

DX200 OPTIONS OPERATOR'S MANUAL

FOR WELDCOM FUNCTION:
ARC WELDING/DIGITAL I/F FUNCTION

Upon receipt of the product and prior to initial operation, read these instructions thoroughly, and retain for future reference.

MOTOMAN INSTRUCTIONS

- MOTOMAN-□□□ INSTRUCTIONS
- DX200 INSTRUCTIONS
- DX200 OPERATOR'S MANUAL (for each purpose)
- DX200 MAINTENANCE MANUAL (Volume 1) (Volume2)

The DX200 operator's manuals above correspond to specific usage. Be sure to use the appropriate manual.
The DX200 maintenance manual above consists of "Volume1" and "Volume2".

THIS MATERIAL IS FOR STUDY PURPOSE ONLY.
YOU MUST READ THE MANUAL WHICH ENCLOSED
WITH A ROBOT.



MANDATORY

- This manual explains the various components of the DX200 system and general operations. Read this manual carefully and be sure to understand its contents before handling the DX200.
- General items related to safety are listed in the Chapter 1: Safety of the DX200 Instructions. To ensure correct and safe operation, carefully read the DX200 Instructions before reading this manual.



CAUTION

- Some drawings in this manual are shown with the protective covers or shields removed for clarity. Be sure all covers and shields are replaced before operating this product.
- The drawings and photos in this manual are representative examples and differences may exist between them and the delivered product.
- YASKAWA may modify this model without notice when necessary due to product improvements, modifications, or changes in specifications. If such modification is made, the manual number will also be revised.
- If your copy of the manual is damaged or lost, contact a YASKAWA representative to order a new copy. The representatives are listed on the back cover. Be sure to tell the representative the manual number listed on the front cover.
- YASKAWA is not responsible for incidents arising from unauthorized modification of its products. Unauthorized modification voids your product's warranty.

NOTES FOR SAFE OPERATION

Read this manual carefully before installation, operation, maintenance, or inspection of the DX200.

In this manual, the Notes for Safe Operation are classified as “DANGER”, “WARNING”, “CAUTION”, “MANDATORY”, or “PROHIBITED”.



DANGER

Indicates a imminent hazardous situation which, if not avoided, could result in death or serious injury to personnel.



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to personnel.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury to personnel and damage to equipment. It may also be used to alert against unsafe practices.



MANDATORY

Always be sure to follow explicitly the items listed under this heading.



PROHIBITED

Must never be performed.

Even items described as “CAUTION” may result in a serious accident in some situations.

At any rate, be sure to follow these important items



To ensure safe and efficient operation at all times, be sure to follow all instructions, even if not designated as “DANGER”, “WARNING” and “CAUTION”.



WARNING

- Before operating the manipulator, check that servo power is turned OFF when the emergency stop buttons on the front door of the DX200 and programming pendant are pressed. When the servo power is turned OFF, the SERVO ON LED on the programming pendant is turned OFF.

Injury or damage to machinery may result if the emergency stop circuit cannot stop the manipulator during an emergency. The manipulator should not be used if the emergency stop buttons do not function.

Fig. : Emergency Stop Button



- Once the emergency stop button is released, clear the cell of all items which could interfere with the operation of the manipulator. Then turn the servo power ON

Injury may result from unintentional or unexpected manipulator motion.

Fig. : Release of Emergency Stop



- Observe the following precautions when performing teaching operations within the P-point maximum envelope of the manipulator:
 - Be sure to use a lockout device to the safeguarding when going inside. Also, display the sign that the operation is being performed inside the safeguarding and make sure no one closes the safeguarding.
 - View the manipulator from the front whenever possible.
 - Always follow the predetermined operating procedure.
 - Keep in mind the emergency response measures against the manipulator's unexpected motion toward you.
 - Ensure that you have a safe place to retreat in case of emergency.

Improper or unintended manipulator operation may result in injury.

- Confirm that no person is present in the P-point maximum envelope of the manipulator and that you are in a safe location before:
 - Turning ON the DX200 power
 - Moving the manipulator with the programming pendant
 - Running the system in the check mode
 - Performing automatic operations

Injury may result if anyone enters the P-point maximum envelope of the manipulator during operation. Always press an emergency stop button immediately if there is a problem.

The emergency stop buttons are located on the right of the front door of the DX200 and the programming pendant.



CAUTION

- Perform the following inspection procedures prior to conducting manipulator teaching. If problems are found, repair them immediately, and be sure that all other necessary processing has been performed.
 - Check for problems in manipulator movement.
 - Check for damage to insulation and sheathing of external wires.
- Always return the programming pendant to the hook on the DX200 cabinet after use.

The programming pendant can be damaged if it is left in the manipulator's work area, on the floor, or near fixtures.

- Read and understand the Explanation of the Warning Labels in the DX200 Instructions before operating the manipulator.

Definition of Terms Used Often in This Manual

The MOTOMAN is the YASKAWA industrial robot product.


The MOTOMAN usually consists of the manipulator, the controller, the programming pendant, and supply cables.

In this manual, the equipment is designated as follows:

| Equipment | Manual Designation |
|--|---------------------|
| DX200 Controller | DX200 |
| DX200 Programming Pendant | Programming Pendant |
| Cable between the manipulator and the controller | Manipulator Cable |

DX200

Descriptions of the programming pendant keys, buttons, and displays are shown as follows:

| Equipment | | Manual Designation |
|---------------------|-----------------------------|--|
| Programming Pendant | Character Keys | The keys which have characters printed on them are denoted with []. ex. [ENTER] |
| | Symbol Keys | The keys which have a symbol printed on them are not denoted with [] but depicted with a small picture. <div style="text-align: center;">  </div> ex. page key The cursor key is an exception, and a picture is not shown. |
| | Axis Keys Numeric Keys | "Axis Keys" and "Numeric Keys" are generic names for the keys for axis operation and number input. |
| | Keys pressed simultaneously | When two keys are to be pressed simultaneously, the keys are shown with a "+" sign between them, ex. [SHIFT]+[COORD] |
| | Displays | The menu displayed in the programming pendant is denoted with { }. ex. {JOB} |

Description of the Operation Procedure

In the explanation of the operation procedure, the expression "Select •••" means that the cursor is moved to the object item and [SELECT] is pressed.

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In this manual, names of companies, corporations, or products are trademarks, registered trademarks, or brand names for each company or corporation. The indications of (R) and TM are omitted.

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1 Functional Overview

1.1 Overview

The WELDCOM function serves as a digital interface that communicates via Ethernet with an arc welding power source. The function provides high data rate transmission between DX200 and the welding power source, enables the welding power source parameter to be set from the programming pendant, and monitors graphically welding current and voltage during welding.

- **The WELDCOM function can use either of the following four welding power sources for connection.**

- ① MOTOWELD-EL350-AJ2E (manufactured by YASKAWA ELECTRIC CORPORATION)
(AJ2E indicates that an Ethernet interface is incorporated.)
- ② MOTOWELD-RP500 (manufactured by YASKAWA ELECTRIC CORPORATION)
(System version: DN1.00.00(□)-00 or newer)
(In the case of digital communication mode)
- ③ MOTOWELD-RL350 (manufactured by YASKAWA ELECTRIC CORPORATION)
(System version: D1.00.00(□)-00 or newer)
(In the case of digital communication mode)
- ④ TPS4000 CMT (manufactured by Fronius International GMBH)
(Only the model that incorporates the WeldCom interface)
- ⑤ TPSi (manufactured by Fronius International GMBH)
(Only the model that incorporates the WeldCom interface)

- **Programming a job is available using general arc welding commands.**

ARCSET ASF#(),
ARCON ASF#(),
ARCOF AEF#()

- **Welding conditions are set in a welding start condition file or a welding end condition file specified in an arc welding command.**

- **The welding start condition file or welding end condition file has the edit window that provides the setting window for a digital interface, enabling users to check or edit parameters to be set in welding power source.**

- **The parameter to be set in the edit window of the welding condition file is saved in the dedicated condition file, "Welding type file" and "Digital welder condition file", where the data can be loaded and saved with the external memory function.**

- **TCP Speed Function**

This is the function only for TPS4000 CMT (Not available for MOTOWELD EL350-AJ2E), welding with bead leg length kept constant by changing the feeding rate according to the welding speed.

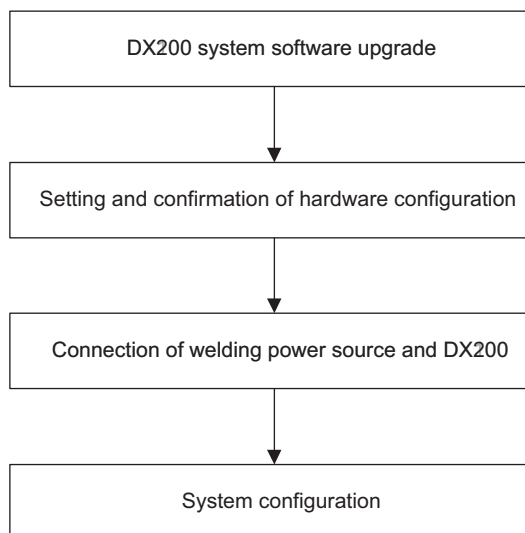
(NOTE)

- When using TCP Speed, you must add the ARATION and ARATIOF commands to the welding section for the welding speed to be output in analog.
Ex. ARATION BV 7.00 SPD 512
- To use TCP Speed, special software must be installed on TPS4000 CMT.
- TCP Speed cannot be used with the TPS of the US specification.

2 Setup

2.1 Setup Flow

Setup the DX200 with the following procedure.



2.2 DX200 System Software Upgrade

The WELDCOM function is incorporated into the system software version, DN1.00.00(□)-00 or later. If DX200 has a version of earlier than DN1.00 installed, upgrade the version by following the procedure below. DX200 with DN1.00.00(□)-00 or later does not need to be upgraded.

FroniusTPSi is available for the version DN1.90.01(□)-78 or later. Also, it needs the MotoPlus function (optional function).

2.2.1 Individual Data Backup

Save all the individual data including job and condition files to initialize the system after the upgrade. Also, save the system configuration file in the maintenance mode.

2.2.2 System Upgrade

Upgrade the version to DN1.00.00(□)-00 or later. (For detailed information of the system software upgrade procedure, see "DX200 Upgrade Procedure" Manual number: HW1481995).

2.3 Setting and Confirmation of Hardware Configuration

2.3.1 Removing Unnecessary EW Board

The WELDCOM is connected to the welding power source using the digital interface via Ethernet communication. This does not require the EW board (YEW01, XEW02, etc.) for an analog interface, so remove the EW board.



In multiple robot systems, if some welding power source uses digital interface and some uses analog interface, leave as many EW boards as the necessary analog interfaces.

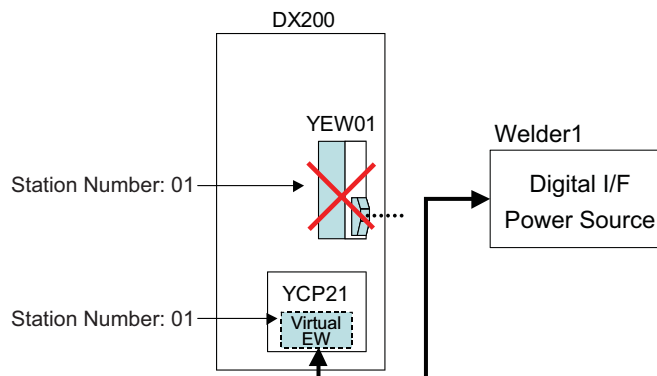
2.3.2 Station Number when EW Board is Left

A digital interface requires a virtual EW module, not an actual EW board. The virtual EW module also has a station number. If leaving an EW board unremoved for other welding power sources, set the actual EW board station number so that it does not duplicate the virtual EW module station number.

(Setting Example)

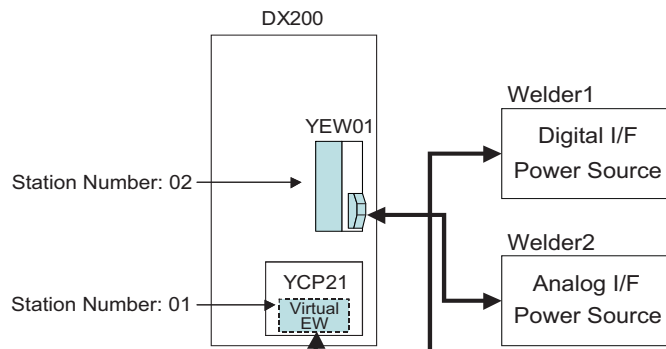
- **Replacing welding power source of analog interface with that of digital interface**

⇒ Remove the actual EW board, which will be unnecessary. (The station number of the virtual EW module is set at the time of configuration.)



- **When connecting welding power source of digital interface as Welder 1, and analog interface as Welder 2**

⇒ Because the virtual EW module station number is set to the smallest number at the time of configuration, set the EW board station number to the second or later number.



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- 2.4 Connection of Welding Power Source and DX200

■ **When applying digital interface to welder and using EW board as general analog output board**

⇒ Because the EW board is automatically set as welding application due to the configuration restrictions, set the arc application to Arc + Arc. Specifically, set as follows:

- Set the application setting of [Initialization] to "Arc + Arc", and set Arc 2 as not for use.
- In [OPTION FUNCTION - WELDCOM FUNC.], set Arc 1 to digital interface.

2.4 Connection of Welding Power Source and DX200

2.4.1 Standard Connection

(When connecting one welding power source of digital interface to DX200)

- Connect a LAN cable to YCP01 for LAN (CN104).



CAUTION

- Use the LAN cable that comes with our arc welding robot package MOTOPAC. (The system may not properly work with a LAN cable other than this, and we are not responsible for any problems that may occur.)

