

DX100 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
- DX100 INSTRUCTIONS
- DX100 OPERATOR'S MANUAL
- DX100 MAINTENANCE MANUAL

The DX100 operator's manuals above correspond to specific usage.
Be sure to use the appropriate manual.

Part Number: 157452-1CD
Revision: 2



MANDATORY

- This manual explains the various components of the DX100 system and general operations. Read this manual carefully and be sure to understand its contents before handling the DX100.
- General items related to safety are listed in the Chapter 1: Safety of the DX100 Instructions. To ensure correct and safe operation, carefully read the DX100 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 DX100.

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



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 “CAUTION” and “WARNING”.



WARNING

- Before operating the manipulator, check that servo power is turned OFF when the emergency stop buttons on the front door of the DX100 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.

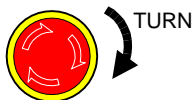
Figure 1: Emergency Stop Button



- 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.

Figure 2: Release of Emergency Stop



- Observe the following precautions when performing teaching operations within the P-point maximum envelope of the manipulator:
 - 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 DX100 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 DX100 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 DX100 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 DX100 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
DX100 Controller	DX100
DX100 Programming Pendant	Programming Pendant
Cable between the manipulator and the controller	Manipulator Cable

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. 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 the SELECT key is pressed.

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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 DX100 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)
(AJ2E indicates that an Ethernet interface is incorporated.)

✂ MOTOWELD-RP500 (manufactured by YASKAWA)
(System version: DS2.05.00(□)-00 or newer)
(In the case of digital communication mode)

✂ MOTOWELD-RL350 (manufactured by YASKAWA)
(System version: DS3.50.00(□)-00 or newer)
(In the case of digital communication mode)

✂ TPS4000 CMT (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.

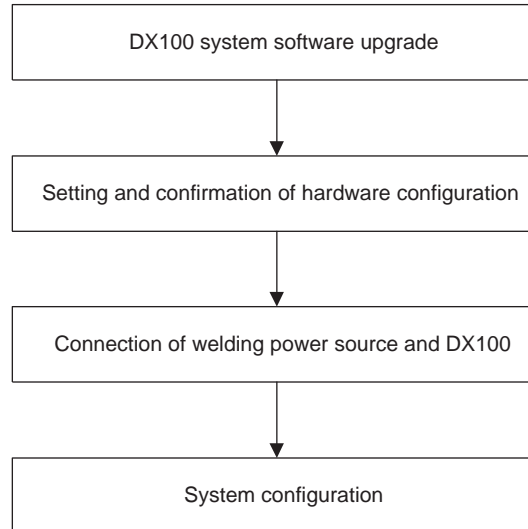
(NOTE)

- 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 DX100 with the following procedure.



2.2 DX100 System Software Upgrade

The WELDCOM function is incorporated into the system software version, DS1.40.00(□)-00 or later. If DX100 has a version of earlier than DS1.40 installed, upgrade the version by following the procedure below. DX100 with DS1.40.00(□)-00 or later does not need to be upgraded.

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 DS1.40.00(□)-00 or later. (For detailed information of the system software upgrade procedure, see "DX100 Upgrade Procedure" part number: 161409-1CD).

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.

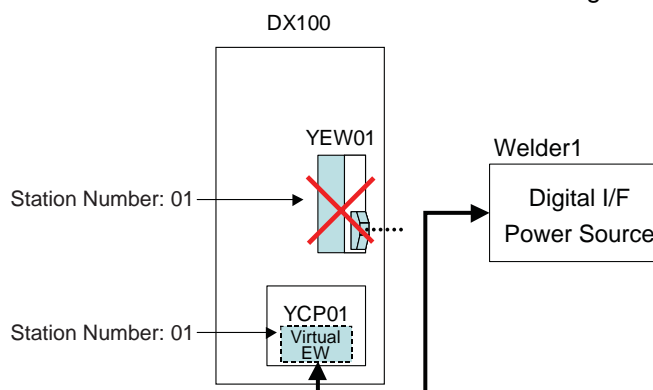
2.3.2 Station Number when EW Board is Left

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)

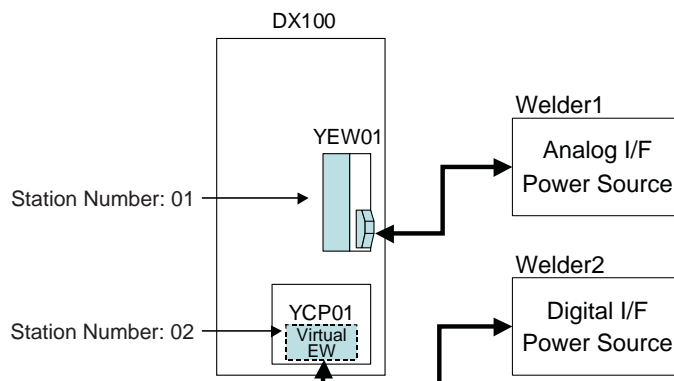
■ Replacing welding power source of analog interface with that of digital interface

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



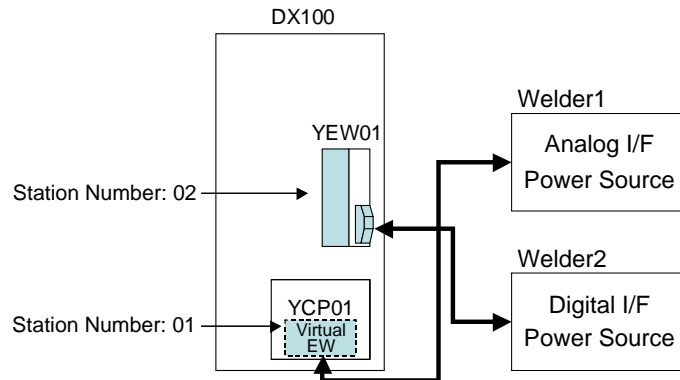
■ When connecting welding power source of analog interface as Welder 1, and digital interface as Welder 2

⇒ To use the welding power source of the analog interface as Welder 1, set the EW board station number to the smallest number. After that, set the virtual EW module station number 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.

