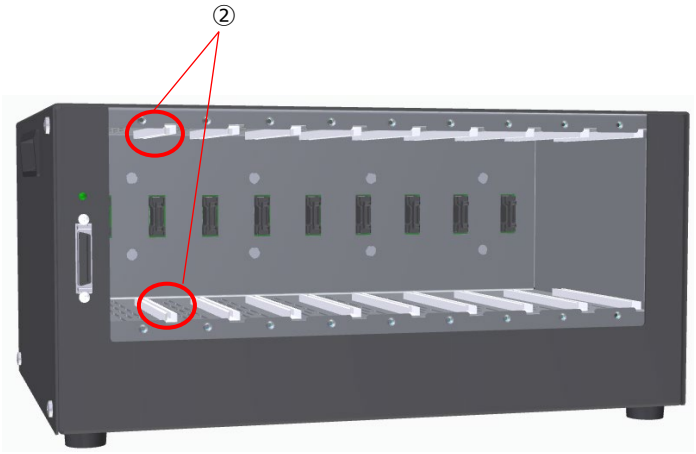
・Base Unit（AFX200）

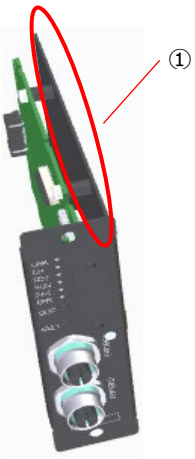


・Programmer Unit（AFX210）

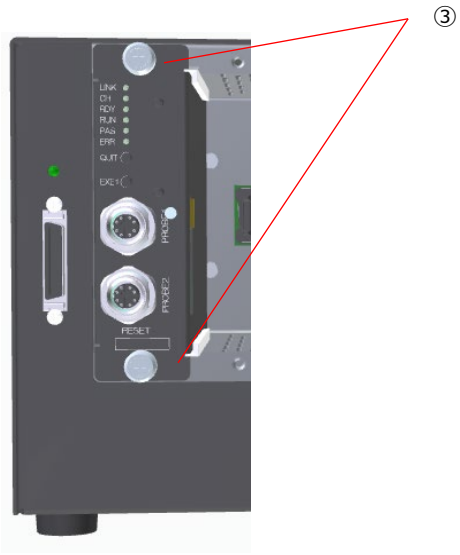


(2) First fit the board cover parts of Programmer unit (AFX210) to track part of Base unit (AFX200), and slide the Programmer unit all the way until a click sounds.





(3) Secure Programmer unit (AFX210) to Base unit(AFX200) with the supplied screw(③)



8. Remote control

NETIMPRESS acorde is possible to control remotely by PC.

Possible function by remote control is as below. Please see each software manual for more detail.

＜AFX210＞

・Wring to flash ROM
・Environmental setting for writing
・Communication environmental setting for unit body

＜AFX220＞

・Digital output control
・Digital input monitoring
・Communication environmental setting for unit body

8.1. Preparations for the Host Computer

The following describes how to connect NETIMPRESS acorde with the host computer.

Ethernet is used for the connection with the host computer.

Additionally, it is necessary to install the following software into the host computer

Please install as necessary.

・Remote controller (SWX600)　※ While remote controlling Programmer unit
・Remote controller (SWX630)　※ While remote controlling D/IO unit
・SWX680　※ When Programmer unit and D/IO unit body's IP address set up, etc.

The following shows the specifications of the connectable host computer.

Machine	Specifications
Host Computer	OS：Windows7 32bit/64bit　Windows10 32bit/64bit Ethernet　interface（10BASE-T/100BASE-TX/1000BASE-T）

8.2. Connecting with the Host computer

8.2.1.Preparation for the connection

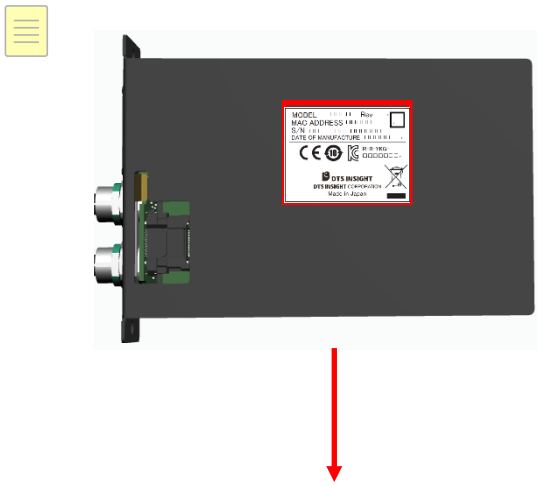
When using NETIMPRESS acorde for the first time, it is necessary to set the network environment for NETIMPRESS acorde.

The IP address is set using the SWX680 supplied with Flash Programmer.

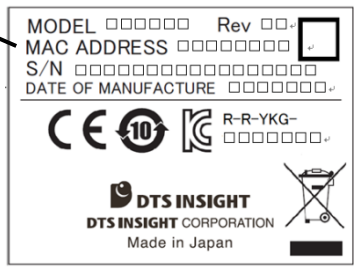
For details about the operation, see the User's Manual for SWX680.