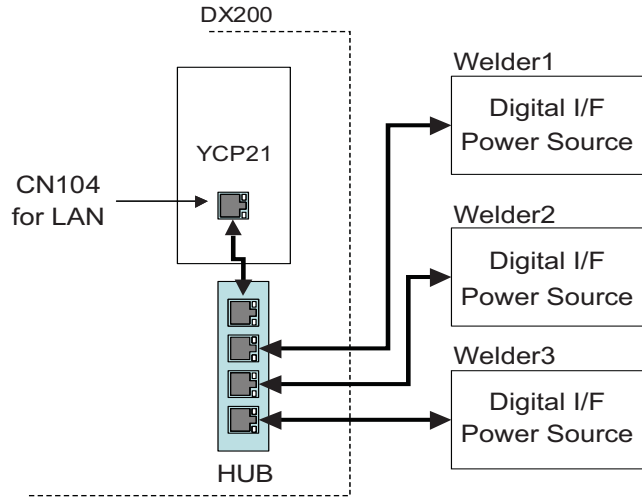


When preparing a LAN cable other than the cable above

- You can use either cross cable or straight cable.
- Use a cable with the connector that has a metal cover for noise suppression and with the cable shield grounded to the metal cover.

2.4.2 When Connecting to DX200 the Multiple Welding Power Sources of Digital Interfaces and also Other Devices with Data Transmission Function using Ethernet Function

As shown in the following figure, connect the LAN cable to YCP21 for LAN (CN104) using a switching hub.



(You can use either cross cable or straight cable.)

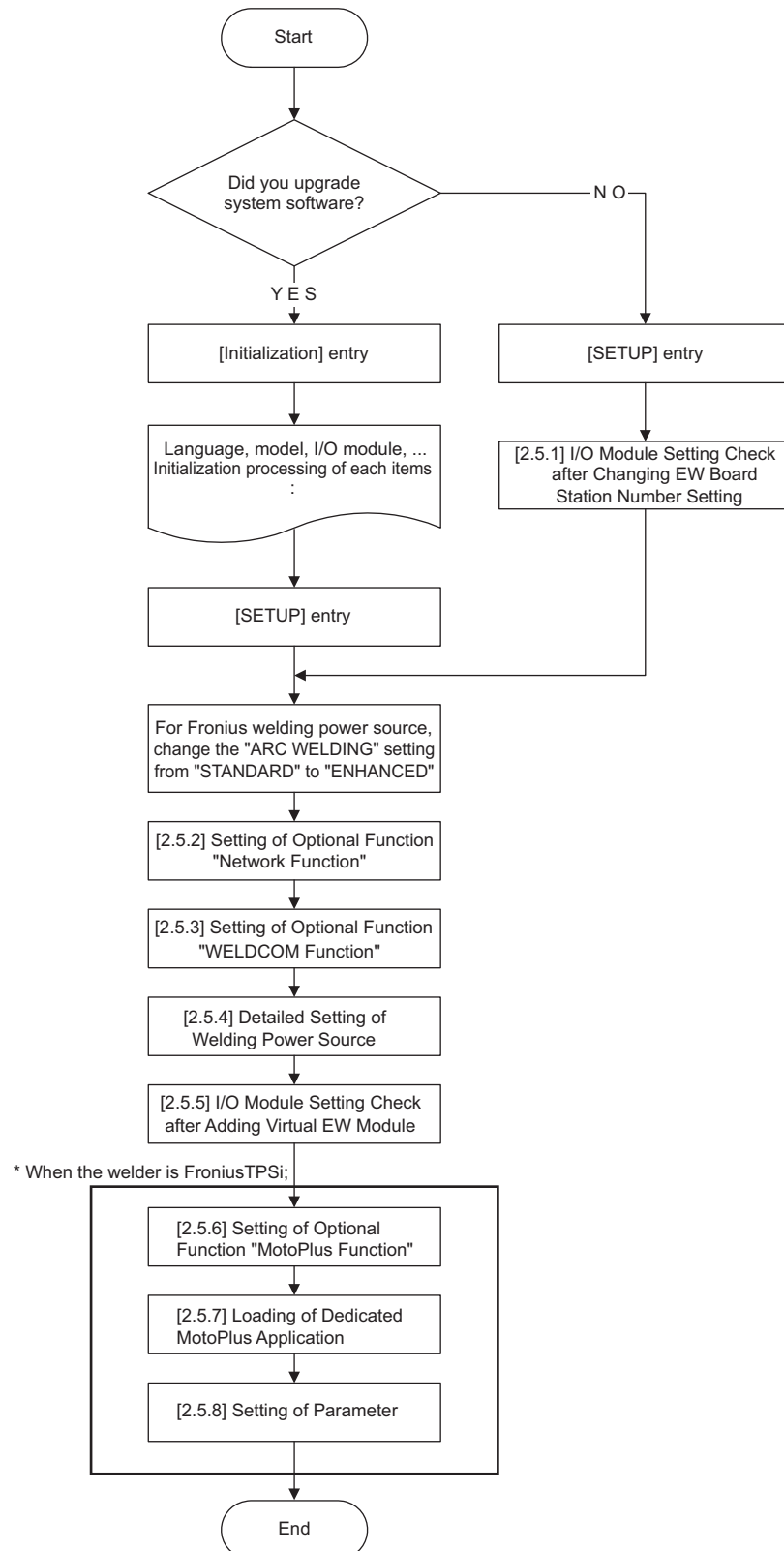


CAUTION

- Use the industrial switching hub that we recommend. (The system may not properly work with a hub other than this, and we are not responsible for any problems that may occur.)
- Our recommended switching hub: Model EDS-205 (manufactured by MOXA)

2.5 System Configuration

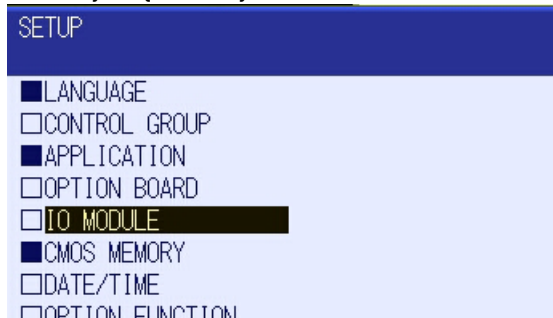
The following figure illustrates the configuration procedure outline. The following and later pages explain the detailed procedure of each setting. Note that the initialization processing after system upgrade is omitted.



2.5.1 I/O Module Setting Check after Changing EW Board Station Number Setting

The EW board removal and station number change performed in the *chapter 2.3 "Setting and Confirmation of Hardware Configuration"* changes the I/O module setting. The setting changes must be recognized with [Setting] in the maintenance mode.

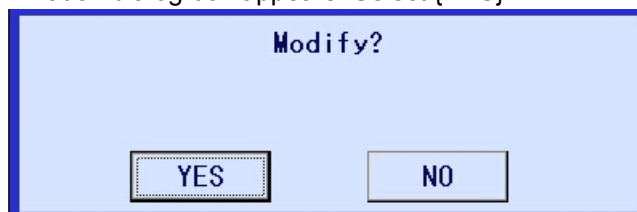
1. Start the DX200 while pressing [MAIN MENU]
 - Start the DX200 in maintenance mode.
2. Select {SYSTEM} → {SECURITY} → "MANAGEMENT MODE".
 - A password must be entered after selecting "MANAGEMENT MODE".
3. Select {SYSTEM} → {SETUP} → "IO MODULE".



4. Press the [ENTER] to check the I/O module connection status.
 - If no EW board is connected, the board column displays "NONE" as follows.

| IO MODULE | | | | |
|-----------|----|----|----|----------|
| ST# | DI | DO | AI | AO BOARD |
| 00 | - | - | - | NONE |
| 01 | - | - | - | NONE |
| 02 | - | - | - | NONE |
| 03 | - | - | - | NONE |
| 04 | - | - | - | NONE |
| 05 | - | - | - | NONE |
| 06 | - | - | - | NONE |
| 07 | - | - | - | NONE |
| 08 | - | - | - | NONE |

5. A confirmation dialog box appears. Select {YES}.



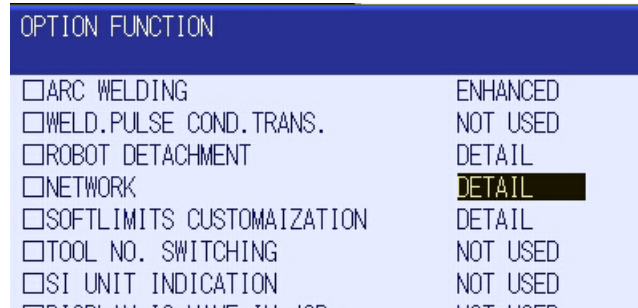
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2.5.2 Setting of Optional Function “Network Function”

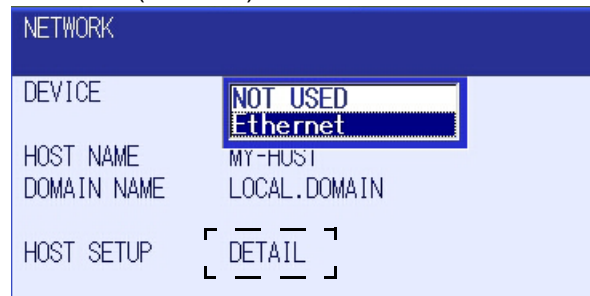
The WELDCOM function uses the network function (optional function). Set the network function by following the procedure below.

1. Select {SYSTEM} → {SETUP} → {OPTION FUNCTION}, and then "DETAIL" of "NETWORK".

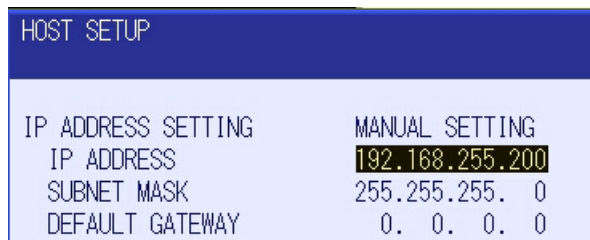


2. Change the setting of "DEVICE" from "NOT USED" to "Ethernet", and select "DETAIL" of "HOST SETUP".

– Set the Network (Ethernet) function to enable.

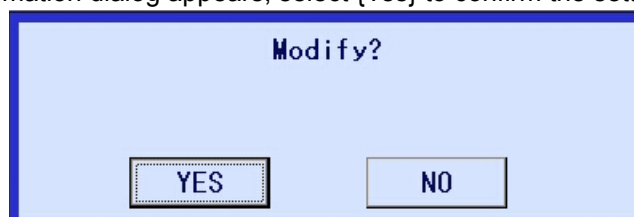


3. After setting "IP ADDRESS SETTING" to "MANUAL SETTING", change "IP ADDRESS" to "192.168.255.200".



- Set "SUBNET MASK" to "255.255.255.0".
- Set "DEFAULT GATEWAY" to "0.0.0.0".

4. After the setting above is completed, press the [ENTER]. When a confirmation dialog appears, select {Yes} to confirm the setting.

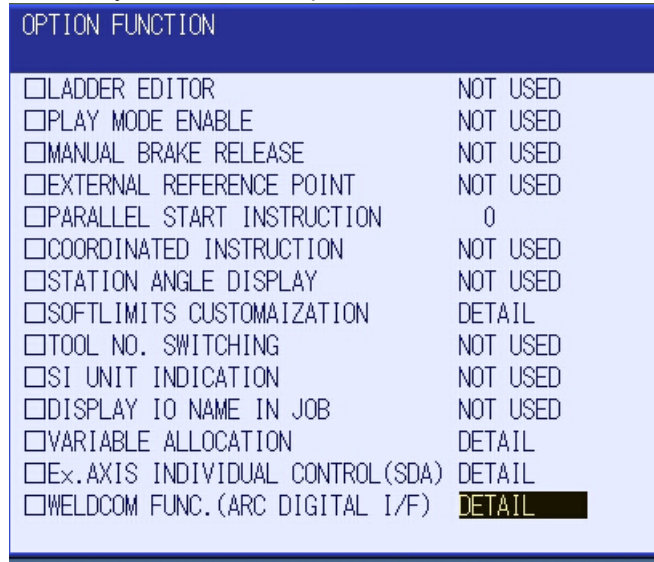


2.5.3 Setting of Optional Function “WELDCOM Function”

Set the WELDCOM function by following the procedure below.

1. Select {SYSTEM} → {SETUP} → {OPTION FUNCTION}, and then "DETAIL" of "WELDCOM FUNC. (ARC DIGITAL I/F)".

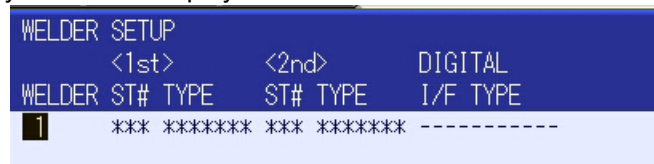
* If "WELDCOM FUNC. (...)" is not displayed, the system software version may be old (earlier than DN1.00.00-00) or the function parameter may be disabled. Contact your Yaskawa representative.



2. The WELDER SETUP window appears.

When multiple applications (welders) are set, you can navigate among welder numbers with the upper or lower cursor.

- When the application setting is arc and no actual EW board exists, only one line is displayed with *** for the items.



<Explanation of each item>

- The window displays as many lines as the number of applications.
- ST#: The station number of EW module corresponding to the welders
- TYPE: Kind of EW module (EX: XEW02, XEW01-1, etc..)
- <Second board>: Displayed when two EW boards are used in the enhanced mode.
- DIGITAL I/F TYPE: Displays the type of welding power source connected. (Either MOTOWELD, Fronius TPS, or Fronius TPSi)

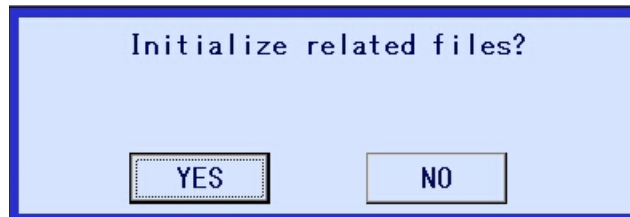
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3. On the number of welder where you want to set a digital interface, press the [SELECT] to select a digital interface type.



4. After specifying the digital interface above, pressing the [ENTER] displays the confirmation dialog for initializing the related files. Select {Yes} to confirm the initialization.



2.5.4 Detailed Setting of Welding Power Source

After setting the digital interface in the WELDER SETUP window and initializing the related files, "Type" shows VEW01, indicating that the virtual EW module for the digital interface has been assigned. Perform detailed setting for each welding power source by following the procedure below.