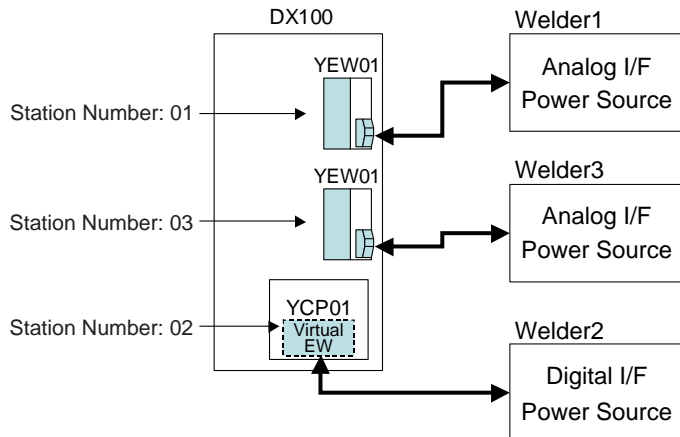


■ **When using Welder 1 and 3 as the welding power sources of two analog interfaces, and connecting the welding power source of digital interface as Welder 2 between the Welder 1 and 3.**

⇒ Because the virtual EW module station number is set to the second smallest number at the time of configuration, set the EW board station numbers as follows:

- EW board station number for Welder 1: Smallest number (EX.: 01)
- EW board station number for Welder 3: The third or later number (EX.: 03)

At the time of configuration, one or more numbers are left unused between those set for Welder 1 and 3 so that the virtual EW module station number can be set to a number between the numbers already set.



■ **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 DX100

2.4.1 Standard Connection (When connecting one welding power source of digital interface to DX100)

- 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.)
- LAN cable included in MOTOPAC:
Model
 - Motoweld type: YEDEC-KTLAN-OI-*/1 (*: Length)
 - Fronius TPS type: YEDEC-KT-LAN-**M (**: Length)

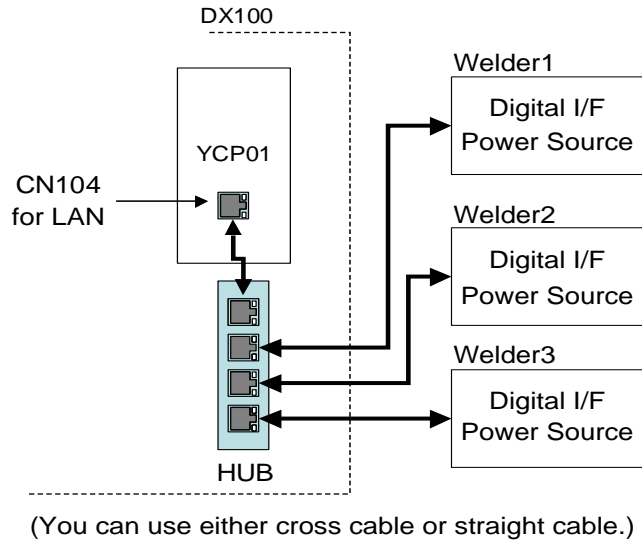


When preparing a LAN cable other than the cable above

- 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 DX100 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 YCP01 for LAN (CN104) using a switching hub.