① Apply for IP address to be set for NETIMPRESS acorde with network administrator to assign it. The address to be set is an address in the same subnet as host computer, for which the setting is made. Setting can be only in same subnet and cannot be made through the router.

② Record MAC address listed in the side of the programmer unit.

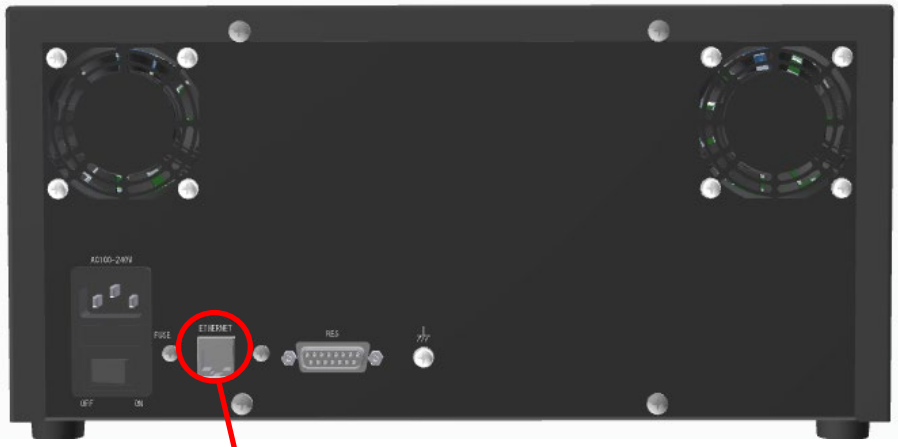


MAC address



③ Connect NETIMPRESS acorde to the network.

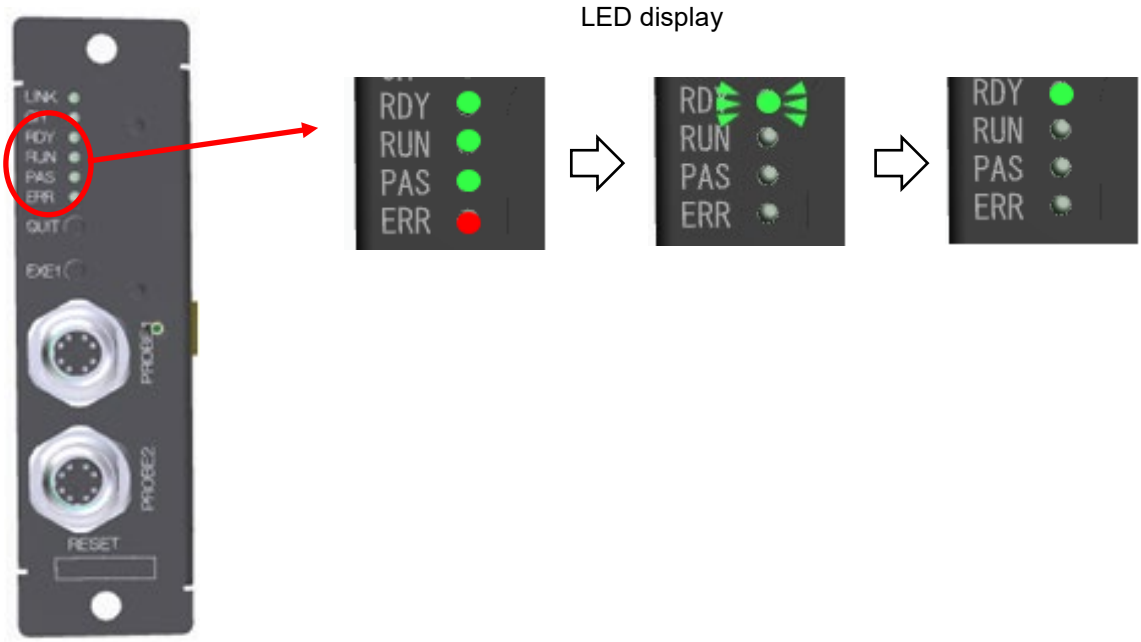
Connect Ethernet cable to the connector on the rear of NETIMPRESS acorde.



④ Power on NETIMPRESS acorde.

Check the 4 LEDs (RDY, RUN, PAS, ERR) of programmer unit connecting base unit or DI/O unit as follows. First all lit → blinking RDY → lit RDY.

This situation means NETIMPRESS acorde is ready to connect.