Set the each welding power source by following the procedure below.

1. VEW01 (Virtual EW module) has been assigned. Move the cursor to the "DETAIL" in the far right, and press the [SELECT].
 - VEW01 for the digital interface has been assigned.

| WELDER SETUP | | | | |
|--------------|---------|-------|-------|------------------------|
| <1st> | | <2nd> | | DIGITAL |
| WELDER ST# | TYPE | ST# | TYPE | I/F TYPE |
| 1 | 1 VEW01 | *** | ***** | MOTOWELD DETAIL |

2. The WELDCOM function works with the default detailed settings. You do not especially need to make settings. Press the [ENTER] to confirm the setting.

To see the welding currents and voltages obtained and the error codes in the concurrent IO ladder, specify the M register address of output destination accordingly.

- Selecting "DETAIL" displays the following DETAILED SETUP window.
- The DETAILED SETUP window varies depending on a welding power source type.

<MOTOWELD type>

| ARC DIGITAL I/F FUNC. : MOTOWELD DETAILED SETUP | |
|---|------------------------|
| <WELDER{1}> | |
| POWER SOURCE IP ADDRESS | 192.168.255.210 |
| REGISTER ADDR. : VOLT. COMMAND | 150 |
| REGISTER ADDR. : CURR. COMMAND | 151 |
| REGISTER ADDR. : SAMPLING VOLT. | 152 |
| REGISTER ADDR. : SAMPLING CURR. | 153 |
| REGISTER ADDR. : SAMPLING W.F.S. | |
| REGISTER ADDR. : FEEDER MTR. CURR. | |
| REGISTER ADDR. : SHORT-CIRCUIT CNT. | |
| REGISTER ADDR. : ERROR CODE | |
| REGISTER ADDR. : WELDER USER FILE# | 154 |

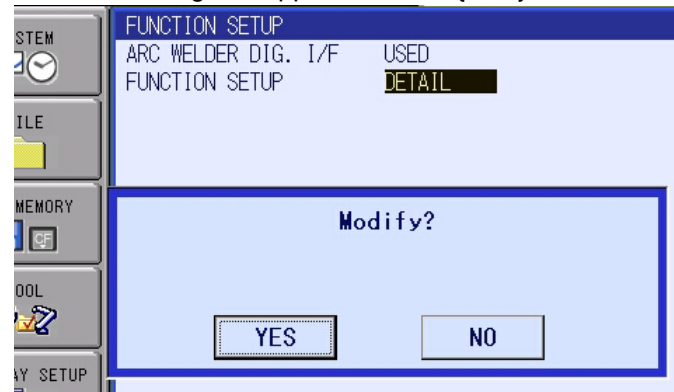
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<Fronius TPS type, FroniusTPSi type>

| ARC DIGITAL I/F FUNC. : Fronius TPS DETAILED SETUP <WELDER{1}> | |
|---|-----------------|
| POWER SOURCE IP ADDRESS | 192.168.255.210 |
| REGISTER ADDR. : VOLT. COMMAND | 150 |
| REGISTER ADDR. : CURR. COMMAND | 151 |
| REGISTER ADDR. : SAMPLING VOLT. | 152 |
| REGISTER ADDR. : SAMPLING CURR. | 153 |
| REGISTER ADDR. : SAMPLING W.F.S. | |
| REGISTER ADDR. : FEEDER MTR. CURR. | |
| REGISTER ADDR. : SHORT-CIRCUIT CNT. | |
| REGISTER ADDR. : MAIN ERROR CODE | |
| REGISTER ADDR. : SUB ERROR CODE | |
| REGISTER ADDR. : OPERATION MODE | 156 |
| REGISTER ADDR. : TPS JOB# | 155 |
| REGISTER ADDR. : PROGRAM# | 154 |

3. A confirmation dialog box appears. Select {YES}.



2.5.5 I/O Module Setting Check after Adding Virtual EW Module

Once the digital interface setting is confirmed, the virtual EW module VEW01 is added as an I/O module.

The following explains the final checking process, not the setting procedure, to add VEW01 as an I/O module at the time of completion of the WELDCOM function setting.

1. In the WELDER SETUP and the DETAILED SETUP window, when the settings are completed, the IO MODULE setting window automatically appears.
 - The virtual EW module, VEW01, is displayed.

| IO MODULE | | | | | |
|-----------|------|------|-----|-----|-------|
| ST# | DI | DO | AI | AO | BOARD |
| 00 | - | - | - | - | NONE |
| 01 | 0016 | 0016 | 002 | 004 | VEW01 |
| 02 | - | - | - | - | NONE |
| 03 | - | - | - | - | NONE |
| 04 | - | - | - | - | NONE |
| 05 | - | - | - | - | NONE |
| 06 | - | - | - | - | NONE |
| 07 | - | - | - | - | NONE |
| 08 | - | - | - | - | NONE |

2. Press [ENTER].
A confirmation dialog box appears. Select {YES}.

| IO MODULE | | | | | |
|-----------|----|----|----|----|-------|
| ST# | DI | DO | AI | AO | BOARD |
| 06 | - | - | - | - | NONE |
| 07 | - | - | - | - | NONE |
| 08 | - | - | - | - | NONE |
| 09 | - | - | - | - | NONE |

Modify?

3. Select {AUTO} or {MANUAL} in the ALLOCATION MODE
A confirmation dialog box appears. Select {YES}.

| EXTERNAL IO SETUP | |
|------------------------|-------------|
| ALLOCATION MODE | AUTO |
| EXTERNAL IO ALLOCATION | DETAIL |

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4. The window goes back to OPTION FUNCTION window.

| OPTION FUNCTION | |
|--|----------|
| <input type="checkbox"/> LADDER EDITOR | NOT USED |
| <input type="checkbox"/> PLAY MODE ENABLE | NOT USED |
| <input type="checkbox"/> MANUAL BRAKE RELEASE | NOT USED |
| <input type="checkbox"/> EXTERNAL REFERENCE POINT | NOT USED |
| <input type="checkbox"/> PARALLEL START INSTRUCTION | 0 |
| <input type="checkbox"/> COORDINATED INSTRUCTION | NOT USED |
| <input type="checkbox"/> STATION ANGLE DISPLAY | NOT USED |
| <input type="checkbox"/> SOFTLIMITS CUSTOMAIZATION | DETAIL |
| <input type="checkbox"/> TOOL NO. SWITCHING | NOT USED |
| <input type="checkbox"/> SI UNIT INDICATION | NOT USED |
| <input type="checkbox"/> DISPLAY IO NAME IN JOB | NOT USED |
| <input type="checkbox"/> VARIABLE ALLOCATION | DETAIL |
| <input type="checkbox"/> Ex.AXIS INDIVIDUAL CONTROL(SDA) | DETAIL |
| <input type="checkbox"/> WELDCOM FUNC.(ARC DIGITAL I/F) | DETAIL |

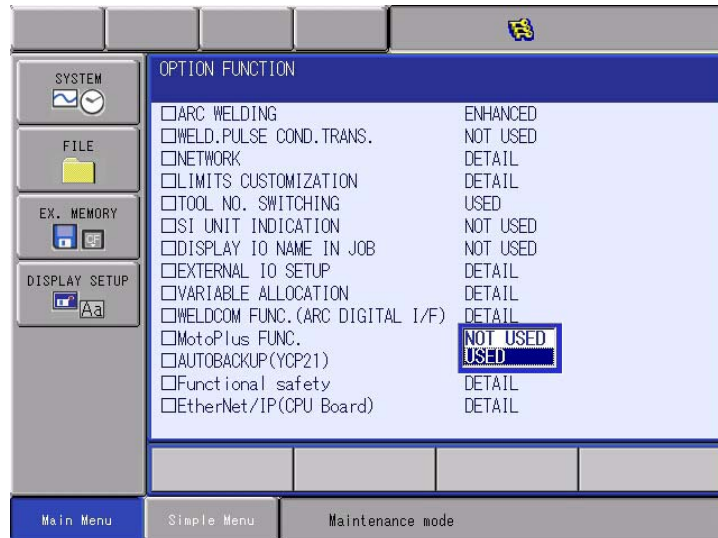
The DX200 setup is now completed.

Turn OFF the main power and restart the system in the normal mode.

2.5.6 Setting of Optional Function "MotoPlus Function" (When Welder is FroniusTPSi)

When the welder is FroniusTPSi, use the MotoPlus function (optional function). Set the MotoPlus function to enable by following the procedure below.

1. In the maintenance mode, select {SYSTEM} → {SETUP} → {OPTION FUNCTION} to display "MotoPlus FUNC.", and then set to "USED".



2. Press [ENTER] to confirm the setting.
A confirmation dialog box appears. Select {YES}.



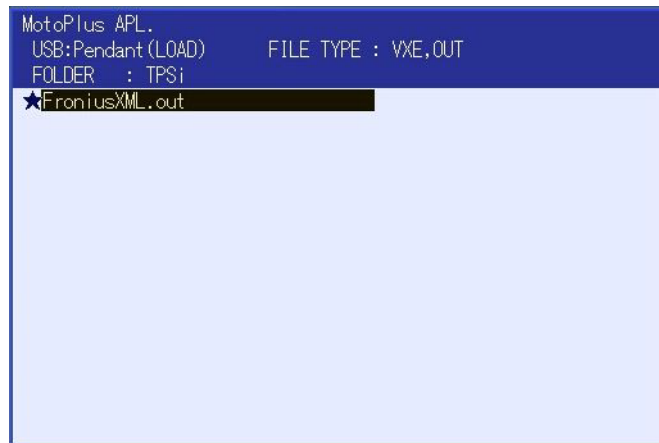
2.5.7 Loading of MotoPlus Application (When Welder is FroniusTPSi)

Load FroniusTPSi and a MotoPlus application for communication.

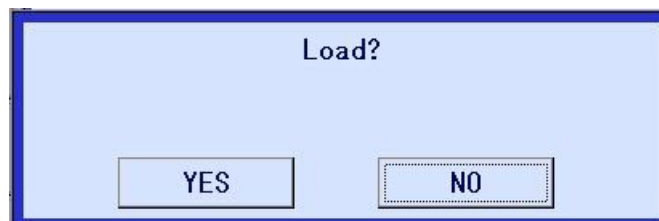
1. Select {MotoPlus APL.} → {LOAD(USER APPLICATION)}.
At this time, select a device and a folder in which the execution file of MotoPlus application (FroniusXML.out) is saved.



2. Select "FroniusXML.out" in the displayed folder(s). (When selected, ★ is added at the left of it.)



Press [ENTER] to confirm the setting.
A confirmation dialog box appears. Select {YES}.



2.5.8 Setting of Parameter (When Welder is FroniusTPSi)

When the welder is FroniusTPSi, the following parameters should be set.

| Parameter | Recommended value | Name |
|-----------|-------------------|----------------------------|
| AxP92 | 160 | Status flag input register |

The register number to be set allows to check the welder status.

Bit0:Heartbeat Powersource

Bit1:Power source ready

Bit2:Arc stable

Bit3:Current flow

Bit4:Main current signal

Bit5:Torch collision protection

Bit6:Wire stick control

Bit7:Wire available

Bit8:Touched

Bit9:Torchbody connected

Bit10:Command value out of range

Bit11:Correction out of range

Bit12:Process active

Bit13~15:Reserved (Do not change.)

| Parameter | Recommended value | Name |
|-----------|-------------------|-----------------------------|
| AxP93 | 161 | Control flag input register |

The register number to be set allows to operate the signals to the welder.

Bit0:Welding start

Bit1:Robot ready

Bit2:Source error reset

Bit3:Gas on

Bit4:Wire inching

Bit5:Wire retract

Bit6:Torch blow out

Bit7:Welding simulation

Bit8:Touch sensing

Bit9:Reserved

Bit10:SFI ON

Bit11:Synchropulse ON

Bit12:WireBreake

Bit13:Torch XChange

Bit14:TeachMode

Bit15:Reserved (Do not change.)

DX200

2 Setup
2.5 System Configuration

| Parameter | Recommended value | Name |
|-----------|-------------------|--|
| AxP103 | 192 | TPSi IP address for HTTP communication |
| AxP104 | 168 | |
| AxP105 | 255 | |
| AxP106 | 211 | |

Set the IP address to be used to obtain the welding type database from TPSi.
(For the IP address for HTTP communication, check at the TPSi side.)

Example: When the IP address is "192.168.255.211";
AxP103=192, AxP104=168, AxP105=255, AxP106=211

2.5.9 Optional Parameters for FroniusTPS

| Parameter | Name |
|-----------|-------------------|
| -AxP91 | RCU5000i Use Mode |

0: It can set Job numbers from 0 to 99. (Initial setting)

1: It can set Job numbers from 0 to 999. (Only when RCU5000i is used.)

| Parameter | Name |
|-----------|----------------------------|
| -AxP92 | Status flag input register |

The register number to be set allows to check the welder status.

Bit0:Communication ready

Bit1:Power source ready

Bit2:Arc stable

Bit3:Process active

Bit4:Main current signal

Bit5:Torch collision protection

Bit6:Wire stick control

Bit7:Wire available

| Parameter | Name |
|-----------|-----------------------------|
| -AxP93 | Control flag input register |

The register number to be set allows to operate the signals to the welder.

Bit7:Welding simulation

Bit9:Master selection Twin

Bit10~15 reserved (Do not change.)

| Parameter | Name |
|-----------|-------------------------------------|
| -AxP96 | TPS panel type forcible designation |

It can change the "Select Synergic" window.

0: auto (Initial setting)

1: Standard

2: CMT

3: US

5: CMT-L

| Parameter | Name |
|-----------|-----------------------------|
| -RS380 | Timeout lifecycle of welder |

Unit:10 ms

Range: 5 (50 ms) - 30 (300 ms)

If it is out of range, 100 ms will be set (initial setting).

2.5.10 Optional Parameter for FroniusTPSi

| Parameter | Name |
|-----------|-----------------------------|
| -RS380 | Timeout lifecycle of welder |

Unit:10 ms

Range: 5 (50 ms) - 30 (300 ms)

If it is out of range, 100 ms will be set (initial setting).