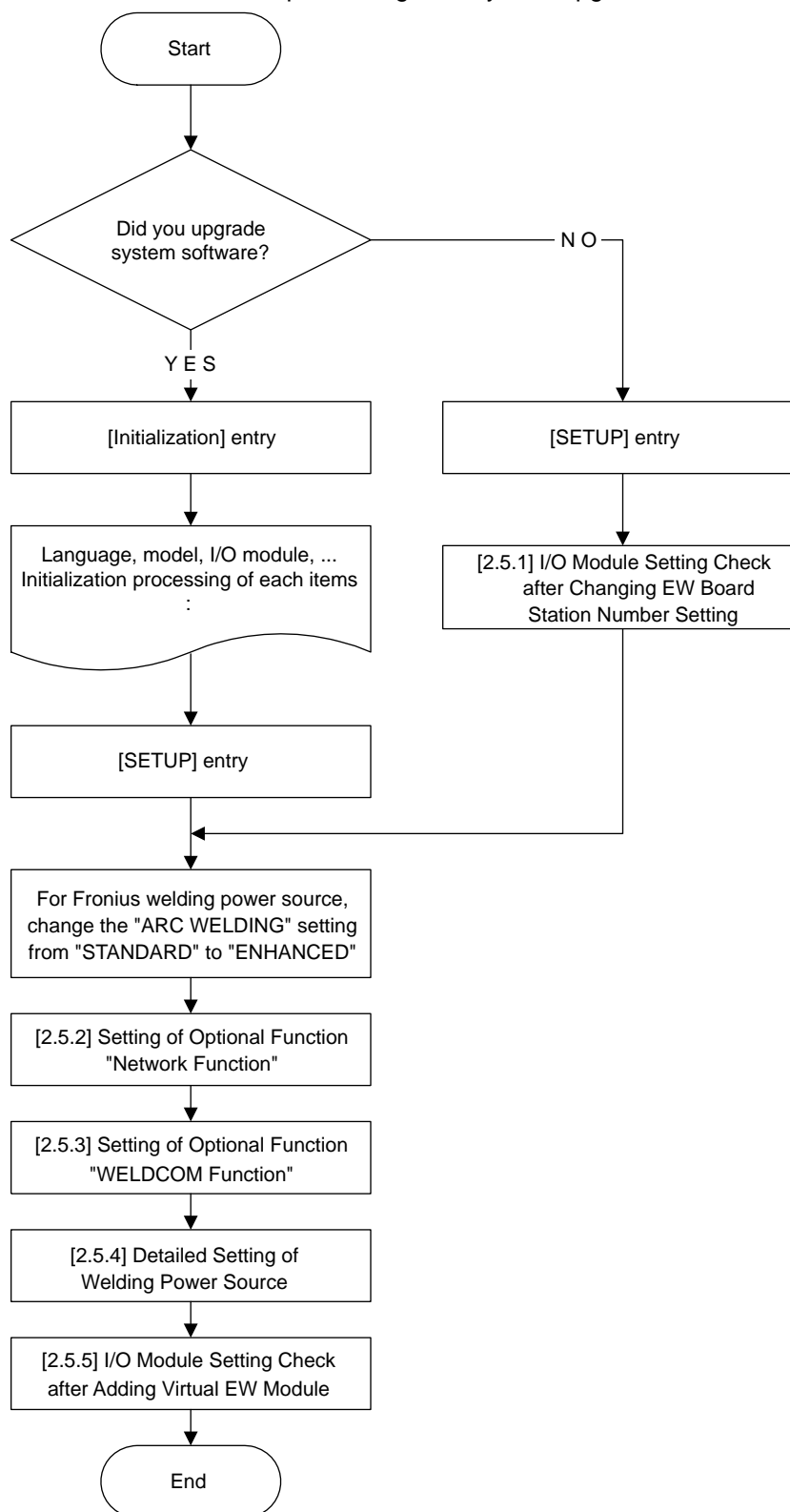


CAUTION

- 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

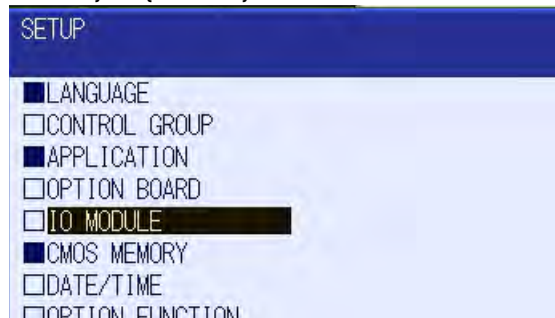
The following figure illustrates the configuration procedure outline. The following and later pages explain the detailed procedure of each setting. Note that the initialization processing after system upgrade is omitted.



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 *Section 2.3 "Setting and Confirmation of Hardware Configuration"* on page 2-2 changes the I/O module setting. The setting changes must be recognized with [Setting] in the maintenance mode.

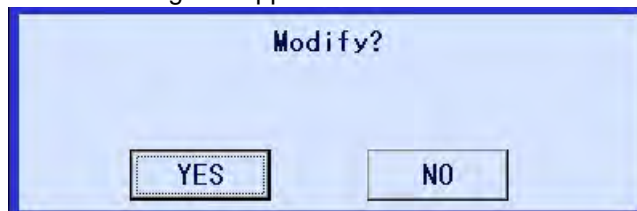
1. Start the DX100 while pressing [MAIN MENU]
 - Start the DX100 in maintenance mode.
2. Select {SYSTEM} → {SECURITY} → "MANAGEMENT MODE".
 - A password must be entered after selecting "MANAGEMENT MODE".
3. Select {SYSTEM} → {SETUP} → "IO MODULE".



4. Press the [Enter] key 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

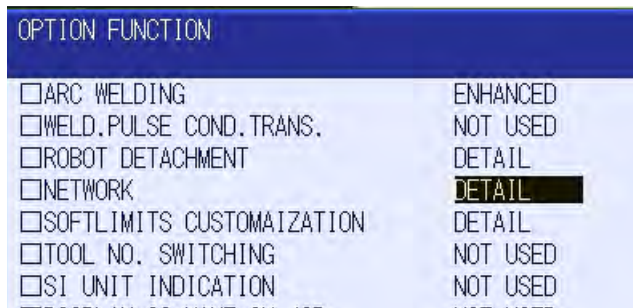
5. A confirmation dialog box appears. Select "YES".



2.5.2 Setting of Optional Function "Network Function"

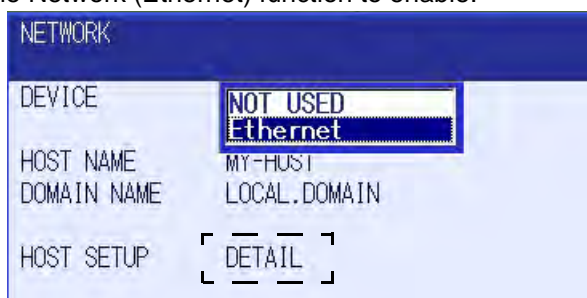
The WELDCOM function uses the network function (optional function). Set the network function by following the procedure below.

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

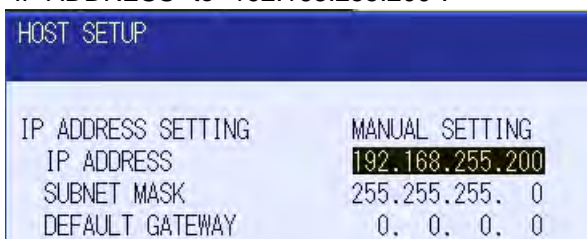


2. Change the setting of "DEVICE" from "NOT USED" to "Ethernet", and select "DETAIL" of "HOST SETUP".

– Set the Network (Ethernet) function to enable.

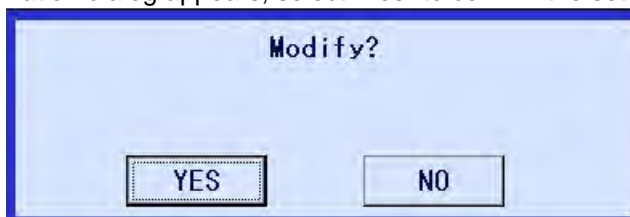


3. After setting "IP ADDRESS SETTING" to "MANUAL SETTING", change "IP ADDRESS" to "192.168.255.200".



- 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] key. 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 DS1.40.00-00) or the function parameter may be disabled. Contact your Yaskawa representative.

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

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.

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

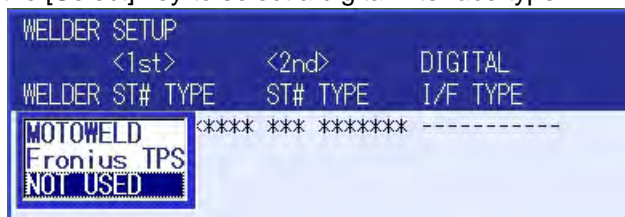
<Explanation of each item>

- 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 or Fronius TPS)

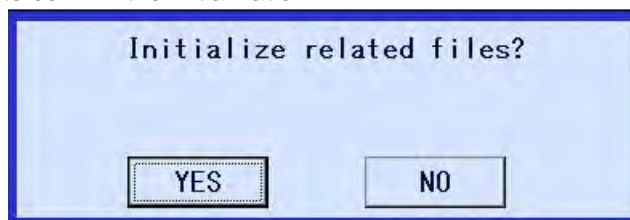
2 Setup

2.5 System Configuration

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



- After specifying the digital interface above, pressing the [Enter] key 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.

