

FANUC



Fronius TPSi RI FB/i FANUC 1.0

Next Generation Arc Welding Robot Interface

Product Introduction

NEW



Product Overview & Key Features

- ❑ Latest fully integrated Fronius arc welding robot interface
- ❑ All parameters from Fronius power source seamlessly controlled from Robot Teach Pendant

Benefits – Why Buy ?

- ✓ Easy & quick TPSi Fronius power source integration
- ✓ Robot Teach Pendant becomes the intuitive single point of control not just for robot programming but also for completely setting up and developing weld parameters
- ✓ Easy access to all welding settings and parameters even when power source is remotely mounted (i.e. on large overhead gantries is difficult to access front MCU panel)

FANUC Requirements



- ❑ On R-30iB Controller: ArcTool V8.30P/36 or later
- ❑ On R-30iB Plus Controller: ArcTool V9.10P/05 or later

- ❑ Order specifications: **A05B-2600-J522**

Includes:

- ✓ *A05B-2600-R653 Fronius Weld EQ Library as basic package*
- ✓ *A05B-2600-R889 Single Channel EtherNet IP Scanner software for plug & play connection of the single Weld EQ to port#2*

Note: If the robotic system requires more than 1 device (adapter) connected, please order A05B-2600-R785 EtherNet IP Scanner software option on top separately as before to unlock all available slot channels.



Requirements



- ❑ Weld EQ Firmware 1.8.0-13539 or later
- ❑ Supports only Ethernet IP (RI MOD/i CC-M40 Ethernet/IP - 2P module)

- ❑ Order specification: **4,044,035**

Includes:

- ✓ *RI FB/i FANUC 1.0 interface motherboard*
- ✓ *30cm Ethernet cable to bridge over service port*
- ✓ *Power and data cable*

- ❑ Operating instructions: **42,0426,0223,EN**

Key Features

Plug & Play setup



Busy Step Hold Fault
Run Weld Estab DRun ZERO LINE 0 AUTO ABORTED CTRL START

ArcTool Setup

8/10

1 Robot group: 1[ARC Mate 100iD]

1 ROB 5000 ing setup: Europe

2 TS/TPS with DNet re speed units: m/min

3 TWIN with DNet ld speed units: cm/min

4 TS/TPS with ENet ld speed: 100

5 TPSi Inside ENet manufacturer: Fronius

6 TPSi Inside PNet l: TPSi Extend ENet

7 TPSi Extend ENet

8 CTN then START (COLD) when done.

[TYPE] [CHECK] [CHOICE] HELP

Newly supported RI FB/i FANUC 1.0 as **Extended** EtherNet IP interface

Newly supported **m/min** as weld command unit

New CHECK utility for quick setup changes

Busy Step Hold Fault
Run Weld Estab DRun ZERO LINE 0 AUTO ABORTED CTRL START

Fronius CHECK Utility

1. Auto Setup Retry
2. Change Fronius I/O mapping area
3. Change weld command type (WFS/Amps)
4. Set/Confirm current I/O polarity

Enter the number (0 for exit):

[TYPE] CHECK [CHOICE] HELP

Wizard style step by step setup guide for quick and error free power source integration