3 Operation of Welding Condition File Edit Window

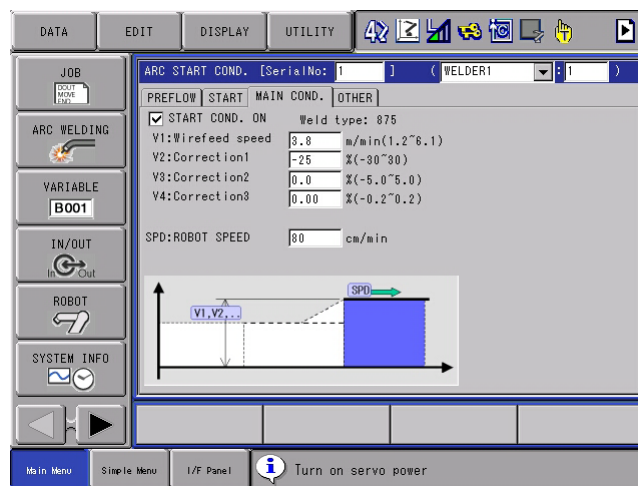
3.1 Overview

The WELDCOM function can set and obtain the parameter of the welding power source in the edit window of an arc start condition file or an arc end condition file.

3.2 Display of Welding Condition File Edit Window

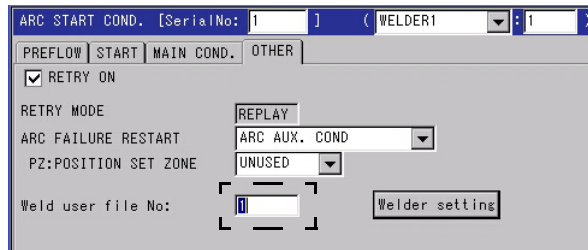
1. Select {ARC WELDING} under the main menu.
2. Select {ARC START COND.} or {ARC END COND.}.

Fig. 3-1: E.g.) Edit window for arc start condition

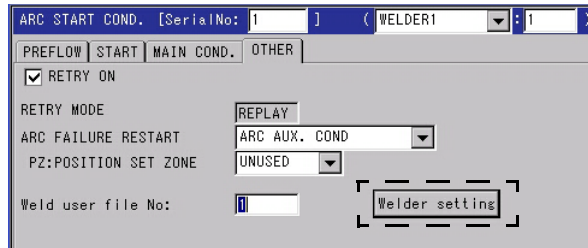


3.3 MOTOWELD Type: Operation of Top Window

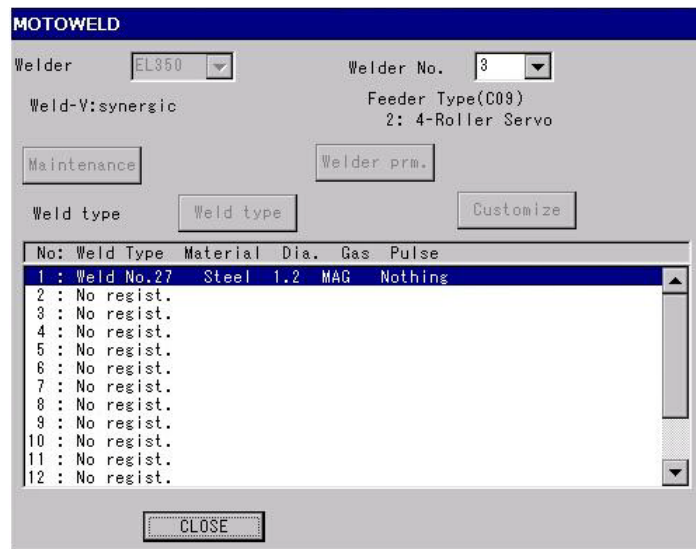
1. Display {OTHER} tab of the welding condition file to specify the number of a weld user file to be used.



2. Display {OTHER} tab of the welding condition file, and press {Welder setting}.



3. Move the cursor to the weld user file number specified in 1.
 - Select weld user file.



4. Select {Weld type}.
 - Register a welding type in the weld user file selected. →Go to Weld type window.
5. Select {Customize}.
 - Change the parameter of the weld user file selected. →Go to Customize window.
6. Select {Maintenance}.
 - Perform maintenance. →Go to Maintenance window.

DX200

- 3 Operation of Welding Condition File Edit Window
- 3.4 MOTOWELD Type: Operation of Weld type Window

3.4 MOTOWELD Type: Operation of Weld type Window

1. At the top window, select a weld user file, and select {Weld type}.

The screenshot shows a dialog box titled "Weld type" with the following settings:

- Wire type: Steel, SUS, Al
- Diameter: 0.6, 0.8, 0.9, 1.0, 1.2, 1.4, 1.6
- Shield Gas: MAG: Ar(80%)+CO2(20%), MIG: Ar(98%)+O2(2%), MIG: Others, CO2, Ar
- Pulse: No Pulse, Pulse, No Pulse(EL mode)

The list box at the bottom contains:

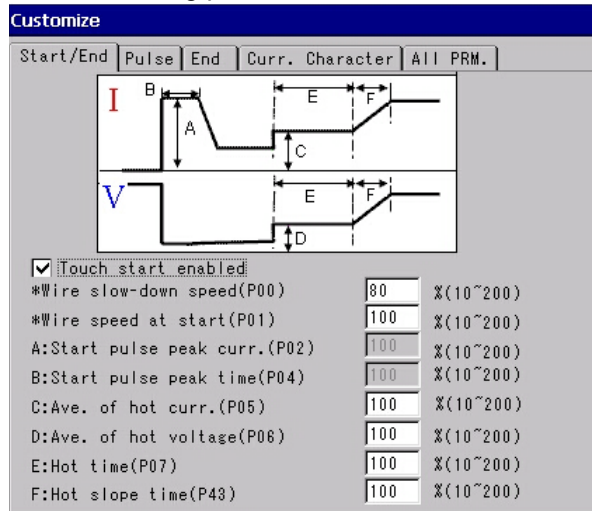
- Weld type44 (selected)
- Weld type88 ▪ Standard Pulse2

Buttons: SAVE, CANCEL

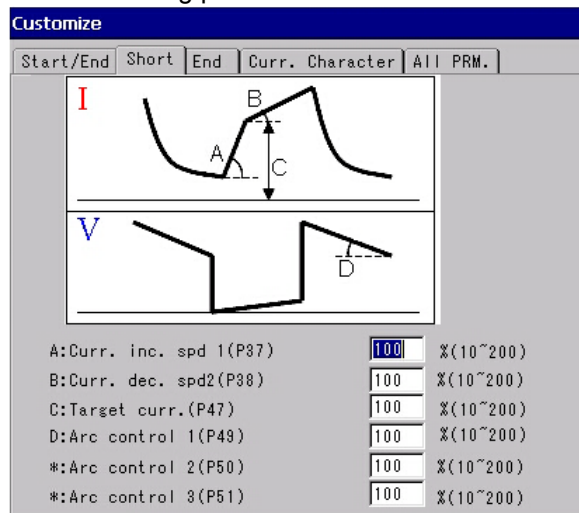
2. Select welding condition.
 - Select a value for "Wire type, Diameter, Shield Gas, and Pulse".
3. Select a welding type to be used, and press {SAVE}.

3.5 MOTOWELD Type: Operation of Customize Window

1. At the top window, select {Customize}.
 - Change the parameter of the weld user file selected.
2. Select {Start/End}.
 - Change the parameter. For details on the parameters, see the user manual of the welding power source.



3. Select {Short}.
 - Change the parameter. For details on the parameters, see the user manual of the welding power source.

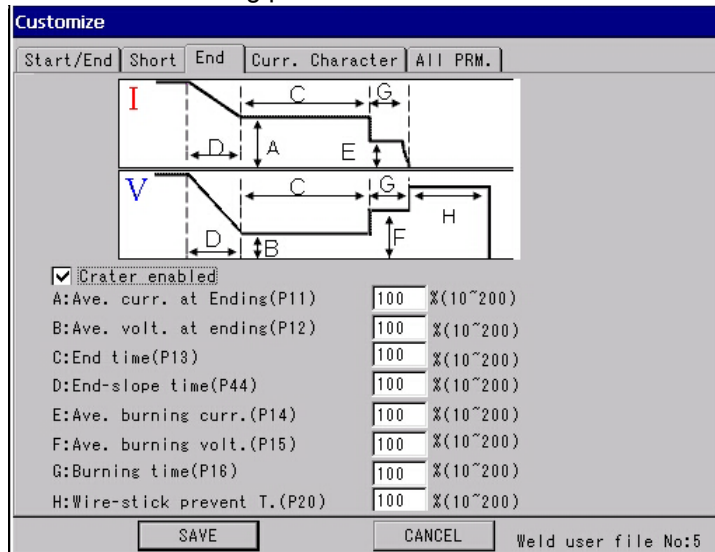


3 Operation of Welding Condition File Edit Window

3.5 MOTOWELD Type: Operation of Customize Window

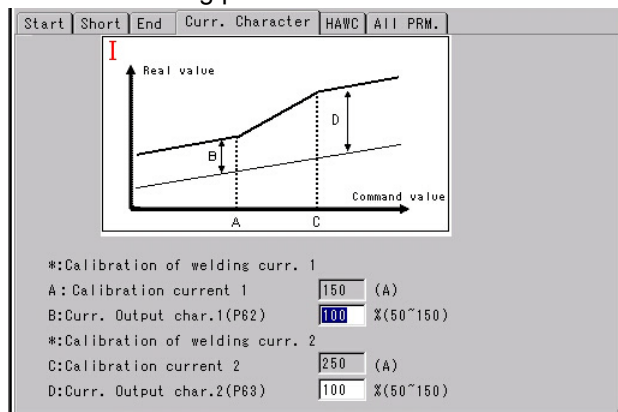
4. Select {End}.

- Change the parameter. For details on the parameters, see the user manual of the welding power source.



5. Select {Curr. Character}.

- Change the parameter. For details on the parameters, see the user manual of the welding power source.

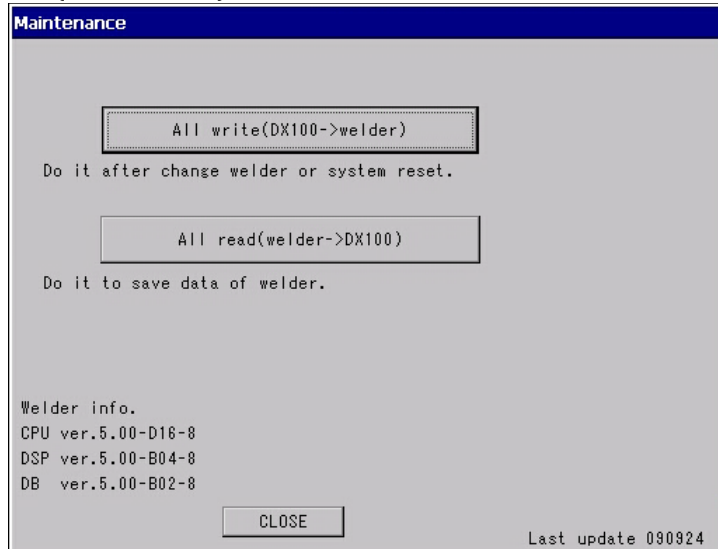


6. Select {SAVE}.

- Apply the parameters changed.

3.6 MOTOWELD Type: Operation of Maintenance Window

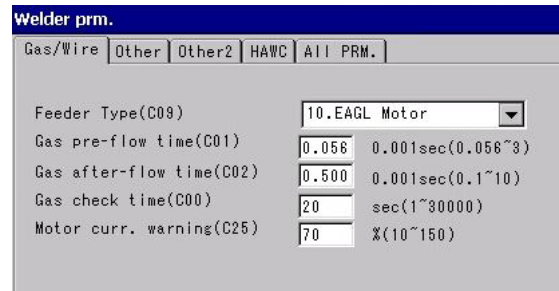
1. At the top window, select Maintenance button.
2. Select {Maintenance}.



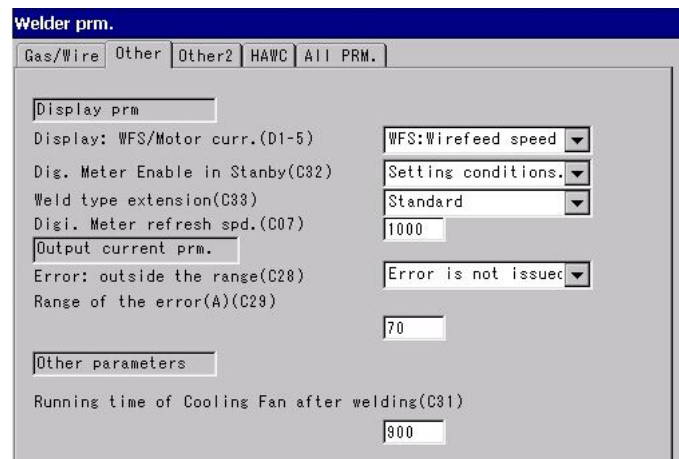
- (1) {All write(DX200->welder)}: Send the parameters at a time to the welding power source.
- (2) {All read(welder->DX200)}: Receive the parameters at a time from the welding power source.
- (3) "CPU ver.,DSP ver.,DB ver.": The versions of software and data-base in the welding power source are displayed.

3.7 MOTOWELD Type: Operation of Welder Parameter Window

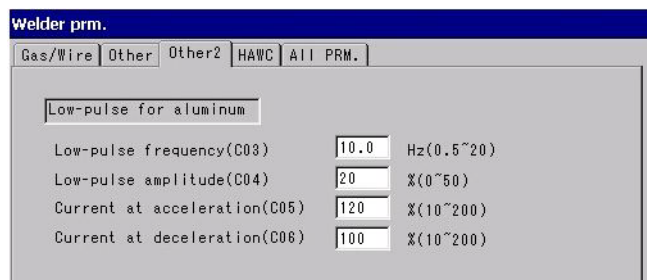
1. At the top window, select {Welder prm.}.
2. Select {Gas/Wire}.
 - Change the common parameter (C parameter).
 - For details on the C parameters, see the user manual of the welding power source.