8.2.2.Setting IP address

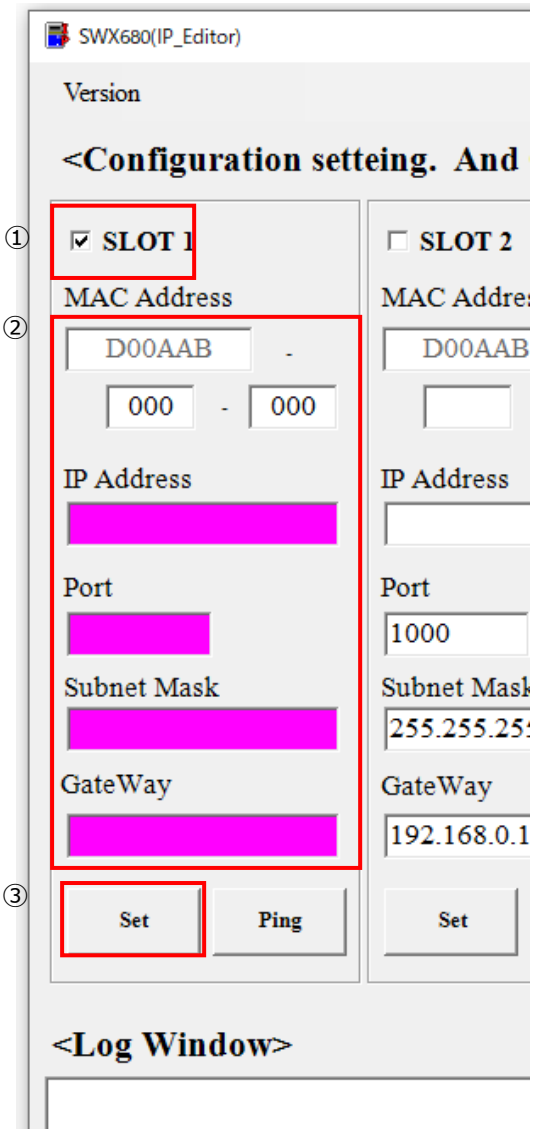
When the preparation is complete, set the IP address.

e.g.) In case of setting the unit connected CH1

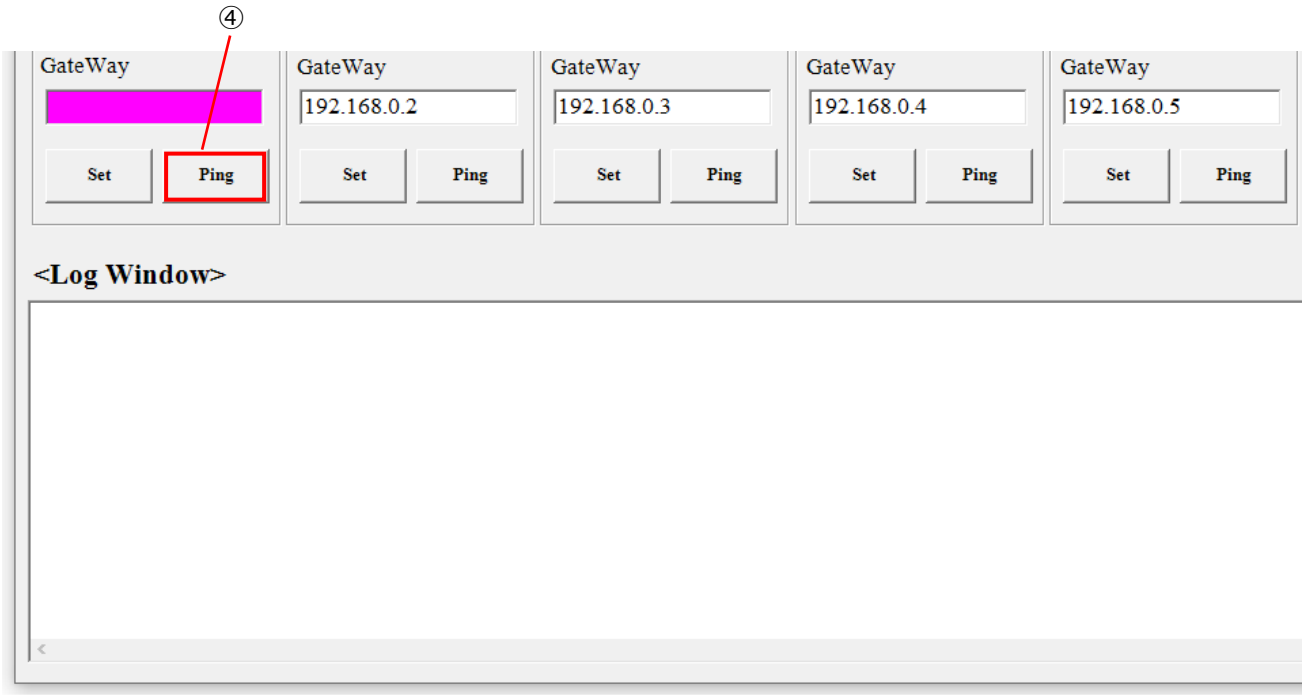
(1) Open SWX680 window, then check “SLOT1“（①）.

(2) Enter each setting value.(②)

(3) Make sure all entries are correct, then click [SET] button(③).



(4) Click the [Ping] button and check the response of the Ping.



The IP address setting is completed, after receiving normal response. If the response is not received (Time Out), check the network environment (within the same subnet) again.

9. Stand-alone Operation

Overview

This chapter describes stand-alone operation of each unit (AFX210, AFX220) while using AFX230.
The main remote operation is as below.

