

/ Perfect Welding / Solar Energy / Perfect Charging



SHIFTING THE LIMITS



VERSION HISTORY

FIRMWARE TPS/i - EN

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TABLE OF CONTENT

1	Changes from V2.4.5 to V2.4.7	8
1.1	Software version of system components	8
1.2	New functions	9
1.3	Fixed bugs	10
	Changes from V2.4.2 to V2.4.5	11
1.4	Software version of system components	11
1.5	New functions RI FB Inside/i & RI FB Extended interfaces	12
1.6	Fixed bugs	13
2	Changes from V2.3.1 to V2.4.2	14
2.1	Software version of system components	14
2.2	New functions TPS 320i – 600i.....	14
3	Changes from V2.2.5 to V2.3.1	18
3.1	Software version of system components	18
3.2	New functions TPS 320i – 600i.....	19
3.3	New functions RI FB Insid/i.....	21
3.4	New functions RI FB Extended Interfaces	22
3.5	WeldCube Premium.....	22
3.6	Fixed bugs	23
4	Changes from V2.2.3 to V2.2.5	24
4.1	Fixed bugs	24
5	Changes from V2.1.0 to V2.2.3	25
5.1	Software version of system components	25
5.2	New functions TPS 320i – 600i.....	26
5.3	New functions RI FB Inside/i.....	27
5.4	New functions RI IO Pro/i	28
5.5	Fixed bugs	28
6	Changes from V2.0.2 to V2.1.0	29
6.1	Software version of system components	29
6.2	New functions TPS 270iC and 320i C	29
6.3	New functions TPS 320i – 600i.....	30
6.4	New functions RI IO Pro/i	33
6.5	New functions RI FB Inside/i.....	34

6.6	TWIN functionality for TPS/i.....	34
7	Changes from V2.0.1 to V2.0.2	36
7.1	Software version of system components	36
7.2	New functions TPS 320i - 600i	36
7.3	Fixed bugs	36
8	Changes from V1.9.0 to V2.0.1	37
8.1	Software version of system components	37
8.2	New functions TPS 320i - 600i	38
8.3	Fixed bugs	40
9	Changes from V1.8.6 to V1.9.0	41
9.1	Software version of system components	41
9.2	New functions TPS 320i - 600i	41
9.3	Fixed bugs	43
10	Changes from V1.8.5 to V1.8.6	44
10.1	Fixed bugs	44
11	Changes from V1.8.4 to V1.8.5	45
11.1	Software version of system components	45
11.2	New functions TPS 320i - 600i	45
11.3	New functions RI FB Inside/i.....	47
11.4	WeldCube	48
11.5	Arc technology	48
11.6	Fixed bugs	48
12	Changes from V1.8.2 to V1.8.4	49
13	Changes from V1.8.1 to V1.8.2	50
13.1	Software version of system components	50
13.2	New functions TPS 270i C	50
13.3	New functions TPS 320i - 600i	51
13.4	Fixed Bugs	54
14	Changes from V1.8.0 to V1.8.1	55
14.1	Software version of system components	55
14.2	Fixed Bugs RC Panel Pro	55
15	Changes from V1.7.4 to V1.8.0	56

15.1	Software version of system components	56
15.2	New functions TPS 270i C	56
15.3	New functions TPS 320i - 600i	57
15.4	New function RI FB Inside/i	66
15.5	New function Rob IO Pro	67
15.6	New function AI IO	67
16	Changes from V1.7.3 to V1.7.4	68
16.1	Software version of system components	68
16.2	Fixed bugs TPS 320i - 600i	68
16.3	New functions RI FB Inside/i.....	68
17	Changes from V1.7.1 to V1.7.3	69
17.1	Software version of components	69
17.2	New functions TPS 320i - 600i	69
17.3	Fixed bugs TPS 320i - 600i	72
18	Changes from V1.7.0 to V1.7.1	73
18.1	Software version of components	73
18.2	New functions TPS 320i - 600i	73
19	Changes from V1.6.5 to V1.7.0	74
19.1	Software version of system components	74
19.2	General information	74
19.3	New functions TPS 270i C	75
19.4	New functions TPS 320i - 600i	75
19.5	Fixed bugs TPS 320i - 600i	82
19.6	New function RI FB Inside/i	83
19.7	New function AI IO	83
19.8	New function RI IO Pro	84
20	Changes from V1.6.4 to V1.6.5	85
20.1	Software version of system components	85
20.2	New functions TPS 270i C	85
20.3	Fixed bugs TPS 270i C	85
20.4	New functions TPS 320i - 600i	85
20.5	Fixed bugs TPS 320i - 600i	85
20.6	New function RI FB Inside/i	85
20.7	Fixed bugs RI FB Inside/i.....	86
21	Changes from V1.6.3 to V1.6.4	86