Busy Step Hold Fault
Run Weld Estab DRun TEST01 LINE 0 AUTO ABORTED CTRL START

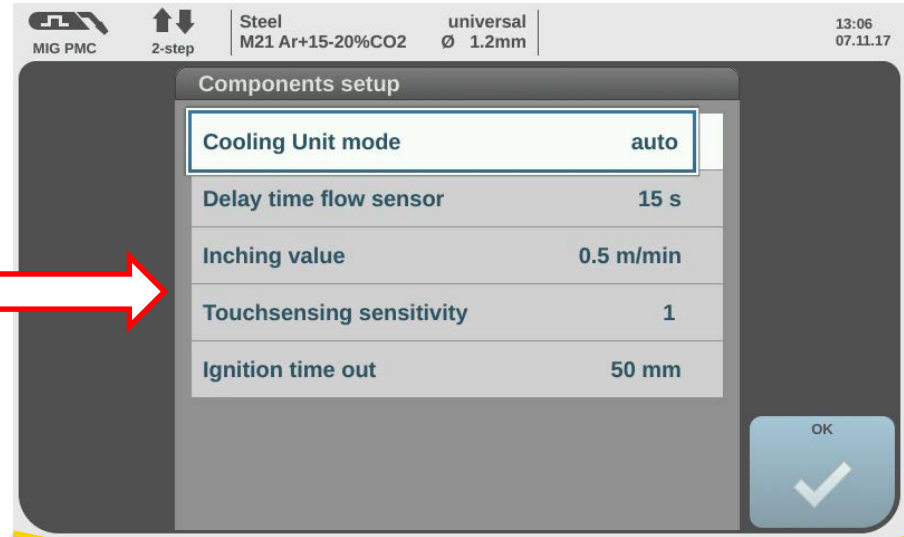
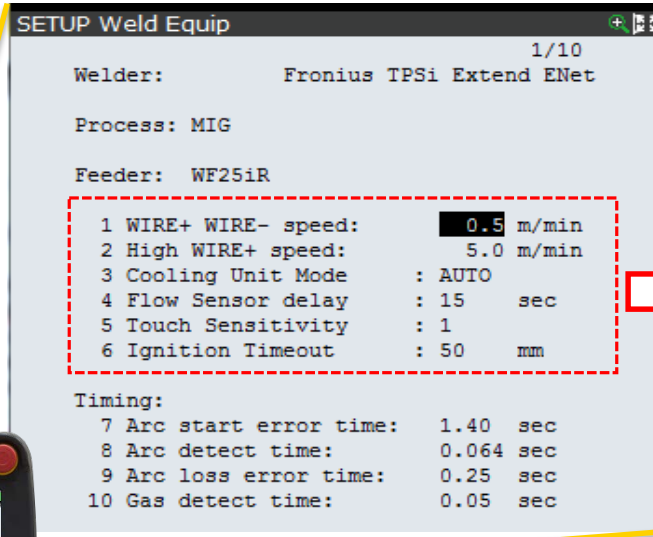
All setting for Fronius are cleared once and then it will be set again. Do you execute this operation ?

YES [NO]

[TYPE] CHECK [CHOICE] HELP

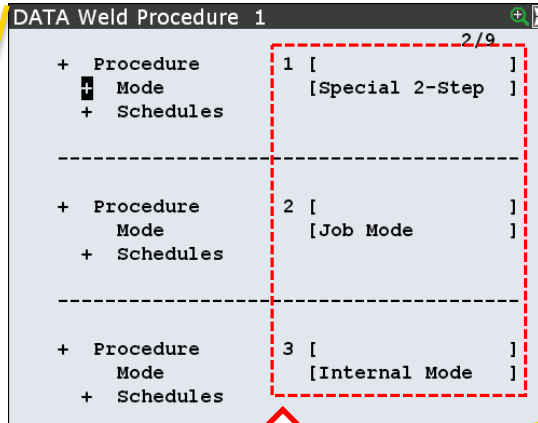
New Controls

Direct interface to control peripheral accessories such as Cooling Unit as well as adjusting functional setup parameters