<AFX210>

- Wring to flash ROM
- Environmental setting for writing
- Communication environmental setting for unit body

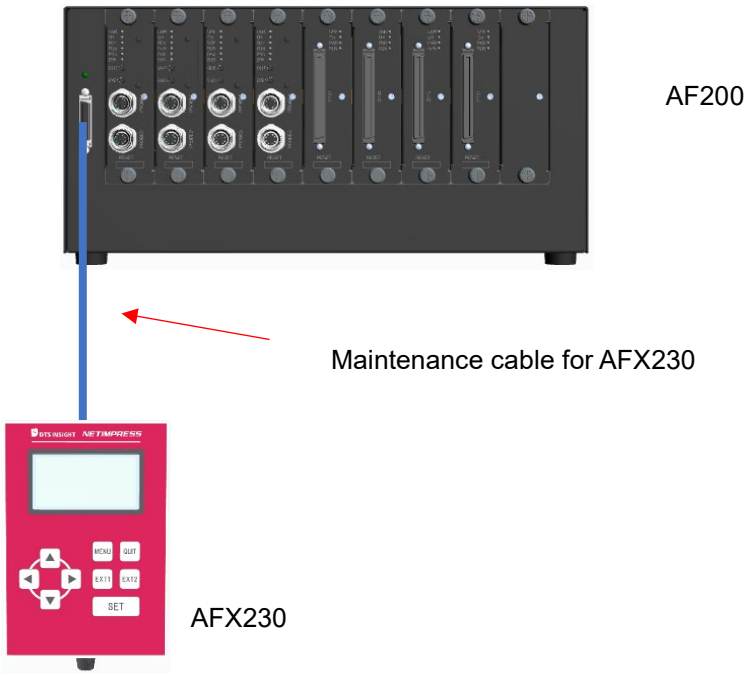
<AFX220>

- Communication environmental setting for unit body

AFX210 can operate same as remote control, but AFX220 can only set unit body. (it is not possible to control DI/O by stand-alone operation.)

9.1. Preparation for NETIMPRESS acorde

Connect AFX200 and AFX230 by using maintenance cable.

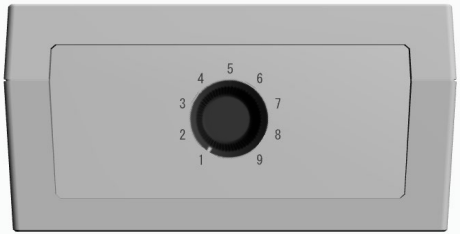


9.1.1.Starting Up

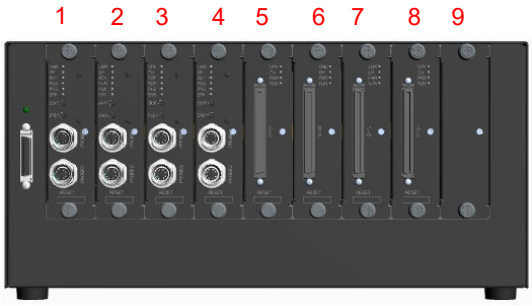
After connecting correctly, power on in order from AFX200 to AFX230.

After power on, switch the number of the unit you would like to operate stand-alone to AFX230 toggle switch.

AFX230 Toggle switch



Slot number



After set toggle switch, display will be not shown unless QUIT key is pressed once.

After complete starting up, the following screen is displayed. (※Display content is depends on the situation)

Please see the List of error in case the error displayed.

```
TEST00001
FRX830
FRX830Mxx
------------------------
IP:192.168.   0.   1
```

※If current YIM folder is selected, line 1 to Line 3 are displayed,

Line 1…Displays the name of current YIM folder.

Line 2…Displays character strings specified in parameter MCUTYPE.

Line 3…Displays Micom Pack name.

Line 5…Displays IP address.

9.1.2.Basic Operation

MENU screen

1. Press MENU key, open MENU screen.
2. Pages can be moved by ▲▼ key.
   Items in page can be selected by▲▼ key.
3. Possible to move to function screen by pressing SET key,

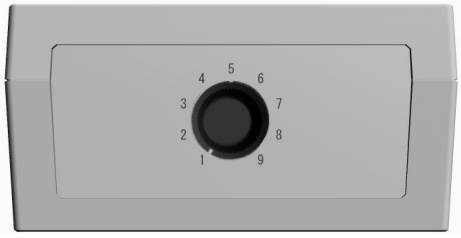
9.1.3.About each command

If necessary, please download “AFX100 Stand-alone manual” from our homepage, then see the Chapter “1.2. Function list” or “2. MENU list”.

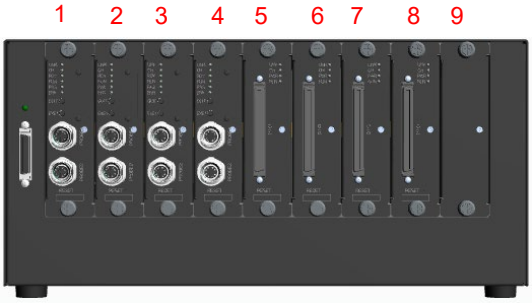
9.1.4.About change of operation object unit

If you require change the unit operating stand-alone, AFX230 toggle switch should be set the corresponding slot number shown below.