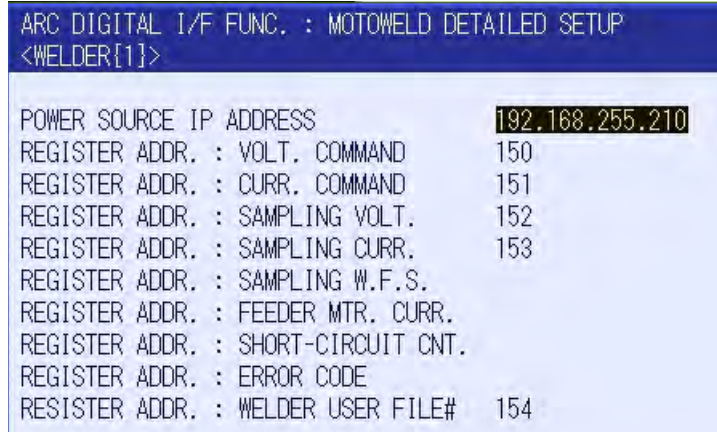
Set the each welding power source by following the procedure below.

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



- The WELDCOM function works with the default detailed settings. You do not especially need to make settings. Press the [Enter] key 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.

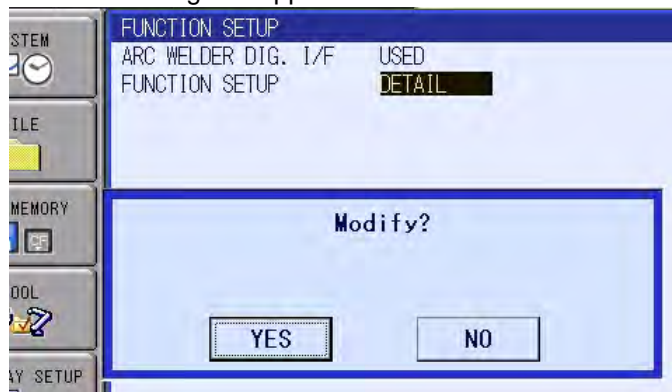
<MOTOWELD type>



<Fronius TPS type>



4. 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.

2 Setup

2.5 System Configuration

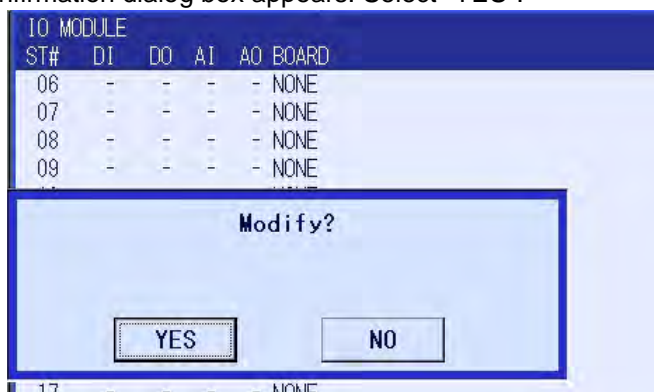
- In the WELDER SETUP and the DETAILED SETUP window, when the settings are completed, the IO MODULE setting window automatically appears.

– 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

- Press [ENTER].

A confirmation dialog box appears. Select "YES".



– The window goes back to the 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 DX100 setup is now completed.

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

2.5.6 Optional parameters for Fronius TPS

-AxP91 : Extension of Job mode

0:normal (initial setting)

1:extended(It can set Job numbers from 0 to 999 in case of using RCU5000i)

-AxP92 : Status flag input register

The register in AxP92 shows status flag of power source.

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

-AxP93:Control flag input register

It can control the control flag of power source via to the register in AxP93.

Bit7:Welding simulation

Bit9:Master selection Twin

Bit10~15 :reserved(Please do not change)

-AxP96:TPS panel type

It can change the "Program No. setting" display .

0:auto(initial setting)

1:Standard

2:CMT

3:US

5:CMT-L

-RS380:Timeout Lifecycle of power source

It can change the Timeout Lifecycle.

Unit:10ms

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

If it is out of range , it will be 100 ms.