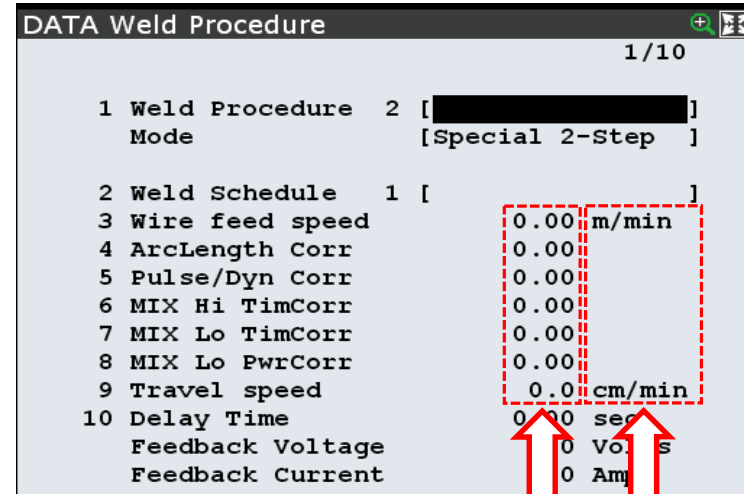


Fully Integrated into Weld Procedures

Welding command parameters integrated in welding schedules



Special 2-Step, Job Mode and Internal Mode fully controlled directly from iPendant for intuitive user operations



Quick welding parameters development
Metric & Imperial units supported

Fully Integrated into Weld Procedures



DATA Weld Procedure 2		1/12
Procedure	2	[]
Weld equipment:	1	
Manufacturer:	Fronius	
Model:	TPS1 Extend ENet	
File name:	AWELWP02	
Schedules:	3	
Fronius EQ SETUP: < *DETAIL* >		
Ramping:	DISABLED	
Heatwave:	DISABLED	
Arc Monitor:	DISABLED	
Gas purge:	0.35 sec	
Gas preflow:	0.00 sec	
Gas postflow:	0.00 sec	
Arc End pre-time:	0 msec	



SETUP Fronius Equip		1/19
Special 2-step		
Weld Start		
1 Current	:	120 %
2 Arc Length Correction	:	0.0
3 Duration	:	0.1 sec
4 Slope 1	:	0.1 sec
Weld End		
5 Current	:	40 %
6 Arc Length Correction	:	0.0
7 Duration	:	0.1 sec
8 Slope 2	:	0.1 sec
9 Wire Retract	:	0.0
Optional Functions		
10 SFI (SpatterFreeIgnition)	:	DISABLED
11 SFI Hot Start	:	0.0
12 Penetration Stabilizer	:	0.0m/min
13 Arc Length Stabilizer	:	0.0
Synchro Pulse		
14 Synchro Pulse	:	DISABLED
15 Delta Wire Speed	:	0.5 m/min
16 Frequency	:	1.0 Hz
17 Duty Cycle	:	50 %
18 Arc Length Correction Hi	:	0.0
19 Arc Length Correction Lo	:	0.0

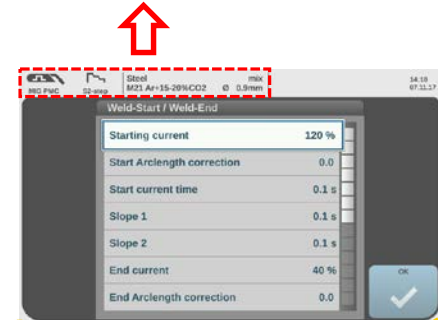
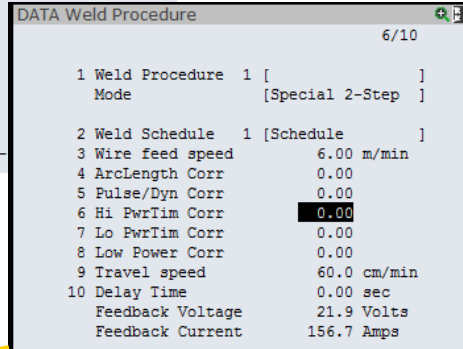
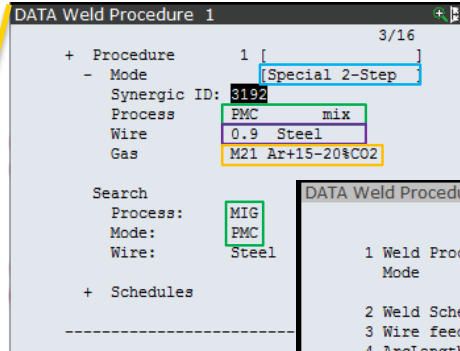
Full list of power source SETUP parameters to mimic settings usually done on front MCU panel