AFX230 Toggle switch



Slot number



After set toggle switch, display will be not shown unless QUIT key is pressed once.

10. Command Sequence Function

10.1. Functional overview

Control modules that support command sequence functions can execute device functions with one-action key entries.

The EXT key in the figure below can be assigned for this function.

This function is only in Programmer unit (AFX210).

10.2. EXT key setting

10.2.1. Command Sequence File（*.CSB）

The command sequence file (extension: CSB) is used for EXE key setting.

Only one CSB file can exist on the root directory of the control module.

The command that is set for EXT1 using the command sequence file (extension: CSB) is then assigned to the EXT key.

10.2.2. Command Sequence File（*.CSB）Format

The command sequence file is a text file and stores the information on which device functions (command sequence) are assigned to the EXT keys.

L	K	1	,	CNT1	CNT2	,	C1	,	C2	,	・・・	,	C16	;	Comment		
L	K	2	,	CNT1	CNT2	,	C1	,	C2	,	・・・	,	C16	;	Comment		
①			②	③			④							⑤	⑥		

① KeyNo code（3 bytes）

LK1：EXT 1 ／ LK2：EXT 2

② ‘, ’（1 byte）

Shows the command delimiter

③ CNT 1・2 （2 bytes）

CNT1 and CNT2 (2 bytes)

Shows the number of device commands

Decimal notation (after “09” is “10”)

Maximum: “16”

For unused keys use “00”.

④ C n

Device commands・・・See Section10.3. Device Command Definitions

⑤ ‘;’ (1 byte)

Shows the comment delimiter.

⑥ Comment (any number of bytes + CRLF)

Describes the comment.

- Example of CSB file creation (Text file) - (Test.csb)

```
LK1,01,DF;E.P.R
LK2,01,DD;Program
```

10.2.3. Error Message

In case error occurs, error message can be checked through the screen display of remote controller (during host PC connecting) or maintenance unit (AFX230).

For more details, see “List of Error Codes”

For details see Error Code List

10.3. Device Command Definitions

The following Table shows the command definitions when creating CSB file and YMN file.

Cn	Contents of definition
F0(XXXXXXXX␣YYYYYYYY)	Device function area setting （XXXXXXXX：First address, YYYYYYYY：Last address）※1
F1(XXXXXXXX␣YYYYYYYY␣ZZ)	Block store （XXXXXXXX：First address, YYYYYYYY：Last address, ZZ：data）※2
F2	Buffer memory clear
FF1(XXXXXXXX. XXX)	File load (XXXXXXXX. XXX：Load file name) ※3
FF5(XXXXXXXX␣YYYYYYYY)	Transfer address setting （XXXXXXXX：First address, YYYYYYYY：Last address）※1
D9	Blank（Device function）
DC	Erase（Device function）
DD	Program（Device function）
DE	Read（Device function）
DF	E. P. R（Device function）
FB0(XXXXXXXX. YIM)	Changing of current IMPRESS module folder (xxx.YIM) (XXXXXXXX. YIM: YIM folder name) *4
FBD(XXXXXXXX. YMN)	Execution of current YMN file (XXXXXXXX. YMN: YMN file name to be executed.) *5

*1 These settings can be omitted. When omitted, the address becomes the entire flash ROM area.

*2 These settings can be omitted. When omitted, the address becomes the entire flash ROM area and the data becomes “00”.

*3 This setting cannot be omitted.

*4 This setting can be omitted. When omitted, YIM folder in the compact flash is searched for.

*5 This setting can be omitted. When omitted, the YMN file, which is selected with [FUNC] [B] [C], is executed.

11. Error Code List

Error No.	Error Message	Description	Remedy
1002	NO LICENCE	No licence is found.	You must purchase the licence. “See 2.8.1.ADD LICENCE”
1003	GROUP CODE ERR	Group code is different.	Use parameters suitable for the definition program.
1006	COM ID VER UNEXPECTED	Version of the common part is old.	Make sure to use the latest version.
1007	CM ID VER UNEXPECTED ERR	Version of the specific part is old.	Make sure to use the latest version.
1008	FUNCTION NOT SUPPORT	Function is not supported.	No function is assigned to the specified function.
1009	DEVICE FUNCTION NOT SUPPORT	The device function is not supported.	No function is assigned to the specified function.
1010	HPARAM CONST ERR	Unable to read out hardware parameter.	Contact our support center.
1011	HPARAM WRITE ERR	Unable to write to the hardware parameter.	Contact our support center.
1015	PARAMETER ERR xxxx	Software parameter is corrupted.	Parameters are corrupted. Download the parameters again.
1016	ADDRESS WARNING	Address of write buffer memory and device function area differs from the area of target MCU flash memory.	Make sure the target address area and buffer area are the entire area of the flash writer area.
1017	PROBE LOGIC NO LICENCE	No probe logic licence is found.	Additional probe logic licence is required. See “2.8.1.ADD LICENCE”