3 Operation of Welding Condition File Edit Window

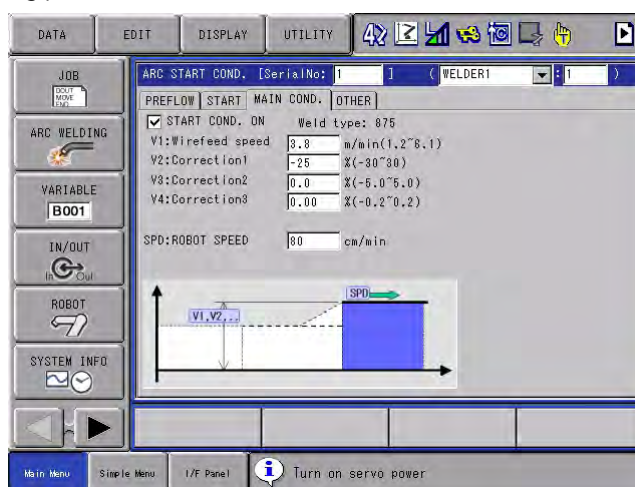
3.1 Overview

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

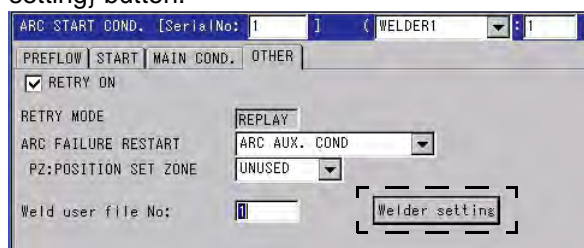


3.3 MOTOWELD Type: Operation of Top Window

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



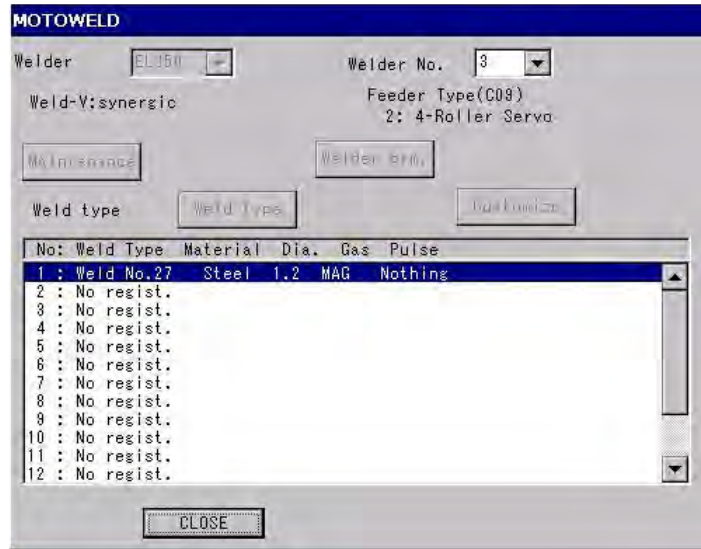
2. Display the {OTHER} tab of the welding condition file, and press the {Welder setting} button.



3 Operation of Welding Condition File Edit Window

3.3 MOTOWELD Type: Operation of Top Window

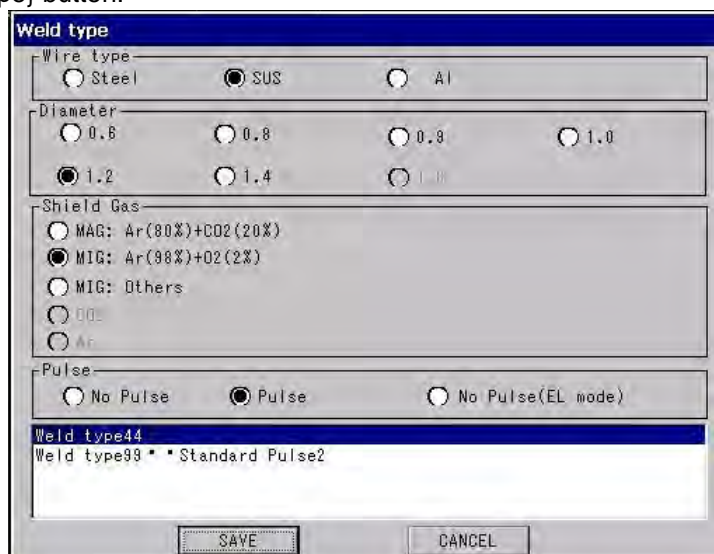
3. Move the cursor to the welder's user file number specified in 1.
 - Select welder's user file.



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

3.4 MOTOWELD Type: Operation of Weld type Window

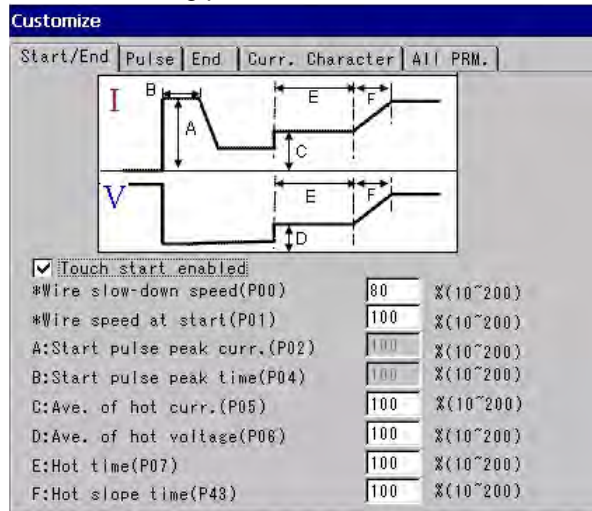
1. At the top window, select a welder's user file, and select the {Weld type} button.



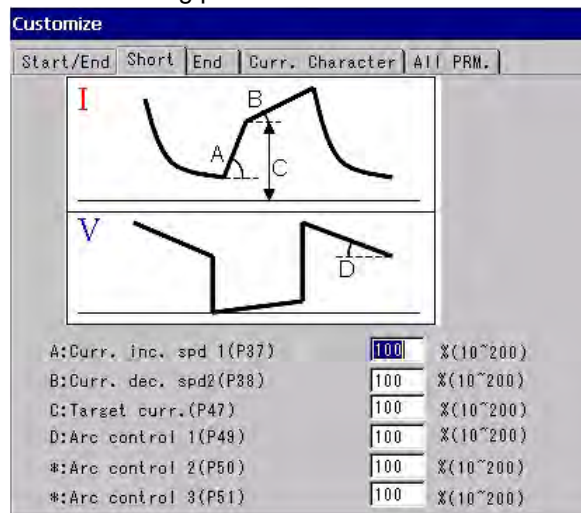
2. Select welding condition.
 - Select a value for "Wire type, Diameter, Shield Gas, and Pulse".
3. Select a welding type to be used, and press the {SAVE} button.

3.5 MOTOWELD Type: Operation of Customize Window

1. At the top window, select the {Customize} button.
 - Change the parameter of the welder's 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.