Weld-Start / Weld-End	
Starting current	120 %
Start Arclength correction	0.0
Start current time	0.1 s
Slope 1	0.1 s
Slope 2	0.1 s
End current	40 %
End Arclength correction	0.0
End Arclength correction	0.0
End current time	0.1 s
SFI	off
SFI Hot start	off
Wire retract	0.0
Ignition current (manual mode)	500 A
Wire retract (manual mode)	0.0
Synchropulse	
Synchropulse enable	off
Wire Feed Speed	2.7 m/min
Delta wire feed	0.5 m/min
Frequency	1.0 Hz
Duty cycle	50 %
Arc length correction high	0.0
Arc length correction low	0.0
Process control setup	
Penetration stabilizer	0.0 m/min
Arc length stabilizer	0.0



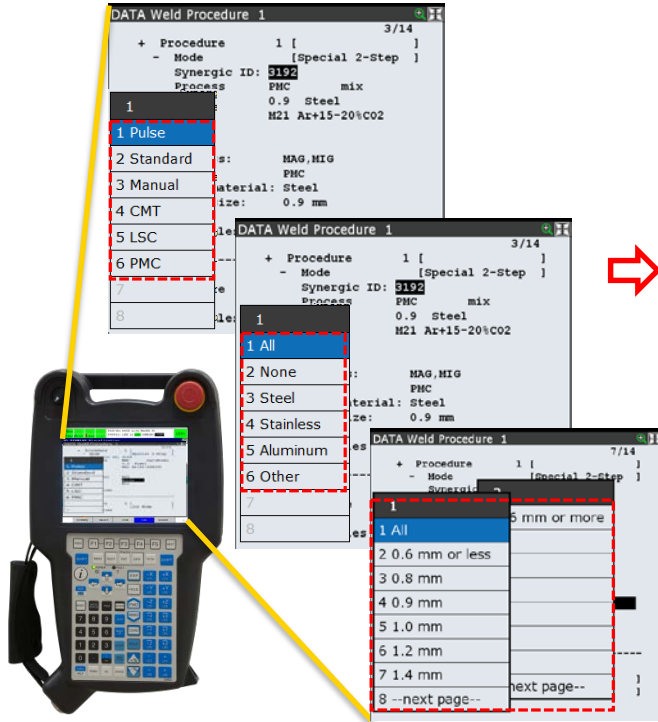
Fully Integrated in Weld Procedures

Display the command names and units according to the weld mode selected



TPSi Weld Database Browser integrated in Weld Procedures

- ❑ User-definable weld process search criteria (type, material, wire diameter, etc...)
- ❑ Self-explanatory, no manuals required



SETUP Eq Search 1/16

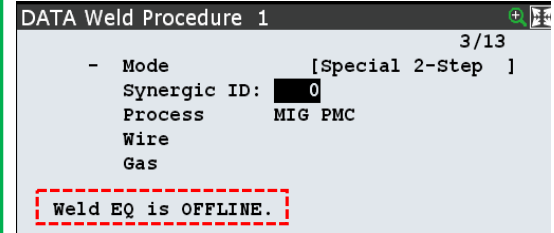
#	WIRE DIA	DESCRIPTION
1	3148 1.2 mm	[CMT universal] [Steel] [M21 Ar+15-20%CO2]
2	3248 1.0 mm	[CMT universal] [Steel] [M21 Ar+15-20%CO2]
3	3280 0.8 mm	[CMT universal] [Steel] [M21 Ar+15-20%CO2]
4	3283 1.0 mm	[CMT universal] [Steel] [C1 100% CO2]
5	3392 1.0 mm	[CMT dynamic] [Steel] [M21 Ar+15-20%CO2]