1020	S FILE FORMAT ERR	S format error	Object file is corrupted. Check the object file.
1021	HEX FILE FORMAT ERR	HEX format error	Object file is corrupted. Check the object file.
1022	FORMAT ERR (REC TYPE)	Record type error	Object file is corrupted. Check the object file.
1023	FORMAT ERR (ADDRESS)	Address field error	Object file is corrupted. Check the object file.
1024	FORMAT ERR (CHECK SUM)	Checksum error	Object file is corrupted. Check the object file.
1025	FORMAT ERR (CRLF)	CRLF code error	Object file is corrupted. Check the object file.
1026	FORMAT ERR (SIZE)	Record size error	Object file is corrupted. Check the object file.
1027	FORMAT ERR (S5)	S5 record check error	Object file is corrupted. Check the object file.
1028	FORMAT ERR (ASCII)	Binary conversion disabled data error	Object file is corrupted. Check the object file.
1029	DATA FORMAT ERR	Communication data format error	Since the communication error occurs, check the communication path.
102A	CM FORMAT ERR	CM file format error	Definition program may be damaged. Download the definition program.
102B	ADDRESS WARNING	Abnormal setting of an address in the buffer memory area.	Make sure that the object file does not contain any data including addresses outside the area.
102C	FILE NAME SIZE OVER	File name is too long.	Set the file name to 250 characters or less.

102D	RAM FILE SIZE OVER	Ram file data size is too large.	Make sure that downloaded file is less than 256kbyte*. *If firmware is version 17.20 or before, it should be less than 8kbyte.
1037	UPDATE ERR	Fail to update firm and FPGA.	If there is a FWK or HWP file in the root directory of a dedicated SD card, delete the file and retry the update.
1038	UNSUPPORTED	No supporting for PHX4xx update	Set the FPGA version to Ver28.42 or higher.
1039	PHX UPDATE ERR	PHX4xx firmware update error	Rerun the update.
1052	SD READ ERROR	SD card readout error	Format the SD card Set the FPGA version to Ver28.42 or higher.
1053	SD WRITE ERROR	SD card writing error	Format the SD card Set the FPGA version to Ver28.42 or higher.
1054	SD ACCESS ERROR	Access error to the SD card	Format the SD card Set the FPGA version to Ver28.42 or higher.
1066	FULL PATH ERR	File system error of dedicated SD card	The file you attempted to access is corrupted. Format the SD card or delete specified file.
1067	PATH LENGTH ERR	File name is too long.	Set the file name to 250 characters or less.
106B	FILE OPEN ERR	Specified file open error	The file you attempted to access is corrupted. Format the SD card or delete specified file.
106C	FILE NOT OPEN ERR	Specified file is not found	The file you attempted to access is corrupted. Format the SD card or delete specified file.
106D	DOS FILE SIZE ERR	DOS FILE SIZE ERR	File system of the dedicated SD card is corrupted. Format the SD card.
1070	FILE READ ONLY ERR	Write-access is made to a read-only file.	Since the specified file is a read-only file, this error is output. Specify other file or change file attribute of the specified file.

1071	FILE NOT EXIST	File is not found	Since the specified file is not found, this error is output. Specify other file or store the specified file.
1072	FILE NOT EXIST	File is not found.	Since the specified file is not found, this error is output. Specify other file or store the specified file.
1073	FILE EXIST	File already exists.	Since the specified file already exists, the error is output. Specify other file or delete the specified file.
1074	FOLDER NOT EXIST	Folder is not found	Since the specified folder is not found, the error is output. Specify other folder or store the specified file.
1075	FOLDER EXIST	Folder already exists.	Since the specified folder is already exists, the error is output Specify other folder or delete the specified folder.
1076	FILE ENCRYPT ERR	File encryption failed	Specified file encryption has failed. Recreate YIM folder
1077	FILE COMPOSITE ERR	File composite failed	Specified file composite has failed. Re-execute or recreate YIM folder
1078	ENCRYPT SIZE OVER	File size to encrypt is large	Keep the file size to less than 16Mbytes.
1079	ENCRYPT FILE OPEN ERR	Encrypt file is not opened.	Specified encrypt file is corrupted. Recreate YIM folder.
107A	OBJ FILE NOT SAVE	Inaccessible to the object file.	Specified object file cannot be read.
1090	YSM CHECK ERR	YSM checksum error	Check the sum data of the YSM or sum value of the buffer.
1091	YSM CHECK ERR	YSM check buffer error	Check the buffer data of the YSM or data of the buffer.
1092	YSM FILE FORMAT ERR	YSM file format error	Check the YSM file format.