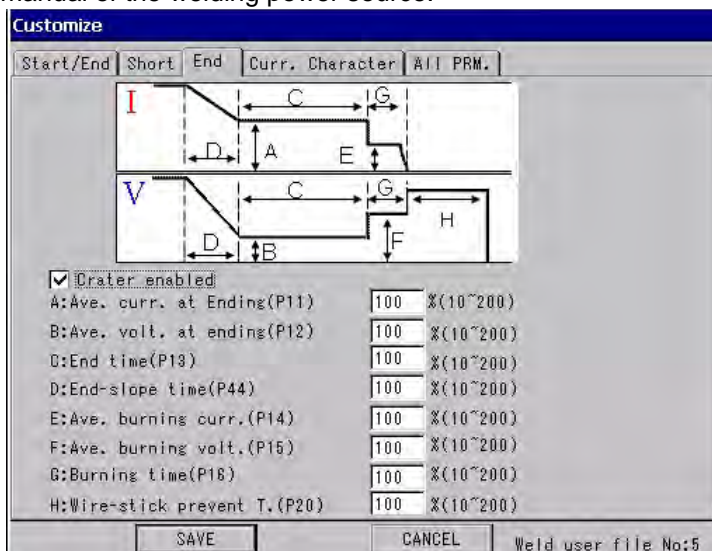


3 Operation of Welding Condition File Edit Window

3.5 MOTOWELD Type: Operation of Customize Window

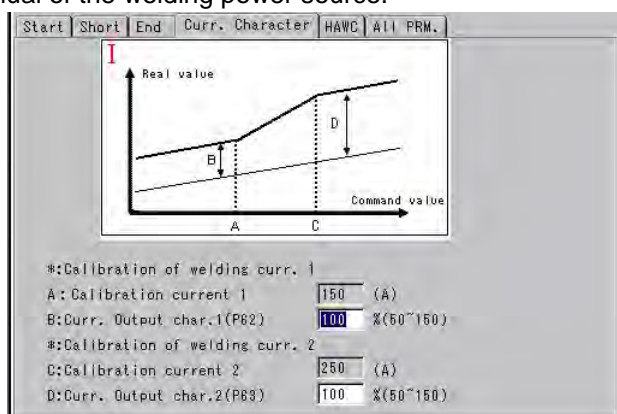
4. Select {End}.

- 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.

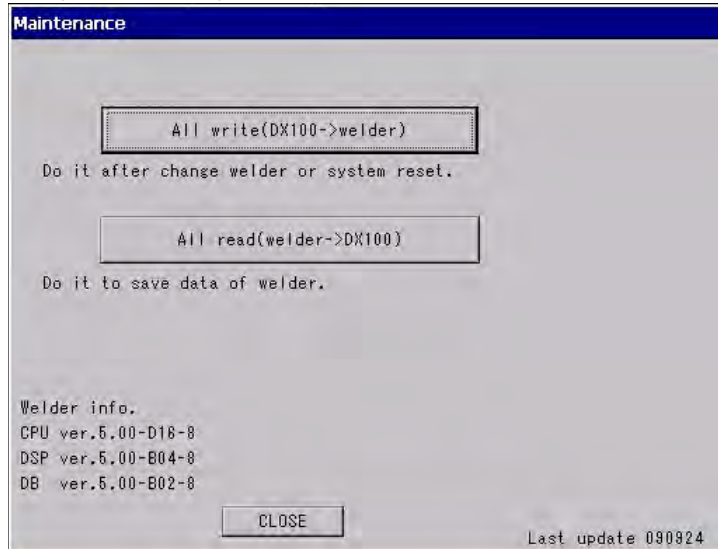


6. Select {SAVE}.

- Apply the parameters changed.

3.6 MOTOWELD Type: Operation of Maintenance Window

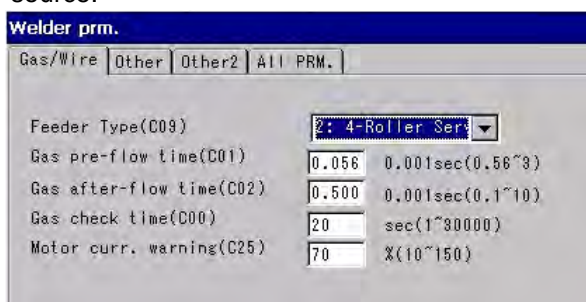
1. At the top window, select the {Maintenance} button.
2. Select {Maintenance}.



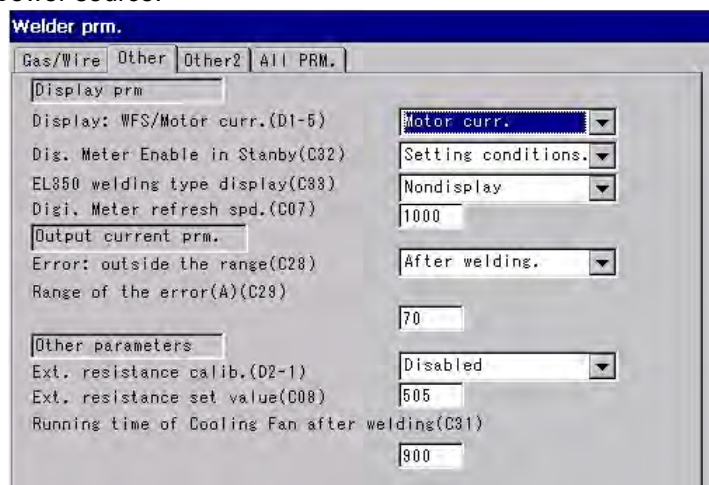
- (1) {All write(DX100->welder)}: Send the parameters at a time to the welding power source.
- (1) {All read(welder->DX100)}: Receive the parameters at a time from the welding power source.
- (2) [CPU ver.,DSP ver.,DB ver.]: The versions of software and data-base in the welding power source are displayed.

3.7 MOTOWELD Type: Operation of Welder Parameter Window

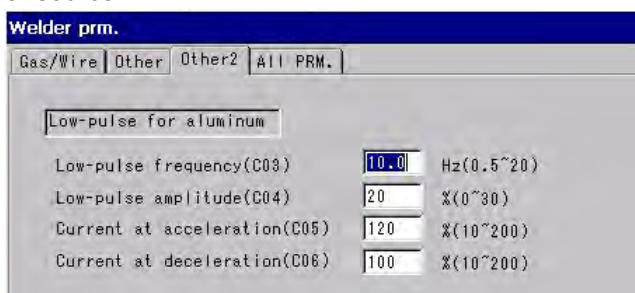
1. At the top window, select the {Welder prm.} button.
2. Select {Gas/Wire}.
 - Change the common parameter (C parameter).
 - For details on the C parameters, see the user manual of the welding power source.



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.



3.8 FroniusTPS Type: Operation of Top Window

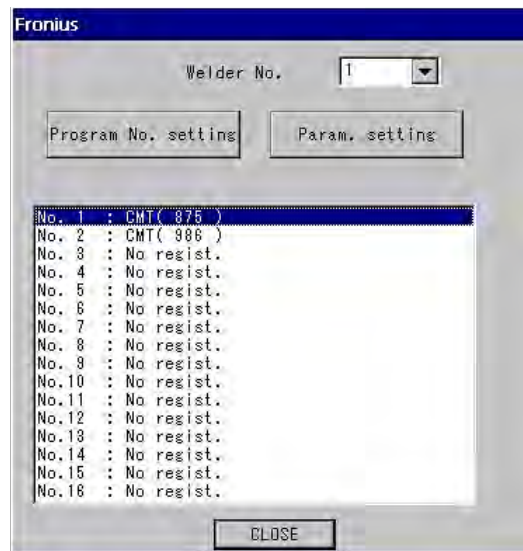
1. Display the {OTHER} tab of the welding condition file to specify the number of a welder's user file to be used.