3. Select {Other}.
 - Change the common parameter (C parameter).
 - For details on the C parameters, see the user manual of the welding power source.



4. Select {Other2}.
 - Change the common parameter (C parameter).
 - For details on the C parameters, see the user manual of the welding power source.

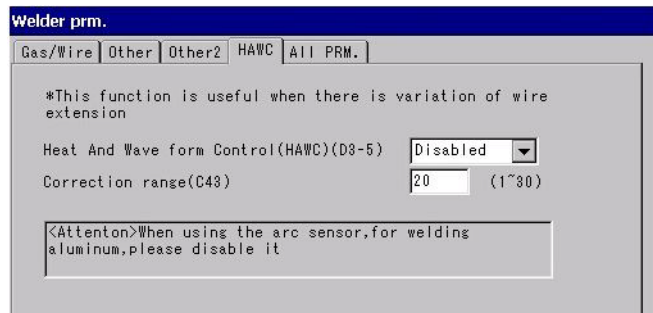


3 Operation of Welding Condition File Edit Window
3.7 MOTOWELD Type: Operation of Welder Parameter Window^{DX200}

5. Select {HAWC}.

– Change the common parameter (C parameter).

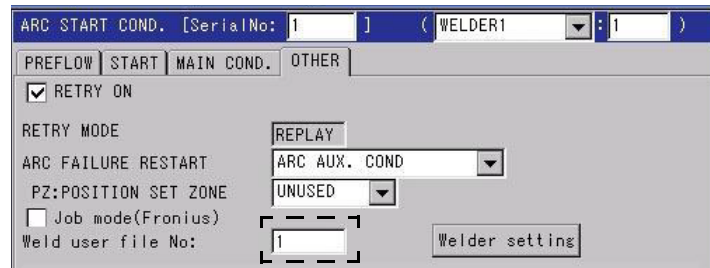
- For details of the C parameter, see the user manual of the welding power source.



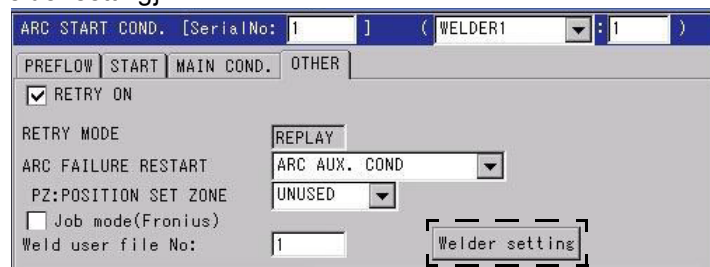
- 3 Operation of Welding Condition File Edit Window
- 3.8 FroniusTPS Type: Operation of Top Window

3.8 FroniusTPS Type: Operation of Top Window

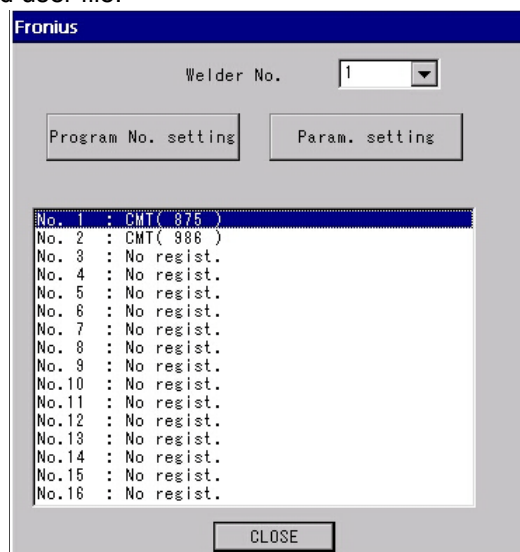
1. Display {OTHER} tab of the welding condition file to specify the number of a weld user file to be used.



2. Display {OTHER} tab of the welding condition file, and press {Welder setting}.



3. Select weld user file.



4. Select {Program No. setting}.
 - Set a welding program in the weld user file selected.
 - Go to the [Program No. setting] window.
5. Select {Param. setting}.
 - Change the parameter setting of the weld user file selected.
 - Go to the [Param. setting] window.

3.9 FroniusTPS Type: Operation of Program No. setting Window

1. At the top window, select a weld user file, and select {Program No. setting}.

Program No. setting

Diameter

0.8 0.9 1.0 1.2 SP

Wire(Gas)

| CMT+P | CMT |
|--------------------------------------|---|
| <input type="radio"/> Steel(ArCO2) | <input type="radio"/> Steel(CO2) |
| <input type="radio"/> CrNi188(ArCO2) | <input type="radio"/> Steel(ArCO2) |
| <input type="radio"/> CrNi199(ArCO2) | <input type="radio"/> CrNi188(ArCO2) |
| <input type="radio"/> AlMg5 (Ar) | <input type="radio"/> CrNi199(ArCO2) |
| <input type="radio"/> AISI5 (Ar) | <input checked="" type="radio"/> AlMg5 (Ar) |
| <input type="radio"/> CuSi3(Ar) | <input type="radio"/> AISI5 (Ar) |
| <input type="radio"/> CuAl9(Ar) | <input type="radio"/> CuSi3(Ar) |
| <input type="radio"/> SP1 | <input type="radio"/> SP2 |

Operating mode

Standard
 Pulse
 CMT
 Prm Internally

CMT

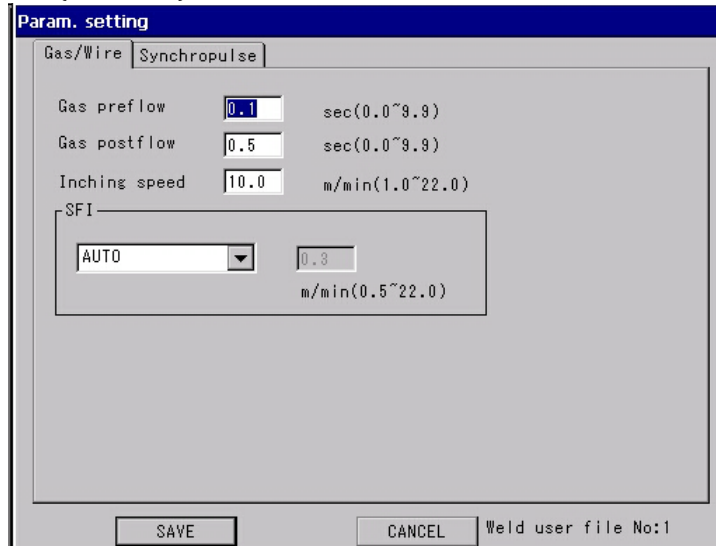
TCP Speed:ON

SAVE CANCEL

2. Select welding condition.
 - Select a value for "Diameter, Wire(Gas), and Operating mode".
3. Press {SAVE}.

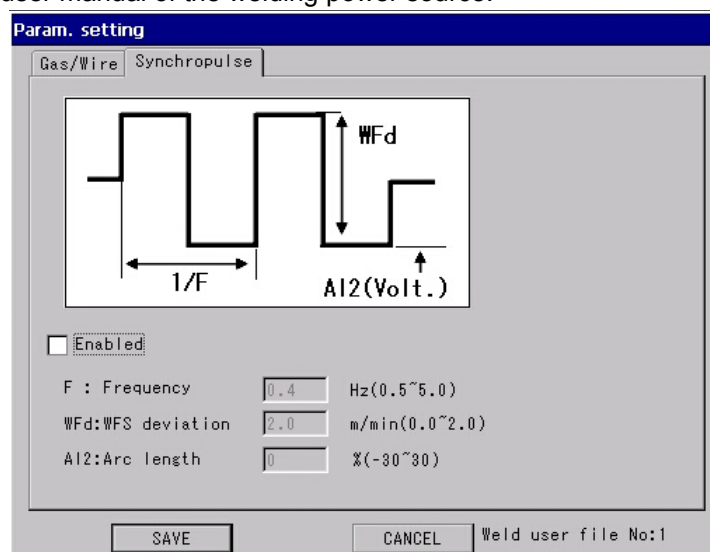
3.10 FroniusTPS Type: Operation of Param. setting Window

1. At the top window, select {Param. setting}.
 - Change the parameter of the weld user file selected.
2. Select {Gas/Wire}.



- (1) Gas preflow: Pre-flow that the robot performs as approaching the welding start point.
 - (2) Gas postflow: Specify the time period of gas release performed at the end of the welding.
 - (3) SFI: Select from “AUTO”, “MANUAL”, or “OFF”. Feeding rate when the wire is approaching the base material at the touch start.
3. Select {Synchronpulse}.

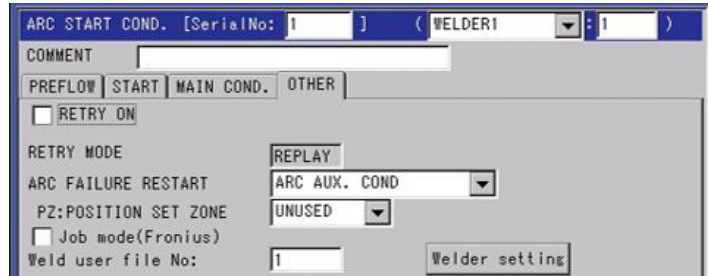
- Change the welding parameters for changing the feeding rate or arc length in low-cycle pulses at the time of welding. For details, see the user manual of the welding power source.



4. Select {SAVE}.
 - Apply the parameters changed.

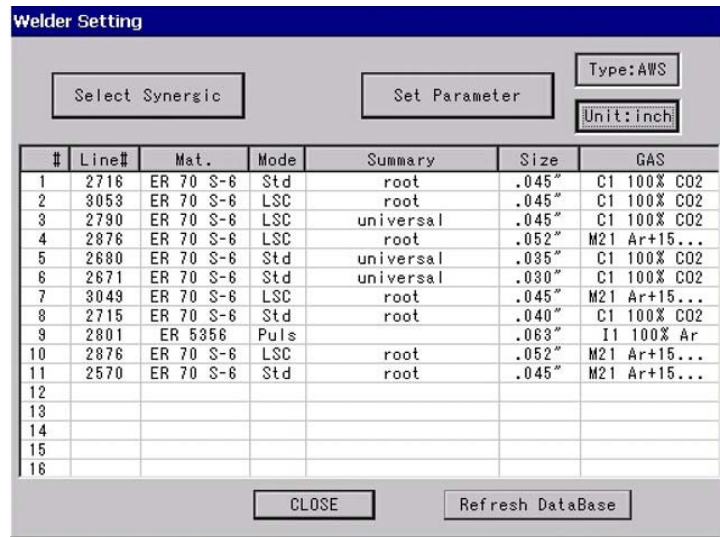
3.11 FroniusTPSi Type: Operation of Top Window

1. Display {OTHER} tab of the welding condition file, and then press {Welder setting}.
 - When the welding type database is not obtained yet, obtain the database from the welder.
Open the Weld Parameter Setting window.



(When using Job mode of Fronius power source, put a check mark in the check box of Job mode.)

2. Select a weld user file.



{Type:ISO/AWS}: Switches the display of materials.

{Unit:mm/inch}: Switches the unit of wire diameter.

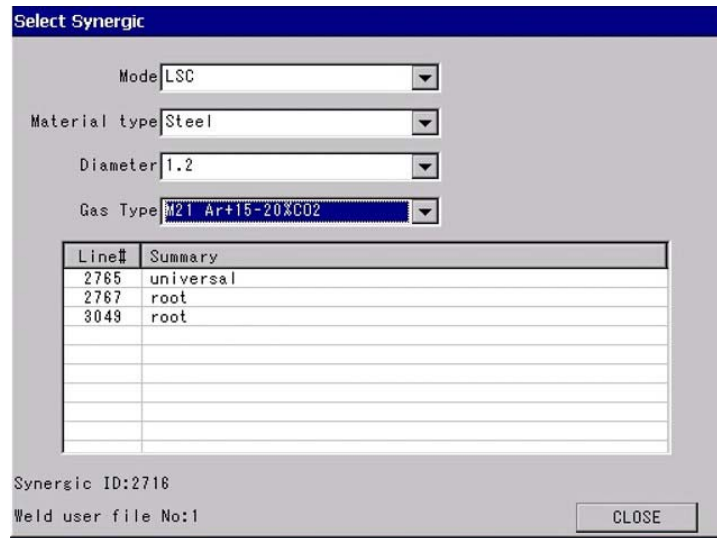
{Refresh DataBase}:

Obtains the welding type database from the welder again.

3. Select {Select Synergic}.
 - The welding type can be set to the selected weld user file.
→ Go to Select Synergic window.
4. Select {Set Parameter}.
 - The parameter setting of the selected weld user file can be changed.
→ Go to Weld Parameter Setting window.

3.12 FroniusTPSi Type: Operation of Select Synergic Window

1. At the top window, select a weld user file, and then select {Select Synergic}.



2. Select the welding condition.
 - Select a value for "Mode", "Material type", "Diameter", and "Gas Type".
3. Select a welding program to be used, and then press {OK}.

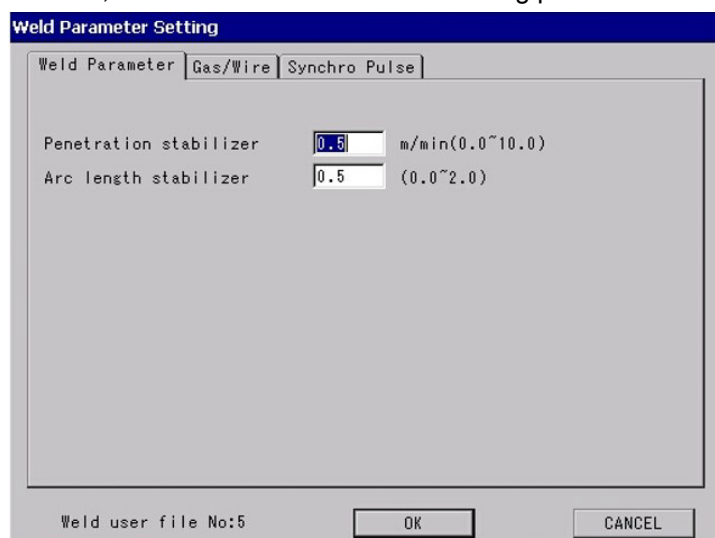
3.13 FroniusTPSi Type: Operation of Weld Parameter Setting Window

1. At the top window, select {Set Parameter}.
 - The parameter of the selected weld user file can be changed.
2. Select {Weld Parameter}.