User can select any of the returned candidate synergic lines because all fulfil given search criteria

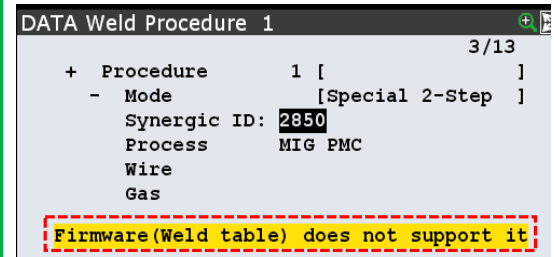
Example shows selecting #3392:

- 1.0mm Steel wire
- CMT dynamic process
- Ar+CO2 mix gas

Smart Checks



Smart check of online communication prior browsing Weld EQ synergic lines database



Smart check of valid license of selected synergic line within weld database prior welding to avoid weld fault causing downtime

Auto calculation of Gas Preflow and Postflow

Jobnumber: 0001
Job name: test



created: 07.11.2017 / 14:21	machine: TPS 500 PULSE	serial number: 28316955	
last modified: 07.11.2017 / 14:28	firmware-version: 1.8.0-13539		
Parameter	Value	Parameter	Value
Welding mode	MIG CMT	Low power corr.	0.0
Trigger mode	2-step	Power correction high	0 %
Material	Steel	Power correction low	0 %
Diameter	1.2 mm	Arc length correction high	0.0
Gas	M21 Ar+15-20NCO2	Arc length correction low	0.0
Property	universal	Command value gas	15.0 l/min
Characteristic-ID	3542	Gas factor	auto
Wire Feed Speed	5.0 m/min	Job slope	0.0 s
Current	176 A	Sampling rate	off
Voltage	15.4 V		
Material Thickness	1.2 mm		
Arc length correction	0.0		
Pulse/dynamic correction	0.0		
Penetration stabilizer	0.0 m/min		
Arc length stabilizer	0.0		
Gas preflow	2.7 s		
Gas postflow	3.9 s		
Inching value	10.0 m/min		
Starting current	135 %		
Start Arc length correction	0.0		
Start current time	0.6 s		
Slope 1	1.3 s		
Slope 2	3.7 s		
End current	50 %		
End Arc length correction	0.0		
End current time	0.8 s		
SFI	off		
SFI Hot start	off		
Wire retract	0.0		
Synchropulse enable	off		
Delta wire feed	2.0 m/min		
Frequency	3.0 Hz		
Duty cycle	50 %		
Arc length correction high	0.0		
Arc length correction low	0.0		
High power time corr.	0.0		
Low power time corr.	0.0		



SETUP Weld Equip		1/10
Welder:	Fronius TPSi Extend ENet	
Process:	MIG	
Feeder:	WF25iR	
1 WIRE+ WIRE- speed:	0.5 m/min	
2 High WIRE+ speed:	5.0 m/min	
3 Cooling Unit Mode	: AUTO	
4 Flow Sensor delay	: 15 sec	
5 Touch Sensitivity	: 1	
6 Ignition Timeout	: 50 mm	
Timing:		
7 Arc start error time:	1.40 sec	
8 Arc detect time:	0.064 sec	
9 Arc loss error time:	0.25 sec	
10 Gas detect time:	0.05 sec	

Arc Start and End error times are automatically adjusted when welding in Job Mode or Internal Mode.

This avoids downtime caused by weld alarms triggered when gas pre or post flow times mismatch between robot side and EQ side.