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



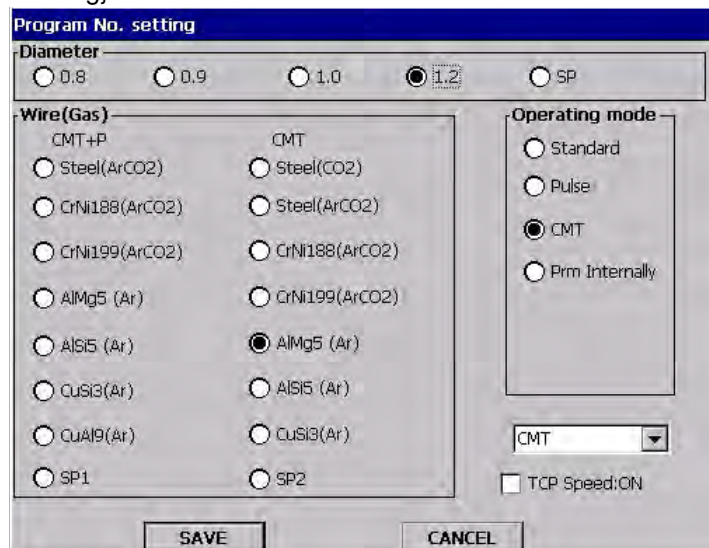
3. Select welder's user file.



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

3.9 FroniusTPS Type: Operation of Program No. setting Window

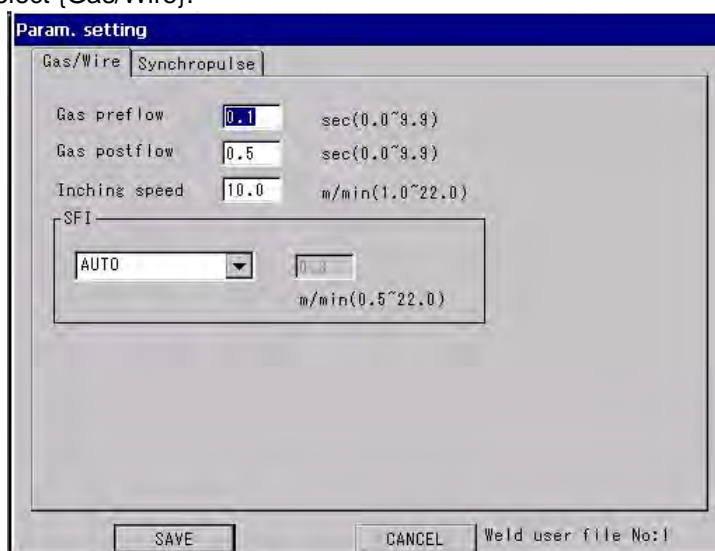
1. At the top window, select a welder's user file, and select the {Program No. setting} button.



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 the {Param. setting} button.
 - Change the parameter of the welder's 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.

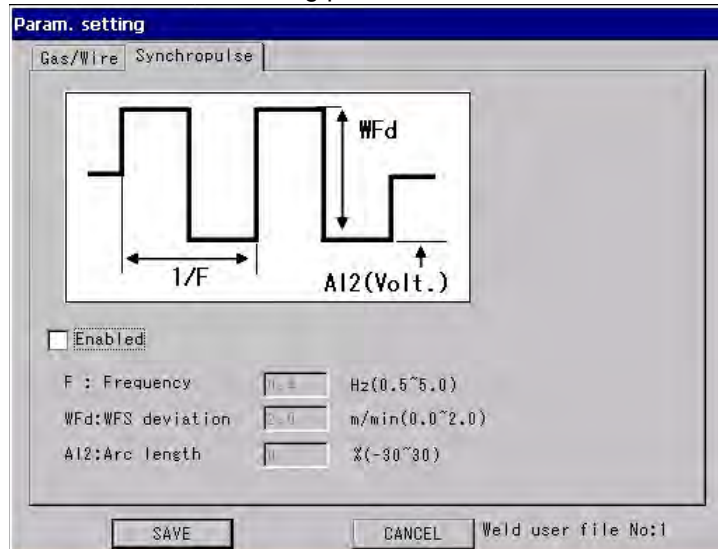
3 Operation of Welding Condition File Edit Window

3.10 FroniusTPS Type: Operation of Param. setting Window

(3) SFI: Select from "AUTO", "MANUAL", or "OFF". Feeding rate when the wire is approaching the base material at the touch start.

3. Select {Synchropulse}.

– 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.