Penetration stabilizer: Sets the allowable value of speed fluctuation in fluctuating the wire feeding speed in order to stabilize the welding current. It is available only when the welding mode is PMC or LSC.

Arc length stabilizer: Stabilizes welding even if the amount of wire stickout for short circuiting arc varies or there is interference from the outside. It is available only when the welding mode is PMC.

For details, see the user manual of the welding power source.



3 Operation of Welding Condition File Edit Window

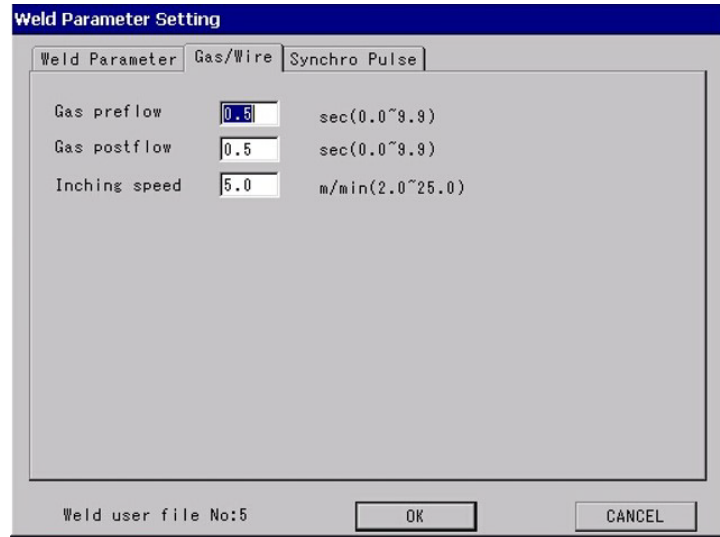
3.13 FroniusTPSi Type: Operation of Weld Parameter Setting Window DX200

3. Select {Gas/Wire}.

Gas preflow: Pre-flow that the robot performs as approaching the welding start point.

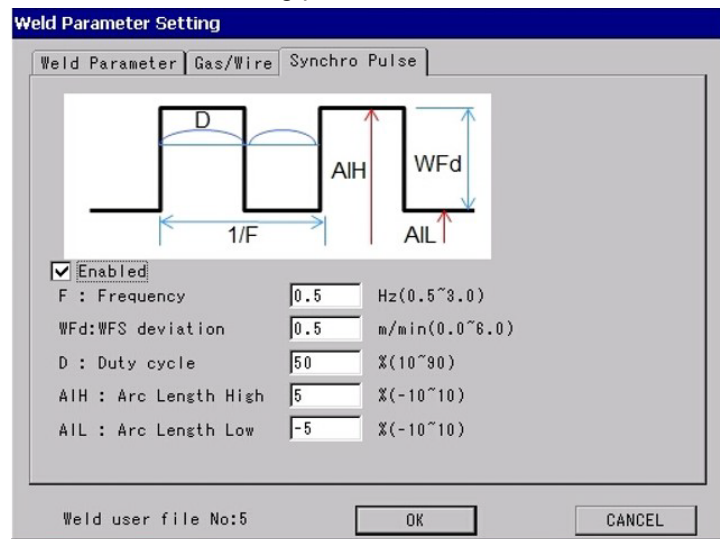
Gas postflow: Specify the time period of gas release performed at the end of the welding.

Inching speed: Wire feeding speed in perform inching manually by the operator.



4. Select {Synchro Pulse}.

Changes the welding parameters for changing the feeding rate or arc length in low-cycle pulses at the time of welding. For details, see the user manual of the welding power source.



5. Select {OK}.

– The changed parameters are reflected.

DX200

- 4 Job Preparation for Welding
- 4.1 Job Preparation for Welding

4 Job Preparation for Welding

4.1 Job Preparation for Welding

1. Select {Job} under the main menu to create a job.
2. Select {INFORM} → {DEVICE}, and then select {ARCON}, {ARCSET}, and {ARCOF}.
 - For the ARCON and ARCSET instructions, specify a welding start condition file in the tag.
 - For the ARCOF instruction, specify a welding end condition file in the tag.

An example of a simple welding job

```

NOP
MOVJ VJ=30.00
MOVJ VJ=5.00
ARCON ASF#(1)
MOVL
ARCSET ASF#(10) ACOND=1
MOVL
ARCOF AEF#(5)
MOVJ VJ=50.00
MOVJ VJ=50.00
END
```

| | | |
|-----|-----------------------------|-------|
| 4 | Job Preparation for Welding | |
| 4.1 | Job Preparation for Welding | DX200 |

3. When using a Fronius TPS-type welding power source, edit the welding condition file so that the conditions are specified by using the following physical quantity, not by welding current instruction or welding voltage instruction.

- V1 (WFS): Wire feeding amount (m/min)

The range varies depending on a welding type.

- V2 (Arc Length): Arc length correction (%)

Set the value in the -30% to +30% range.

- V3 (CORR2): Correction 2

Set the value in the -5.0% to +5.0% range.

- V4 (CORR3): Correction 3

Set the value in the -0.2% to +0.2% range.

V2 (Arc Length): Arc length correction (%)

Controls the arc length.

+: Long arc-length, -: Short arc-length

V3 (CORR2): Correction 2

Parameter for the heat input control.

This varies depending on a welding type.

When the material is iron and the operating mode is CMT,

+: Small heat-input, -: Large heat-input

For details, see the user manual of the welding power source.

V4 (CORR3): Correction 3

This varies depending on a welding type.

- When TPS4000CMT is used for the welding power source,

This is a parameter for correction of burning-up.

- When CMTL is used for the welding power source, and

- the operating mode is CMT + P;

This is a parameter for changing the welding type ratio.

- the operating mode is one of the others;

This is a parameter for correction of burning-up.

Correction of burning-up

+: Increases burning-up time, -: Decreases burning-up time

Welding type ratio

+: Increases pulse ratio, -: Decreases pulse ratio

DX200

-
- 4 Job Preparation for Welding
 - 4.1 Job Preparation for Welding
-

4. When using a FroniusTPSi-type welding power source, edit the welding condition file so that the conditions are specified by using the following physical quantity, not by welding current instruction or welding voltage instruction.

- V1: Wire feeding speed (m/min)
The range varies depending on the welding type.
- V2: Arc Length
Set the value between -10.0% and +10.0%.
- V3: Pulse/Dynamic
Set the value between -10.0% and +10.0%.
- V4: Wire retraction
Set the value between 0.00 and 10.00.

V2: Arc Length

Controls the arc length.

+: Long arc-length, -: Short arc-length

V3: Pulse/Dynamic

For details, see the user manual of the welding power source.

V4: Wire retraction

For details, see the user manual of the welding power source.

5 Alarm and Error

5.1 Alarm

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|----------|--|---|
| 4290 | TPS: ERROR | 1 | no Prg Sub code[1**] shows the error code of Fronius power source 1 :main error code ** :sub error code | Select a pre-programmed program Confirm the Fronius's manual |
| | | 2 | ts1 Sub code[2**] shows the error code of Fronius power source 2 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |
| | | 3 | ts2 Sub code[3**] shows the error code of Fronius power source 3 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |
| | | 4 | ts3 Sub code[4**] shows the error code of Fronius power source 4 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |
| | | 5 | tp1 Sub code[5**] shows the error code of Fronius power source 5 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |
| | | 6 | tp2 Sub code[6**] shows the error code of Fronius power source 6 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |
| | | 7 | tp3 Sub code[7**] shows the error code of Fronius power source 7 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |
| | | 8 | tp4 Sub code[8**] shows the error code of Fronius power source 8 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |

DX200

5 Alarm and Error
5.1 Alarm

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|----------|--|---|
| 4290 | TPS: ERROR | 9 | tp5 Sub code[9**] shows the error code of Fronius power source 9 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |
| | | 10 | tp6 Sub code[10**] shows the error code of Fronius power source 10 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |
| | | 11 | Errtf1 Sub code[11**] shows the error code of Fronius power source 11 :main error code ** :sub error code | Change the thermo sensor on the sec. side Confirm the Fronius's manual |
| | | 12 | Errtf2 Sub code[12**] shows the error code of Fronius power source 12 :main error code ** :sub error code | Change the thermo sensor on the prim. side Confirm the Fronius's manual |
| | | 13 | Errtf3 Sub code[13**] shows the error code of Fronius power source 13 :main error code ** :sub error code | Check cable tree of temperature sensors Confirm the Fronius's manual |
| | | 14 | Errtf4 Sub code[14**] shows the error code of Fronius power source 14 :main error code ** :sub error code | Only for Magic Wave power source Confirm the Fronius's manual |
| | | 15 | Errtf5 Sub code[15**] shows the error code of Fronius power source 15 :main error code ** :sub error code | Check cable tree of temperature sensors Confirm the Fronius's manual |
| | | 16 | Errtf6 Sub code[16**] shows the error code of Fronius power source 16 :main error code ** :sub error code | Change BPS PC-board Confirm the Fronius's manual |
| | | 17 | DSPE05 Sub code[17**] shows the error code of Fronius power source 17 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|----------|---|--|
| 4290 | TPS: ERROR | 18 | ErrbPS Sub code[18**] shows the error code of Fronius power source 18 :main error code ** :sub error code | Update firmware, otherwise change the UST board or otherwise change the BPS board Confirm the Fronius's manual |
| | | 19 | Err IP Sub code[19**] shows the error code of Fronius power source 19 :main error code ** :sub error code | Change the BPS board Change the secondary diode Change the welding transformer Confirm the Fronius's manual |
| | | 20 | DSPAxx Sub code[20**] shows the error code of Fronius power source 20 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 21 | DSPExx Sub code[21**] shows the error code of Fronius power source 21 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 22 | ErrEPF Sub code[22**] shows the error code of Fronius power source 22 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 23 | Err23.x Sub code[23**] shows the error code of Fronius power source 23 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 24 | Err24.x Sub code[24**] shows the error code of Fronius power source 24 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 25 | Err25.x Sub code[25**] shows the error code of Fronius power source 25 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |

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5 Alarm and Error
5.1 Alarm

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|----------|---|--|
| 4290 | TPS: ERROR | 26 | Err26.x Sub code[26**] shows the error code of Fronius power source 26 :main error code ** :sub error code | Check whether the CfgMem has good contact to the connecting cables and in the plug. Re-crimp if necessary. If this does not help, remove and send to Fronius Austria, together with details of the series number of the machine. Confirm the Fronius's manual |
| | | 27 | Err027 Sub code[27**] shows the error code of Fronius power source 27 :main error code ** :sub error code | Measure the +24VDC of NT 24 Confirm the Fronius's manual |
| | | 28 | Err028 Sub code[28**] shows the error code of Fronius power source 28 :main error code ** :sub error code | Change the cooling-unit temperature sensor Confirm the Fronius's manual |
| | | 29 | DSPC Sub code[29**] shows the error code of Fronius power source 29 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 30 | EFd Sub code[30**] shows the error code of Fronius power source 30 :main error code ** :sub error code | Check wire feed system. Confirm the Fronius's manual |
| | | 31 | Err31 Sub code[31**] shows the error code of Fronius power source 31 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 32 | EcF Sub code[32**] shows the error code of Fronius power source 32 :main error code ** :sub error code | Install correct primary BPS power module Confirm the Fronius's manual |
| | | 33 | tSt Sub code[33**] shows the error code of Fronius power source 33 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---|---|---|--|
| 4290 | TPS: ERROR | 34 | Errt7 Sub code[34**] shows the error code of Fronius power source 34 :main error code ** :sub error code | Change the UST board Confirm the Fronius's manual |
| | | 35 | DSP KL Sub code[35**] shows the error code of Fronius power source 35 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 36 | DSPnSy Sub code[36**] shows the error code of Fronius power source 36 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 37 | US POL Sub code[37**] shows the error code of Fronius power source 37 :main error code ** :sub error code | Change over the polarity of the two cables otherwise change the UST board Confirm the Fronius's manual |
| | | 38 | -Stop- Sub code[38**] shows the error code of Fronius power source 38 :main error code ** :sub error code | Deactivate the -Stop- by input - RobotReady- and activate briefly - SourceErrorReset- Confirm the Fronius's manual |
| | | 39 | NoH2O Sub code[39**] shows the error code of Fronius power source 39 :main error code ** :sub error code | Check the coolant level and (if appropriate) the coolant return-flow rate If necessary, clean the coolant filter. Rate-of-flow watchdog may be defective Confirm the Fronius's manual |
| | | 40 | ErrLic Sub code[40**] shows the error code of Fronius power source 40 :main error code ** :sub error code | Confirm the Fronius's manual |
| | | 41 | unknown Sub code[41**] shows the error code of Fronius power source 41 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| 42 | unknown Sub code[42**] shows the error code of Fronius power source 42 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual | | |

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5 Alarm and Error
5.1 Alarm

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|----------|---|--|
| 4290 | TPS: ERROR | 43 | unknown Sub code[43**] shows the error code of Fronius power source 43 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 44 | unknown Sub code[44**] shows the error code of Fronius power source 44 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 45 | unknown Sub code[45**] shows the error code of Fronius power source 45 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 46 | unknown Sub code[46**] shows the error code of Fronius power source 46 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 47 | unknown Sub code[47**] shows the error code of Fronius power source 47 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 48 | unknown Sub code[48**] shows the error code of Fronius power source 48 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 49 | Err049 Sub code[49**] shows the error code of Fronius power source 49 :main error code ** :sub error code | Check the mains power supply Check all 3 phases Confirm the Fronius's manual |
| | | 50 | Err050 Sub code[50**] shows the error code of Fronius power source 50 :main error code ** :sub error code | Disconnect NT60 or change/check NT24/UST/BPS/intermediate circuit capacitors Confirm the Fronius's manual |
| | | 51 | Err051 Sub code[51**] shows the error code of Fronius power source 51 :main error code ** :sub error code | Mains voltage too low or NT 24 defective Confirm the Fronius's manual |