Torch Collision E-Stop

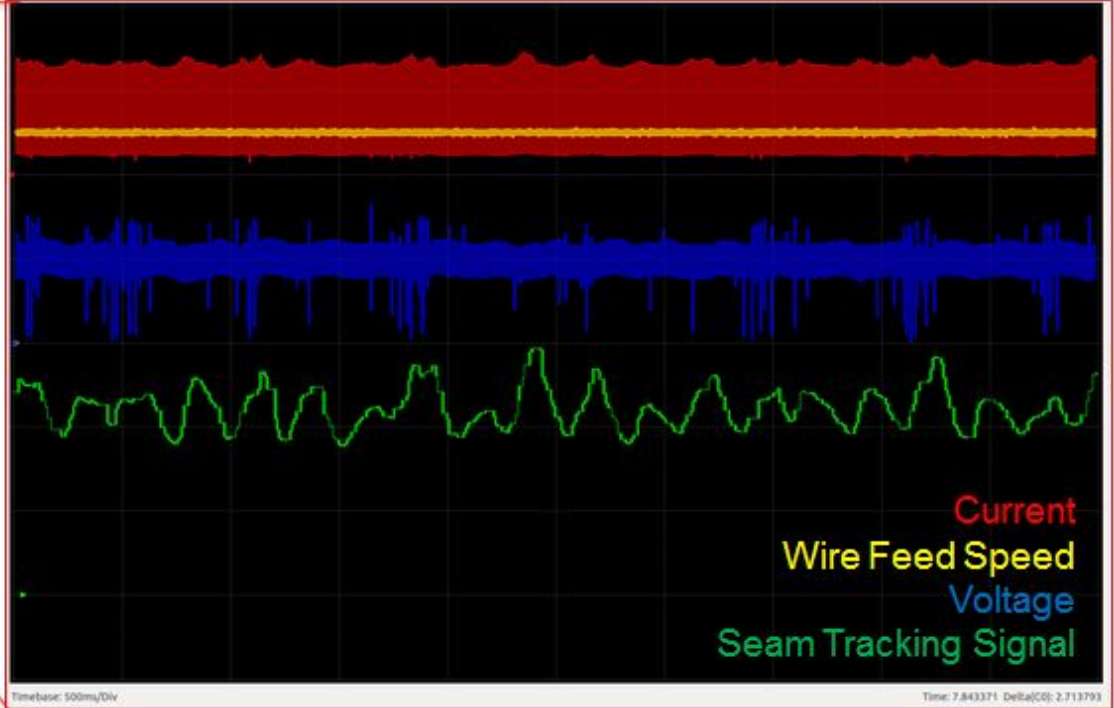
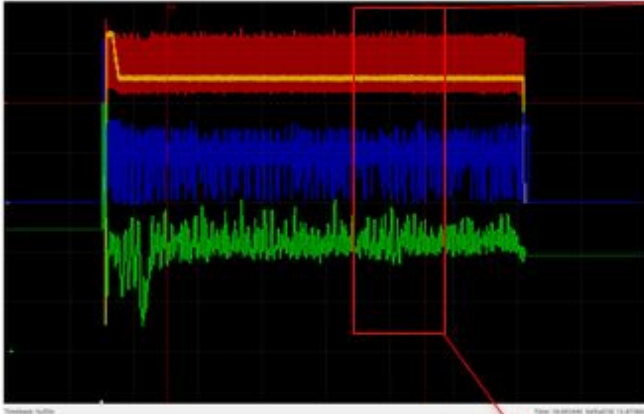
Despite installation of torch collision box is not mandatory thanks to robot integrated High Sensitive Collision Detection (HSCD) software installed by default on all ARC Mate robots, there are cases where customer still requires torch collision box to be installed.

This software improvement integrates the given software digital input coming from power source, and if torch collision is detected, robot emergency stops immediately posting ARC-257 alarm.