1093	YSM NOT FOUND	YSM file exists	Put the YSM file into the YIM folder.
10A0	ETHER SEND CUT ERR	Line is cut-off when sending ETHER	Check the ETHERNET line.
10A1	ETHER SEND TIMEOUT	Time-out occurs when sending ETHER	Check the ETHERNET line.
10A2	ETHER RECV CUT ERR	Line is cut-off when receiving ETHER.	Check the ETHERNET line.
10A3	ETHER RECV TIMEOUT	Time-out occurs when receiving ETHER.	Check the ETHERNET line.
10A4	ETHER ERR	ETHER communication cannot be made	Check the ETHERNET line.
10A5	NEXT COMMAND NOT RECV	Abnormal ETHER connection.	Check the ETHERNET line.
10B0	COM OUT ERR	RS232C send error	Check RS232C or the connection of the barcode reader.
10B1	COM IN ERR	RS232C reception error	Check RS232C or the connection of the barcode reader.
10C0	DEVICE SEND TIMEOUT xx	Target communication send time-out	Error occurs in the communication with the target.
10C1	DEVICE RECV TIMEOUT xx	Target communication receive time-out	Error occurs in the communication with the target.
10C2	DEVICE OVERRUN ERR xx	Target communication receive over-run	Error occurs in the communication with the target.
10C3	DEVICE FRAMOUTG ERR xx	Target communication framing error	Error occurs in the communication with the target.

10C4	DEVICE PARITY ERR xx	Target communication parity error	Error occurs in the communication with the target.
10D0	CSB NOT FOUND	CSB file is not found.	Store the CSB file.
10D1	MORE 2 CSB FILES	Two or more CSB files exist.	Delete the CSB files so that one CSB file exists.
10D2	CSB FILE FORMAT ERR xxxx	CSB file format error	Check the CSB file format.
10D3	FUNCTION DATA ERR	CSB or YMN function parameter error	Check the CSB and YMN function parameters.
10D4	YMN FILE FORMAT ERR	YMN file format error	Check the YMN file format.
10D5	YMN NOT REGIST	YMN file is not registered.	Check the YMN file is stored or the YMN file name is correct.
10E2	BAUDRATE SET ERR	No configurable baud rate.	Check the parameter file is correct.
10E3	PROBE NOT CONNECT	Probe cannot be connected normally.	Check the probe connection after powering off the main body.
1100	DEVICE CLEN ERR	Over-current detection	Device may be short-circuited with the target. Check the connection with the target.
1101	TVCC TOO LOW	Target voltage is low.	Target power needs to be connected to the TVCC.
1108	DEVICE INITIALIZE COM ERR	Initial communication error	Target may not be transited to the operation mode. Check the connection with the target.

1109	DEVICE ERR xx	Device error	Check whether it is possible to access the target device if it is not possible due to security reasons, etc. xx(※) shows the executing location of the device function. 0x01：Erasure process execution error 0x02：Blank check error 0x03：Writing process execution error 0x04：Verification error 0x05：Copy processing error ※ The errors above may differ depending on the definition program. See your definition program manual.
110A	DEVICE SCI SUM ERR xx	SCI communication sum error	Check the communication with the target.
110B	DEVICE ILLEGAL REPLY xx	Unexpected data is received via SCI communication	Check the communication with the target.
110C	SUM VERIFY ERR xx	Sum verify error	Check the communication with the target.
110E	BTP NOT FOUND	BTP file is not found.	Store the BTP file
110F	MORE 2 BTP FILES	Two or more BTP files exist.	Delete BTP so that only one BTP exists.
1110	BTP FORMAT ERR	BTP file format error	Check the BTP file format.
1111	KEY NOT FOUND	No KEY file is found.	Store the KEY file.
1112	MORE 2 KEY FILES	Two or more KEY files exist.	Delete KEY so that only one KEY exists.
1113	KEY FORMAT ERR	KEY file format error	Check the KEY file format.

1120-113F	xxxxx	Error occurs in the definition of the specific part.	See the manual for definition.
1140	PHX400 ADAPTER CONNECT ERR	Error in communication between NETIMPRESS acorde and PHX400.	Check the connection between NETIMPRESS acorde and PHX400. It is necessary to connect the target power supply to TVCC. Check the input voltage to the target microcomputer is correct.
1141	PHX400 UART COM ERR	Error in communication between NETIMPRESS acorde and PHX400.	Check the connection between NETIMPRESS acorde and PHX400.
1150	YIM MAX	The number of YIM folder reached an upper limit (65535).	Remove unnecessary YIM folder from the SD card.
1151	YIM PROTECTED	YIM folder is protected.	Cancel the protection.
1160	YLC NOT FOUND	YLC file is not found.	Store the YLC file.
1161	MORE 2 YLC FILES	Two or more YLC files exist.	Only one YLC file can exist, so delete the rest.
1162	YLC FORMAT ERR	YLC file format error	Check the YLC file format.
1163	ATTOM ERR	ETHER Communication error	The communication between NETIMPRESS acorde and the PC is disconnected or communication is not possible. Check the status of the ETHER connection.
1164	LICENCE 100 OVER	The number of registered licenses has reached the upper limit.	Contact our support center.
1170	YCM FORMAT ERR/	YCM file format error	Check the YCM file format.
1170	FILE SIZEGET ERR	YCM file format error	Check the YCM file format.