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|----------|--|---|
| 4290 | TPS: ERROR | 52 | Err052 Sub code[52**] shows the error code of Fronius power source 52 :main error code ** :sub error code | Mains voltage too high or NT 24 defective Confirm the Fronius's manual |
| | | 53 | ErrPE Sub code[53**] shows the error code of Fronius power source 53 :main error code ** :sub error code | Low-resistance connection between secondary and machine housing find out the cause Confirm the Fronius's manual |
| | | 54 | Err054 Sub code[54**] shows the error code of Fronius power source 54 :main error code ** :sub error code | Increase the bbc (burn-back control) Switch off "Wire stick " in the set-up menu After the end of welding, make sure that the wire does not collide with the workpiece when the torch is retracted. Confirm the Fronius's manual |
| | | 55 | NoIGn Sub code[55**] shows the error code of Fronius power source 55 :main error code ** :sub error code | Set a lower Ito value Keep the torch stand-off distance smaller before ignition. Confirm the Fronius's manual |
| | | 56 | Err056 Sub code[56**] shows the error code of Fronius power source 56 :main error code ** :sub error code | Check how much wire is left on the spool If necessary, change the spool Confirm the Fronius's manual |
| | | 57 | NoGAS Sub code[57**] shows the error code of Fronius power source 57 :main error code ** :sub error code | Check what volume of gas is still available Confirm the Fronius's manual |
| | | 58 | NoArc Sub code[58**] shows the error code of Fronius power source 58 :main error code ** :sub error code | Check the seam Confirm the Fronius's manual |
| | | 59 | Err059 Sub code[59**] shows the error code of Fronius power source 59 :main error code ** :sub error code | Confirm the Fronius's manual |

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| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|----------|--|--|
| 4290 | TPS: ERROR | 60 | Err060 Sub code[60**] shows the error code of Fronius power source 60 :main error code ** :sub error code | Confirm the Fronius's manual |
| | | 61 | ErrArc Sub code[61**] shows the error code of Fronius power source 61 :main error code ** :sub error code | Confirm the Fronius's manual |
| | | 62 | Err062 Sub code[62**] shows the error code of Fronius power source 62 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |
| | | 63 | EIF Sub code[63**] shows the error code of Fronius power source 63 :main error code ** :sub error code | Check interface configuration Confirm the Fronius's manual |
| | | 64 | Errtf8 Sub code[64**] shows the error code of Fronius power source 64 :main error code ** :sub error code | Change the thermo sensor of the cooling unit Confirm the Fronius's manual |
| | | 65 | hotH2O Sub code[65**] shows the error code of Fronius power source 65 :main error code ** :sub error code | Cool down the cooling liquid Confirm the Fronius's manual |
| | | 66 | tJo Sub code[66**] shows the error code of Fronius power source 66 :main error code ** :sub error code | Allow the JobMaster torch to cool Confirm the Fronius's manual |
| | | 67 | ErrtJo Sub code[67**] shows the error code of Fronius power source 67 :main error code ** :sub error code | Change JobMaster PC-board Confirm the Fronius's manual |
| | | 68 | Err068 Sub code[68**] shows the error code of Fronius power source 68 :main error code ** :sub error code | Confirm the Fronius's manual |

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|----------|---|---|
| 4290 | TPS: ERROR | 69 | Err069 Sub code[69**] shows the error code of Fronius power source 69 :main error code ** :sub error code | New welding start Confirm the Fronius's manual |
| | | 70 | Err70 Sub code[70**] shows the error code of Fronius power source 70 :main error code ** :sub error code | Check gas Confirm the Fronius's manual |
| | | 71 | Err71 Sub code[71**] shows the error code of Fronius power source 71 :main error code ** :sub error code | Check the welding seam Confirm the Fronius's manual |
| | | 72 | ErrCfg Sub code[72**] shows the error code of Fronius power source 72 :main error code ** :sub error code | Check LHSB connection Confirm the Fronius's manual |
| | | 73 | noHost Sub code[73**] shows the error code of Fronius power source 73 :main error code ** :sub error code | Check the connection between UST and RCU and the firmware Confirm the Fronius's manual |
| | | 74 | Touch Sub code[74**] shows the error code of Fronius power source 74 :main error code ** :sub error code | Touch sensing mode activated - no error Confirm the Fronius's manual |
| | | 75 | Err75 Sub code[75**] shows the error code of Fronius power source 75 :main error code ** :sub error code | Confirm the Fronius's manual |
| | | 76 | unknown Sub code[76**] shows the error code of Fronius power source 76 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 77 | Err77 Sub code[77**] shows the error code of Fronius power source 77 :main error code ** :sub error code | Check the wire feeding alignment if it is smooth Confirm the Fronius's manual |

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5 Alarm and Error
5.1 Alarm

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---|---|---|---|
| 4290 | TPS: ERROR | 78 | E-Stop Sub code[78**] shows the error code of Fronius power source 78 :main error code ** :sub error code | Close the Safety circuit and activate the Error reset Confirm the Fronius's manual |
| | | 79 | ErrU0 Sub code[79**] shows the error code of Fronius power source 79 :main error code ** :sub error code | Confirm the Fronius's manual |
| | | 80 | Err080 Sub code[80**] shows the error code of Fronius power source 80 :main error code ** :sub error code | Check the connection hose pack between power source and wire feeder Confirm the Fronius's manual |
| | | 81 | tP7hot Sub code[81**] shows the error code of Fronius power source 81 :main error code ** :sub error code | Allow the machine to cool Confirm the Fronius's manual |
| | | 82 | ErrEHF Sub code[82**] shows the error code of Fronius power source 82 :main error code ** :sub error code | Allow the external HF to cool down Confirm the Fronius's manual |
| | | 83 | PHASE Sub code[83**] shows the error code of Fronius power source 83 :main error code ** :sub error code | Check the mains supply cable of the power source Confirm the Fronius's manual |
| | | 84 | unknown Sub code[84**] shows the error code of Fronius power source 84 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 85 | unknown Sub code[85**] shows the error code of Fronius power source 85 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| 86 | unknown Sub code[86**] shows the error code of Fronius power source 86 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual | | |

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|----------|---|---|
| 4290 | TPS: ERROR | 87 | unknown Sub code[87**] shows the error code of Fronius power source 87 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 88 | unknown Sub code[88**] shows the error code of Fronius power source 88 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 89 | unknown Sub code[89**] shows the error code of Fronius power source 89 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 90 | unknown Sub code[90**] shows the error code of Fronius power source 90 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 91 | unknown Sub code[91**] shows the error code of Fronius power source 91 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 92 | unknown Sub code[92**] shows the error code of Fronius power source 92 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 93 | unknown Sub code[93**] shows the error code of Fronius power source 93 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 94 | unknown Sub code[94**] shows the error code of Fronius power source 94 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 95 | unknown Sub code[95*] shows the error code of Fronius power source 95 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |

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5 Alarm and Error
5.1 Alarm

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|----------|--|---|
| 4290 | TPS: ERROR | 96 | unknown Sub code[96**] shows the error code of Fronius power source 96 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 97 | unknown Sub code[97**] shows the error code of Fronius power source 97 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 98 | unknown Sub code[98**] shows the error code of Fronius power source 98 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 99 | unknown Sub code[99**] shows the error code of Fronius power source 99 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 100 | UndOpc Sub code[100**] shows the error code of Fronius power source 100 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 101 | PrtFlt Sub code[101**] shows the error code of Fronius power source 101 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 102 | IllOpa Sub code[102**] shows the error code of Fronius power source 102 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 103 | IllIna Sub code[103**] shows the error code of Fronius power source 103 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 104 | IllBus Sub code[104**] shows the error code of Fronius power source 104 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------|------------|---|---|
| 4290 | TPS: ERROR | 105 | Err105 Sub code[105**] shows the error code of Fronius power source 105 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 106 | STKOV L Sub code[106**] shows the error code of Fronius power source 106 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 107 | STKUV L Sub code[107**] shows the error code of Fronius power source 107 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 108 | ErrDog Sub code[108**] shows the error code of Fronius power source 108 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 109 | ASSEr t Sub code[109**] shows the error code of Fronius power source 109 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 110 | EDg 1 Sub code[110**] shows the error code of Fronius power source 110 :main error code ** :sub error code | Update firmware, otherwise change the UST board Confirm the Fronius's manual |
| | | 111 to 149 | unknown Sub code[111**] shows the error code of Fronius power source 111 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |
| | | 150 | Err150 Sub code[150**] shows the error code of Fronius power source 150 :main error code ** :sub error code | Check the power supply of the power source Confirm the Fronius's manual |
| | | 151 to 200 | unknown Sub code[151**] shows the error code of Fronius power source 151 :main error code ** :sub error code | OR NOT IN USE Confirm the Fronius's manual |

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5 Alarm and Error
5.1 Alarm

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|--------------------------------|----------|--------------------------------|---|
| 4241 | MOTOWELD SYSTEM RESET | 302 | Sub Code: MOTOWELD's Err Code. | When finish system reset, Shut down the welding power source. |
| 4242 | MOTOWELD INPUT OVER-CURRENT | 107 | Sub Code: MOTOWELD's Err Code. | (1)Check if the output cable is short-circuited or grounded. (2) The power circuit may be broken . Contact your Yaskawa representative. |
| 4243 | MOTOWELD OUTPUT OVER-CURRENT | 701 | Sub Code: MOTOWELD's Err Code. | Confirm the following content. (1) Check that the torch cable or power cable is not grounded? (2)Check that the contact tip does not contact the welding work piece? (3)Check that the encoder cable is not damaged? (4)Check if the screws of the connector terminal block are securely fastened. If the encoder cable is disconnected or the screws are loosened, the wire feeding speed becomes excessively fast and an error occurs in the wire feeding amount. Replace the encoder cable or fasten the screws of the connector terminal block. |
| 4244 | MOTOWELD INPUT OVER-VOLTAGE | 001 | Sub Code: MOTOWELD's Err Code. | Confirm the input voltage. |
| 4245 | MOTOWELD EXCESSIVE TEMPERATURE | 102 | Sub Code: MOTOWELD's Err Code. | (1)Check the ambient temperature (40 degrees centigrade or less) and operational ratio (60%). (2) Check if there are dust, dirt, and clogging on the dust protective filter. Clean or replace the dust protective filter if necessary. (3)In case of RL350, Check the thermal guard (Item No.410). |

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|---------------------------------|----------|--------------------------------|--|
| 4245 | MOTOWELD EXCESSIVE TEMPERATURE | 103 | Sub Code: MOTOWELD's Err Code. | (1)Check the ambient temperature (40 degrees centigrade or less) and operational ratio (60%). (2) Check if there are dust, dirt, and clogging on the dust protective filter. Clean or replace the dust protective filter if necessary. (3)In case of RL350, Check the thermal guard (Item No.318). |
| | | 105 | Sub Code: MOTOWELD's Err Code. | (1)Check the ambient temperature (40 degrees centigrade or less) and operational ratio (60%). (2) Check if there are dust, dirt, and clogging on the dust protective filter. Clean or replace the dust protective filter if necessary. (3)In case of RL350, Check the thermal guard of DCL2 (Item No.312). |
| | | 340 | Sub Code: MOTOWELD's Err Code. | (1)Check the ambient temperature (40 degrees centigrade or less) and operational ratio (60%). (2) Check if there are dust, dirt, and clogging on the dust protective filter. Clean or replace the dust protective filter if necessary. (3)Replace the Main board Pr (MB)-030(Item No. 504). |
| 4246 | MOTOWELD INPUT UNDER-VOLTAGE | 002 | Sub Code: MOTOWELD's Err Code. | Confirm the input voltage. |
| 4247 | MOTOWELD WATER UNDER-FLOW | 703 | Sub Code: MOTOWELD's Err Code. | (1)Fill up the cooling water. (2)Check the circuit of cooling water. |
| 4248 | MOTOWELD DIGITAL I/F WDG.ERROR | 401 | Sub Code: MOTOWELD's Err Code. | Confirm the following content. (1) The LAN cable has not damaged. (2) The Ethernet protocol address setting is correct. (Check that C parameter of the welding power source and RS parameter of the robot controller.) (3) Welding power source is turn on. (4) Please confirm the Ethernet setting (Ethernet function is effective and sets an IP address (RS parameter ,AxP parameter)) of the robot control unit. |
| 4249 | MOTOWELD DIGITAL I/F NODE ERROR | 402 | Sub Code: MOTOWELD's Err Code. | Check the Node of the each welder power sources and robot controller. |

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5 Alarm and Error
5.1 Alarm

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|----------------------------------|----------|--------------------------------|---|
| 4250 | MOTOWELD DIGITAL I/F ERROR | 403 | Sub Code: MOTOWELD's Err Code. | Confirm the following content. (1) LAN cable is not damaged. (2) Protocol type of the VEW01 is correct. (is MOTOWELD type?) |
| 4251 | MOTOWELD DIGITAL I/F FILE# ERROR | 404 | Sub Code: MOTOWELD's Err Code. | Set the user file number 1...16. |
| 4252 | MOTOWELD DIGITAL I/F CHIP ERROR | 405 | Sub Code: MOTOWELD's Err Code. | Replace the main board {Pr (MB) - 024}. Contact your Yaskawa representative. |
| 4253 | MOTOWELD MACHINE TYP.ERROR1 | 304 | Sub Code: MOTOWELD's Err Code. | The setting of hardware or software may be not performed correctly. Contact your YASKAWA representative. |
| 4254 | MOTOWELD MACHINE TYP.ERROR2 | 305 | Sub Code: MOTOWELD's Err Code. | The setting of hardware or software may be not performed correctly. Contact your YASKAWA representative. |
| 4255 | MOTOWELD MACHINE TYP.ERROR3 | 306 | Sub Code: MOTOWELD's Err Code. | The setting of hardware or software may be not performed correctly. Contact your YASKAWA representative. |
| 4256 | MOTOWELD MACHINE TYP.ERROR4 | 307 | Sub Code: MOTOWELD's Err Code. | The setting of hardware or software may be not performed correctly. Contact your YASKAWA representative. |
| 4257 | MOTOWELD PANEL SW SETTING ERROR | 303 | Sub Code: MOTOWELD's Err Code. | (1) Check the DIP switch setting of WK-7036 board (Service parts code:P00A0703600). (2) WK-7036 board (Service parts code:P00A0703600) may be broken. Contact your YASKAWA representative. |
| 4258 | MOTOWELD FEEDER ERROR | 501 | Sub Code: MOTOWELD's Err Code. | Confirm the following content. (1)The encoder cable be not damaged? (2)Isn't there loosening of the screw of the encoder cable connection terminal block? When there are a disconnection of the encoder cable or loosening of the screw, the wire feeding speed quickens abnormally, and it becomes an abnormal amount of feeding. Replace the encoder cable or fasten the screw of the terminal block. (3)Check if the wire load becomes heavy. Make sure that the torch cable and conduit cable are not bent excessively. |
| | | 331 | Sub Code: MOTOWELD's Err Code. | (1)Confirm the feeder motor type. (2)Check the C parameter for feeder motor is correct. (3)Check the dip switch SW700 on the Main board (Service parts code: UNIT-Pr (MB)-030). |