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

```

3. When using a FroniusTPS-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.

- WFS: Wire feeding amount (m/min)

The range varies depending on a welding type.

- Arc Length: Arc length correction (%)

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

- CORR3: Correction 3

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

- CORR4: Correction 4

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

5 Alarm and Error

5.1 Alarm

Alarm Number	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
		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 thermosensor 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 thermosensor on the prin. side Confirm the Fronius's manual

4290	TPS ERROR	13	ErrtB3 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	ErrtB4 Sub code [14**] shows the error code of Fronius power source 14 main error code ** sub error code	Only for MagicWave power source Confirm the Fronius's manual
		15	ErrtB5 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	ErrtB6 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
		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 P 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

4270	MOTOWELD NO WELDING TYPE	602	Sub Code: MOTOWELD's Err Code.	Select a correct welding process in the using the welding user file.
4271	MOTOWELD VOLT.DETEC T WIRE ERROR	702	Sub Code: MOTOWELD's Err Code.	(1)Check if the voltage detection wire is connected. Heck if the voltage detection line or the short-circuit cap is connected to the CON7 of the MOTOWELD. (2)Check that the contact tip does not contact the work piece to be welded.
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
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
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.	Replace the switching power supply unit (Service parts code AJ0E35055)
4282	MOTOWELD POWER SUPPLY ERROR	705	Sub Code: MOTOWELD's Err Code.	Replace the switching power supply unit (Service parts code AJ0E35055)
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 DX100.
4284	MOTOWELD SOFTWARE MULFUNCTION	310	Sub Code: MOTOWELD's Err Code.	Load the suitable database.

4290	TPS ERROR	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	ErrLi 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
		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		

4290	TPS ERROR	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
		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 (bum-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
		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	EF 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

4290	TPS ERROR	64	Errt8 Sub code [64**] shows the error code of Fronius power source 64 main error code ** sub error code	Change the therm osensor of the cooling unit Confirm the Fronius's manual
		65	hoH20 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	Albw 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
		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	ErrCfj Sub code [72**] shows the error code of Fronius power source 72 main error code ** sub error code	Check LHSB connectbn 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 ativated – 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		

4290	TPS ERROR	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
		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 cooldown 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 ~ 99	unknown Sub code [--**] shows the error code of Fronius power source -- main error code ** sub error code	OR NOT IN USE Confirm the Fronius's manual
		100	Und0pc 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	IIDpa 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	Illha 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	IIBus 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		

4290	TPS ERROR	105	Err105 Sub code [105**] shows the error code of Fronius power source 105 main error code ** sub error code	Update firm ware, otherw ise change the UST board Confirm the Fronius's manual
		106	STK0VL Sub code [106**] shows the error code of Fronius power source 106 main error code ** sub error code	Update firm ware, otherw ise change the UST board Confirm the Fronius's manual
		107	STKUVL Sub code [107**] shows the error code of Fronius power source 107 main error code ** sub error code	Update firm ware, otherw ise 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 firm ware, otherw ise change the UST board Confirm the Fronius's manual
		109	ASSErt Sub code [109**] shows the error code of Fronius power source 109 main error code ** sub error code	Update firm ware, otherw ise 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 firm ware, otherw ise change the UST board Confirm the Fronius's manual
		111 ~ 149	unknown Sub code [---**] shows the error code of Fronius power source --- 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 ~ 200	unknown Sub code [---**] shows the error code of Fronius power source --- main error code ** sub error code	OR NOT IN USE Confirm the Fronius's manual

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 t
4244	MOTOWELD INPUT OVER-VOLTAGE	1	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, Ch
		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, Ch
		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, Ch
		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
4246	MOTOWELD INPUT UNDER-VOLTAGE	2	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.
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.
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. (S 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 DP switch setting of PR(CR)-002R1 board. ②) PR(CR)-002R1 board 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
		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 dp switch SW700 on the Main board Pr(MB).
4259	MOTOWELD MOTOR OVER- CURRENT	502	Sub Code: MOTOWELD's Err Code.	Check if the wire lead 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 bo
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 bo
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 bo
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 bo
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 bo
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 bo

4268	MOTO WELD MEMORY ERROR7	210	Sub Code:MOTO WELD'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 MOTO WELD "4.2.10 System Reset") If the error occurs again, the bo
4269	MOTO WELD STARTING SIGNAL ERROR	601	Sub Code:MOTO WELD's Err Code.	Check again the operation timing or signal cable connections. The same error may occur at momentary power failure.
4270	MOTO WELD NO WELDING TYPE	602	Sub Code:MOTO WELD's Err Code.	Select a correct welding process in the using the welding user file.
4271	MOTO WELD VOLT.DETEC T WIRE ERROR	702	Sub Code:MOTO WELD's Err Code.	(1)Check if the voltage detection wire is connected. Heck if the voltage detection line or the short-circuit cap is connected to the CON7 of the MOTO WELD. (2)Check that the contact tip does not contact the work piece to be welded. Set the contact tip so a
4272	MOTO WELD SAFTY- C RCUIT ERROR	101	Sub Code:MOTO WELD's Err Code.	Contact your Yaskawa representative.
4273	MOTO WELD IGBT SHORT C RCUIT	104	Sub Code:MOTO WELD's Err Code.	Replace the IGBT device (Part code AJ0EL3870). Contact your Yaskawa representative.
4274	MOTO WELD VOLTAGE DETECTOR ERROR	110	Sub Code:MOTO WELD's Err Code.	Contact your Yaskawa representative.
4275	MOTO WELD AUX. C RCUIT OV. CURRENT	111	Sub Code:MOTO WELD's Err Code.	The board may be broken. Contact your Yaskawa representative.
4276	MOTO WELD DSP ADC ERROR	119	Sub Code:MOTO WELD's Err Code.	Contact your Yaskawa representative.
4277	MOTO WELD OUTSIDE OF CURR.SETTIN G (H)	790	Sub Code:MOTO WELD'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
4278	MOTO WELD OUTSIDE OF CURR.SETTIN G (L)	791	Sub Code:MOTO WELD'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
4279	MOTO WELD MOMENTARY OVER-CURR	108	Sub Code:MOTO WELD'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	MOTO WELD OVER- VOLTAGE	109	Sub Code:MOTO WELD's Err Code.	Contact your Yaskawa representative.
4281	MOTO WELD +15V POWER SUPPLY ERROR	704	Sub Code:MOTO WELD's Err Code.	Replace the switching power supply unit (Service parts code AJ0E35055)
4282	MOTO WELD POWER SUPPLY ERROR	705	Sub Code:MOTO WELD's Err Code.	Replace the switching power supply unit (Service parts code AJ0E35055)

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 ofMOTOWELD. The user file can setup in the editor screen for ARC START CONDITION FILE or ARC END CONDITION FILE of the DX100.
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 Pr(MB)-030}. Contact your Yaskawa representative.
		312	Sub Code:MOTOWELD's Err Code.	Replace the front panel Panel-CR30 unit}. Contact your Yaskawa representative.
		316	Sub Code:MOTOWELD's Err Code.	Replace the main board 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 re bad the data. (2)In case of turn off and reboot was OK, re bad the data. (3)In case of turn off and reboot was NG, bad the data by special bading tool (4)O ther case of step 1,2,3, replace the main board Pr(MB)
		400	Sub Code:MOTOWELD's Err Code.	(0)reboot the power source. (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 dp switch \$W301) 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 of350A or 500A. (2)Switch a status of dp switch SW 600 which of350A or 500A. (3)Change the software which for correct current class.

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.

DX100 OPTIONS OPERATOR'S MANUAL

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