ARC -257 Torch collision is detected

Through Arc Seam Tracking (TAST)

New special TPSi Seam Tracking signal representing wire stickout value is supported for both vertical and lateral seam tracking



- ❑ Feedback value of 5000 indicates optimal stickout for the synergic line used
- ❑ Robot TAST schedules and signal scaling can therefore be pre-defined up to some extents

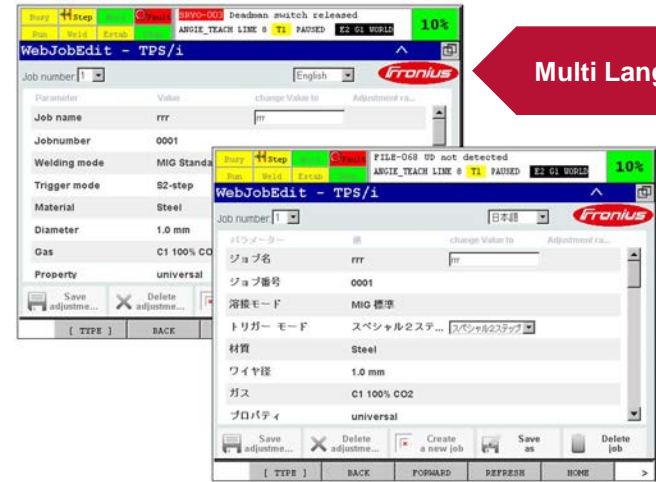
New Web Job Editor

OPTIONAL
FRONIUS
FEATURE

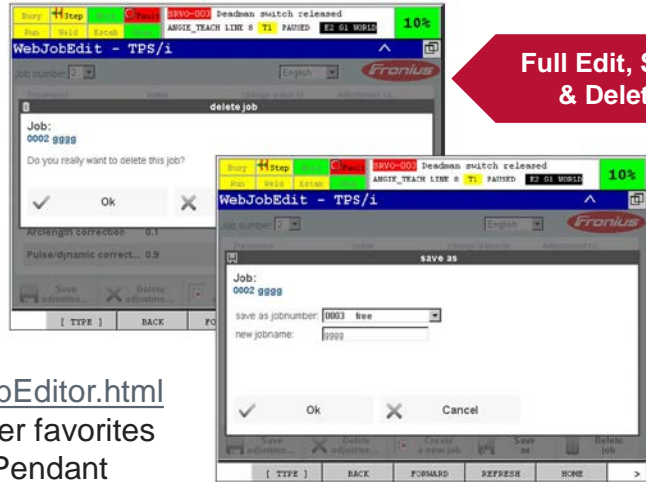
- ❑ GUI integrated in the iPendant to complete Job setup
- ❑ Mimics GUI available on PC Web Browser

Opt/i Job 4,067,002 and Opt/i Web Job Edit 4,067,007 must be licensed from Fronius

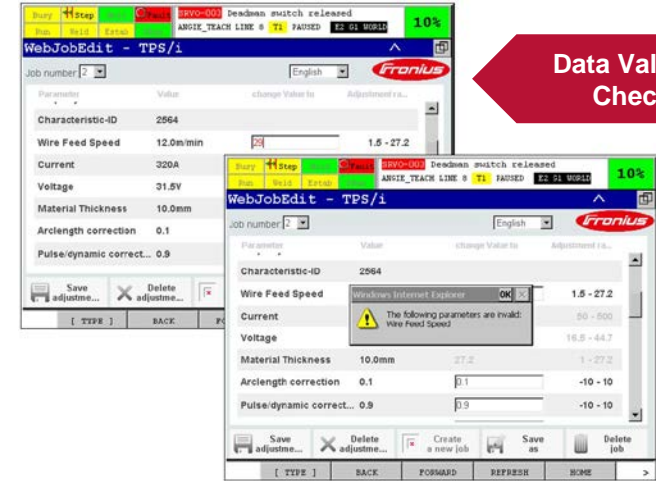
Multi Language



Full Edit, Save & Delete



Data Validity Check



<http://x.x.x.x/jobData/jobEditor.html>
can be added to Browser favorites
for quick access from iPendant
(x.x.x.x = Service Port IP Address)