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|-----------------------------|----------|--------------------------------|---|
| 4259 | MOTOWELD MOTOR OVER-CURRENT | 502 | Sub Code: MOTOWELD's Err Code. | Check if the wire load becomes heavy. Make sure that the torch cable and conduit cable are not bent excessively. |
| 4260 | MOTOWELD CPU ERROR1 | 203 | Sub Code: MOTOWELD's Err Code. | The board may be broken. Contact your Yaskawa representative. |
| 4261 | MOTOWELD CPU ERROR2 | 204 | Sub Code: MOTOWELD's Err Code. | The board may be broken. Contact your Yaskawa representative. |
| 4262 | MOTOWELD MEMORY ERROR1 | 205 | Sub Code: MOTOWELD's Err Code. | The data may not have been correctly saved when the welding conditions are recorded because of a power failure, etc. Reset the system after saving the changed parameters. (See the manual of MOTOWELD "4.2.10 System Reset") If the error occurs again, the board may be broken. Contact your Yaskawa representative. |
| 4263 | MOTOWELD MEMORY ERROR2 | 215 | Sub Code: MOTOWELD's Err Code. | The data may not have been correctly saved when the welding conditions are recorded because of a power failure, etc. Reset the system after saving the changed parameters. (See the manual of MOTOWELD "4.2.10 System Reset") If the error occurs again, the board may be broken. Contact your Yaskawa representative. |
| 4264 | MOTOWELD MEMORY ERROR3 | 206 | Sub Code: MOTOWELD's Err Code. | The data may not have been correctly saved when the welding conditions are recorded because of a power failure, etc. Reset the system after saving the changed parameters. (See the manual of MOTOWELD "4.2.10 System Reset") If the error occurs again, the board may be broken. Contact your Yaskawa representative. |
| 4265 | MOTOWELD MEMORY ERROR4 | 207 | Sub Code: MOTOWELD's Err Code. | The data may not have been correctly saved when the welding conditions are recorded because of a power failure, etc. Reset the system after saving the changed parameters. (See the manual of MOTOWELD "4.2.10 System Reset") If the error occurs again, the board may be broken. Contact your Yaskawa representative. |

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5 Alarm and Error
5.1 Alarm

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|--------------------------------|----------|--------------------------------|---|
| 4266 | MOTOWELD MEMORY ERROR5 | 208 | Sub Code: MOTOWELD's Err Code. | The data may not have been correctly saved when the welding conditions are recorded because of a power failure, etc. Reset the system after saving the changed parameters. (See the manual of MOTOWELD "4.2.10 System Reset") If the error occurs again, the board may be broken. Contact your Yaskawa representative. |
| 4267 | MOTOWELD MEMORY ERROR6 | 209 | Sub Code: MOTOWELD's Err Code. | The data may not have been correctly saved when the welding conditions are recorded because of a power failure, etc. Reset the system after saving the changed parameters. (See the manual of MOTOWELD "4.2.10 System Reset") If the error occurs again, the board may be broken. Contact your Yaskawa representative. |
| 4268 | MOTOWELD MEMORY ERROR7 | 210 | Sub Code: MOTOWELD's Err Code. | The data may not have been correctly saved when the welding conditions are recorded because of a power failure, etc. Reset the system after saving the changed parameters. (See the manual of MOTOWELD "4.2.10 System Reset") If the error occurs again, the board may be broken. Contact your Yaskawa representative. |
| 4269 | MOTOWELD STARTING SIGNAL ERROR | 601 | Sub Code: MOTOWELD's Err Code. | Check again the operation timing or signal cable connections. The same error may occur at momentary power failure. |
| 4270 | MOTOWELD NO WELDING TYPE | 602 | Sub Code: MOTOWELD's Err Code. | Select a correct welding process in the using the welding user file. |

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|-------------------------------------|----------|--------------------------------|---|
| 4271 | MOTOWELD VOLT.DETECT WIRE ERROR | 702 | Sub Code: MOTOWELD's Err Code. | (1)Check if the voltage detection wire is connected. Check to confirm that the welding voltage sensing cable select switch is set to "Base Metal". The use of MOTOWELD-RP500: Check to confirm that the voltage sensing cable is connected between the base metal and the terminal block TB2 7. The use of MOTOWELD-RL350: Check to confirm that the base metal-side welding voltage sensing cable connects between the base metal and the welding power source via wire feeder cable. (2)Check to confirm that the contact chip and the welding work are not in contact. Cancel the contact if any, and weld them. (3)Temporary power failure may have occurred. |
| 4272 | MOTOWELD SAFTY-CIRCUIT ERROR | 101 | Sub Code: MOTOWELD's Err Code. | Contact your Yaskawa representative. |
| 4273 | MOTOWELD IGBT SHORT CIRCUIT | 104 | Sub Code: MOTOWELD's Err Code. | Replace the IGBT device (Part code AJ0EL3870). Contact your Yaskawa representative. |
| 4274 | MOTOWELD VOLTAGE DETECTOR ERROR | 110 | Sub Code: MOTOWELD's Err Code. | Contact your Yaskawa representative. |
| 4275 | MOTOWELD AUX. CIRCUIT OV. CURRENT | 111 | Sub Code: MOTOWELD's Err Code. | The board may be broken. Contact your Yaskawa representative. |
| 4276 | MOTOWELD DSP ADC ERROR | 119 | Sub Code: MOTOWELD's Err Code. | Contact your Yaskawa representative. |
| 4277 | MOTOWELD OUTSIDE OF CURR.SETTING(H) | 790 | Sub Code: MOTOWELD's Err Code. | (1)Check if the selection of motor is correct, or confirm the settings of C parameter C09. (2)Check that the welding wire does not slip, or the wire is fed as instructed by the feeding command. (3)Check that the wire stick out is not excessively short or long. (4)Check that the range set in C parameter C29 is not too narrow. (5)Check if the wire, shielding, etc. are correctly set. |

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5 Alarm and Error
5.1 Alarm

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|-------------------------------------|----------|--------------------------------|---|
| 4278 | MOTOWELD OUTSIDE OF CURR.SETTING(L) | 791 | Sub Code: MOTOWELD's Err Code. | (1)Check if the selection of motor is correct, or confirm the settings of C parameter C09. (2)Check that the welding wire does not slip, or the wire is fed as instructed by the feeding command. (3)Check that the wire stick out is not excessively short or long. (4)Check that the range set in C parameter C29 is not too narrow. (5)Check if the wire, shielding, etc. are correctly set. |
| 4279 | MOTOWELD MOMENTARY OVER-CURR | 108 | Sub Code: MOTOWELD's Err Code. | (1)Check that short-circuit or the earth grounded of the output cable. (2)May be power circuit broken. Contact your Yaskawa representative. |
| 4280 | MOTOWELD OVER-VOLTAGE | 109 | Sub Code: MOTOWELD's Err Code. | Contact your Yaskawa representative. |
| 4281 | MOTOWELD +15V POWER SUPPLY ERROR | 704 | Sub Code: MOTOWELD's Err Code. | The use of MOTOWELD-RP500: Replace the switching power supply unit (Service parts code:35015612200) or the Main board (Service parts code:AJ0RP3024). Or, please change two of them. The use of MOTOWELD-RL350: Replace the Interface board (Service parts code: UNIT-Pr (IF)-008B) or the Main board (Service parts code: UNIT-Pr (MB)-030). Or, please change two of them. |
| 4282 | MOTOWELD POWER SUPPLY ERROR | 705 | Sub Code: MOTOWELD's Err Code. | The use of MOTOWELD-RP500: Replace the switching power supply unit (Service parts code:35015612200) or the Main board (Service parts code:AJ0RP3024). Or, please change two of them. The use of MOTOWELD-RL350: Replace the Interface board (Service parts code: UNIT-Pr (IF)-008B) or the Main board (Service parts code: UNIT-Pr (MB)-030). Or, please change two of them. |
| 4283 | MOTOWELD ILLEGAL WELD TYPE | 406 | Sub Code: MOTOWELD's Err Code. | Confirm the welding process setting in the welding user file. |
| | | 407 | Sub Code: MOTOWELD's Err Code. | Set a welding type to user file of MOTOWELD. The user file can setup in the editor screen for ARC START CONDITION FILE or ARC END CONDITION FILE of the robot controller. |

| Alarm No. | Alarm Name | Sub Code | Meaning | Remedy |
|-----------|--------------------------------|----------|--------------------------------|--|
| 4284 | MOTOWELD SOFTWARE MULFUNCTION | 310 | Sub Code: MOTOWELD's Err Code. | Load the suitable database. |
| | | 311 | Sub Code: MOTOWELD's Err Code. | Replace the main board (Service parts code: UNIT-Pr (MB)-030). Contact your Yaskawa representative. |
| | | 312 | Sub Code: MOTOWELD's Err Code. | Replace the front panel (Service parts code: UNIT-Pr (CR)-030). Contact your Yaskawa representative. |
| | | 316 | Sub Code: MOTOWELD's Err Code. | Replace the main board (Service parts code: UNIT-Pr (MB)-030). Contact your Yaskawa representative. |
| | | 317 | Sub Code: MOTOWELD's Err Code. | Reboot the power source. |
| | | 318 | Sub Code: MOTOWELD's Err Code. | (1)Do not turn off the power source and reload the data. (2)In case of turn off and reboot was OK, reload the data. (3)In case of turn off and reboot was NG, load the data by special loading tool. (4)Other case of step 1,2,3, replace the main board Pr (MB)-030. |
| 4284 | MOTOWELD SOFTWARE MULFUNCTION | 400 | Sub Code: MOTOWELD's Err Code. | (1)Movement abnormality of PLD occurred, and a welding power supply rebooted.. (2)Replace the main board {Pr (MB)-030}. Contact your Yaskawa representative. |
| 4285 | MOTOWELD MACHINE SETTING ERROR | 320 | Sub Code: MOTOWELD's Err Code. | (1)Check the connection between front panel and main board. (2)Check the status of dip switch (SW301) on the front panel. (3)Replace the front panel. (4)Replace the main board. |
| 4286 | MOTOWELD CURRENT CLASS ERROR | 330 | Sub Code: MOTOWELD's Err Code. | (1)Confirm the power source class which of 350A or 500A. (2)Switch a status of dip switch SW600 which of 350A or 500A. (3)Change the software which for correct current class. |

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5 Alarm and Error
5.2 Error

5.2 Error

| Error No. | Message | Cause | Remedy |
|-----------|------------------------------------|--|--|
| 1110 | TPS: SELECTED UNREGISTERED PROGRAM | A welding program unprepared for the welding power source was selected. | Select again a welding program. |
| 1111 | TPS: FEEDING SYSTEM FAILURE | A wire was clogged or so in the feeding system, leading to improper feeding. For the CMT welding power source, the possibilities are high that the wire buckled in the wire buffer and this caused a problem with the sensor in the buffer. | <ul style="list-style-type: none"> ·The most problems automatically solve when inching retract is performed on the wire for a short time at the time of error reset. ·If the problem persists, try to perform manual wire inching or wire retract. ·Adjust manually the sensor of the wire buffer to the proper position. ·If the problem frequently occurs, first check the feeding system for abnormally high feeding load, and replace parts as needed. |
| 1112 | TPS: ABNORMAL WATER FLOW | The water flow sensor was activated. | Check if water flows. If water flows and the error still occurs, replace the sensor because the sensor possibly has failed. |

5.3 Message

| Message | Cause | Remedy |
|--|---|---|
| TPS: TOUCH SENSOR IN OPERATION | The touch sensor was activated and the status flag bit turned ON. | This is only a notification. It does not indicate any problem. |
| TPS: ARC IGNITION FAILURE | When welding started, timeout occurred while waiting for arc to be generated that produces current flow. An insulator such as slag prevented current from flowing, thus arc was not generated. Or the wire took long time to contact the base material, being determined as arc ignition failure. | Remove the slag or other objects at the wire tip or in the base material. For CO2 welding especially, because slag tends to prevent conduction, take some action whenever possible so that welding starts from other than welding bead edge. Adjust the crater conditions for welding ending time so that some short length of wire comes out from the chip (so that the wire can immediately contact the base material). |
| TPS: ROBOT NOT READY | The welding power source received the notification that the "Robot ready" bit turned OFF, which was sent from the robot side, and issued the error. | Check if the digital interface type of VEW01 is FroniusTPS. |
| WELDING POWER SOURCE: Ethernet COMMUNICATION ERROR | The Ethernet communication was disconnected. | Check if the LAN cable is connected. If using a HUB, check if the HUB is turned ON. |
| TPS: WELDING POWER SOURCE NOT READY | The welding power source notified that it is not ready for welding. | This phenomenon may temporarily occur when the welding power source is turned ON or OFF, but it has no problem. However, if the error persists, restart the welding power source. |
| TPS: OUTSIDE THE RANGE OF FEEDING AMOUNT | Welding is performed with the feeding amount exceeding the maximum value set for welding programs. | When welding with the TCP speed function, decrease the welding rate to reduce the feeding amount. |

DX200 OPTIONS OPERATOR'S MANUAL

FOR WELDCOM FUNCTION:
ARC WELDING/DIGITAL I/F FUNCTION

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