1180	YIM NOT REGIST	YIM undefined error	Set the YIM folder.
1181	CM NOT REGIST	Definition program undefined error	Download the definition program.
1182	BUF NOT REGIST	Buffer memory undefined error	Keep a sufficient free area size of dedicated SD card and start up the programmer.
1190	FILE OPEN ERR	File open error	A failure in file access has been detected. Since the specified file may be corrupted, delete the file and reload it.
1191	FILE CLOSE ERR	File close error	
1192	FILE READ ERR	File read error	
1193	FILE WRITE ERR	File write error	
1194	FILE SEEK ERR	File seek error	
1195	FILE SYNC ERR	File synchronization error	
1196	FILE RENAME ERR	File rename error	
1197	FILE DIR ERR	File directory open error	
1198	FILE SEARCH ERR	File search error	
1199	FILE CD ERR	File change directory error	

119A	FILE MKFILE ERR	Making file error	
119B	FILE MKDIR ERR	File directory making error	
119C	FILE RMFILE ERR	Remove file error	
119D	FILE RMDIR ERR	Remove directory error	
119E	FILE COPY ERR	File copy error	
119F	FILE XCOPY ERR	File directory copy error	
1200	DEVICE FUNCTION ERR	Device function interrupted error	
1A00	SCRIPT FILE NOT (START)	Script file error: No (START) line on the executing script file	Check the script file.
1A01	SCRIPT FILE ERR LOUTE XXXX	Script file error: There are unspecified descriptions on the line No. XXXX of the executing script file.	Check the script file.
1A02	SCRIPT FILE FORMAT ERR	Script file error:No (START) line on the executing script file	Check the script file.
1A03	SCRIPT EMPTY	Script file error:No commands to execute on the (START) to (END) of the executing script file.	Check the script file.
1A04	SCRIPT DI TIMEOUT	Error while executing the script file: Cannot detect the on/off of input signal which is specified during time-out time on the INPUT line of the script.	Check the line of script file on which the error occurred, and your environments.
1A05	SCRIPT FILE NOT FOUND	Error for the script file search: Cannot find the script file specified by barcode or digital input.	Make sure that the information specified by the barcode or digital input conforms to a target script file.

1A06	DIO CLEN ERR	Overcurrent is detected when outputting digital I/O	Check the wire connection of digital I/O of programmer and your DI/O unit.
1A10	RTC DATA FORMAT ERR	Abnormal setting value is detected in setting of NETIMPRESS acorde built-in RTC.	Check that the set value is within the specification time.
1A14	LOG FILE OVER	The number of log file has reached the upper limit.	Remove the log files.
1A16	LOG FILE NOT OPEN ERR	Cannot open the logfile	The specified log file may be corrupted. Delete the specified log file.
1A19	YRM FILE OVER	The number of YRM file has reached the upper limit.	Select another YIM folder and clear the YRM file.
1A20	BCR RECV TIMEOUT	Time-out occurs when receiving the barcode	Check the SUFFIX setting of the barcode reader. If SUFFIX is specified by YBO file, check the characters specified for SUFFIX, and your barcode data.
1A21	BCR DATA FORMAT ERR	Format of the barcode data is not correct	Check the created barcode data. Check that the designation of barcode option file (YBO) is correct.
1A23	BCR YBOFILE_FORMAT_ERR	Format error of the barcode option file (YBO)	Check the YBO file.
1A24	MORE 2 YBO FILES	More than one barcode option files (YBO) are existed.	Make sure to place only one YBO file in the root directory of the dedicated SD card.
1A25	BCR RECV OVER	More than one barcode option files (YBO) are existed.	Make sure to place only one YBO file in the root directory of the dedicated SD card.
1A27	BCR CLEN ERR	Overcurrent occurs when connecting the barcode	Check the condition of the barcode device connected to NETIMPRESS acorde
1A28	YBO FILE MODE ERR	Mode setting for YBO is not correct	Check the contents of YBO file.

1A29	BCR ILLEGAL DATA (1:NULL)	Error during analysis of the received barcode	Check the created barcode data and the barcode option file (YBO) are specified correctly.
1A2A	BCR ILLEGAL DATA (START-SUFFIX)	Cannot search for files because START to the end of the barcode is more than 249.	Check the created barcode data.
1A2B	BCR ILLEGAL DATA(START)	No character to the START of the barcode.	Check the created barcode data.
1A2B	BCR ILLEGAL DATA(END)	No character to the END of the barcode.	Check the created barcode data.
1A2C	BCR ILLEGAL DATA(SUFFIX)	Cannot search for files because the barcode contains more than 249 characters.	Check the created barcode data.
1A30	PROBE CONNECT ERR	Probe (PHX4xx) connection error	Check the connection between the PHX4xx and NETIMPRESS acorde.
1A31	PROBE UNCONNECT CH1	Probe (PHX4xx) connection error	Check the "PROBE SELECT" signal matches the connection of the PHX4xx to NETIMPRESS acorde.
1A32	PROBE UNCONNECT CH2	Probe (PHX4xx) connection error	Check the "PROBE SELECT" signal matches the connection of the PHX4xx to NETIMPRESS acorde.
1A33	PROBE SELECT NO SIGNAL	Probe (PHX4xx) connection error	Check the connection between the PHX4xx and NETIMPRESS acorde.

12. Contact

For inquiry about the specification of NETIMPRESS acorde, please contact our support center. For inquiry about the price information or lead time, please contact our sales or your local distributors.

Contact

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NETIMPRESS acorde Hardware Manual

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