21.1	Software version of system components	86
21.2	New functions TPS 270i C	87
21.3	Fixed bugs TPS 270i C	87
21.4	New functions TPS 320i - 600i	88
21.5	Fixed bugs TPS 320i - 600i	97
21.6	New function RI FB Inside/i	97
21.7	Fixed bugs RI FB Inside/i.....	98
22	Changes from V1.6.0 to V1.6.3	99
22.1	Software version of system components	99
22.2	New functions	99
22.3	Fixed bugs	100
23	Changes from V1.5.1 to V1.6.0	101
23.1	Software version of system components	101
23.2	New functions	101
24	Changes from V1.5.0 to V1.5.1	106
24.1	Software version of system components	106
24.2	New functions	106
24.3	Fixed bugs	106
25	Changes from V1.4.3 to V1.5.0	107
25.1	Software version of system components	107
25.2	New functions	107
25.3	Fixed bugs	110
26	Changes from V1.4.2 to V1.4.3	111
26.1	Software version of system components	111
26.2	New functions	111
26.3	Fixed bugs	111
27	Changes from V1.4.1 to V1.4.2	113
27.1	Software version of system components	113
27.2	New functions	113
27.3	Fixed bugs	113
28	Changes from V1.4.1 to V1.4.2	114
28.1	Software version of system components	114
28.2	New functions	114
28.3	Fixed bugs	116

29	Changes from V1.3.2 to V1.4.0	117
29.1	Software version of system components	117
29.2	New functions	117
29.3	Fixed bugs	122
30	Changes from V1.3.1 to V1.3.2	123
30.1	Software version of system components	123
30.2	New functions	123
30.3	Fixed bugs	126
31	Changes from V1.3.0 to V1.3.1	126
31.1	New functions	126
31.2	Fixed bugs	126
32	Changes from V1.2.5 to V1.3.0	127
32.1	Software version of system components	127
32.2	New functions	127
32.3	Fixed bugs	130
33	Changes from V1.2.4 to V1.2.5	130
33.1	New functions	130
33.2	Fixed bugs	130
34	Changes from V1.2.3 to V1.2.4	130
34.1	Fixed bugs	130
35	Changes from V1.2.1 to V1.2.3	131
35.1	Software version of system components	131
35.2	New functions	131
35.3	Fixed bugs	132
36	Changes from V1.1.1 to V1.2.1	133
36.1	New functions	133
36.2	Fixed bugs	134

1 CHANGES FROM V2.4.5 TO V2.4.7

Date: June. 29th 2021

1.1 Software version of system components

MCU	2.4.1380
Spider	4.2.21
SR63	1.703.10
iJob	3.4.1
iUpDo	1.0.6
FKS	1.5.20
PullMig / CMT	1.174.1
RC Panel Basic	1.0.72
RC Panel Standard	1.3.3
RI FB Inside/i & RI FB Extended interfaces	2.0.110
RobIORel	2.0.0
AI IO/i & AI IO/i V2	1.24.0
RI IO	1.24.0
RI IO PRO/i	1.44.0
iRob	2.4.1
Scrat	2.18.0
TMC	1.3.1

1.2 New functions

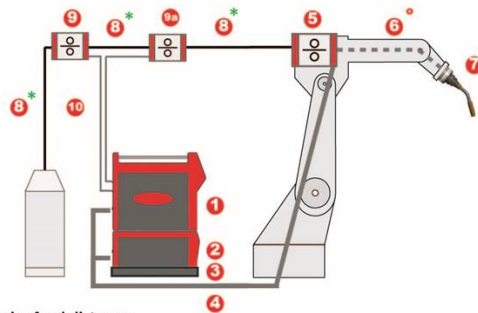
Support for MultiDrive Systems:

These system configurations enable wire conveying distances of up to 50 m by using multiple motors.

This setup works for Push, PushPull and CMT configurations.

Push System:

PUSH PAP WITH 2 REEL & 4 REEL & WIRE DRUM



- 1 Power source TPS/i
- 2 Cooling Unit CU
- 3 Podium
- 4 Connection hose pack HP
- 5 Wire feeder WF15iR / WF25iR / WF30iR
- 6 Torch hose pack MHP/i R
- 7 Torch body MTB/i R
- 8 Wire feeding hose with inner liner
- 9 WF 25i Reel 4R (position is mandatory)
- 9a WF 30i Reel 2R (position is mandatory)
- 10 SpeedNet Cable COM

Maximum wire feed distance

/ between Feeder (5) and WF Reel 2 R (9a) max. 20m

/ between WF Reel 2 R (9a) and WF Reel 4 R (9) max. 20m

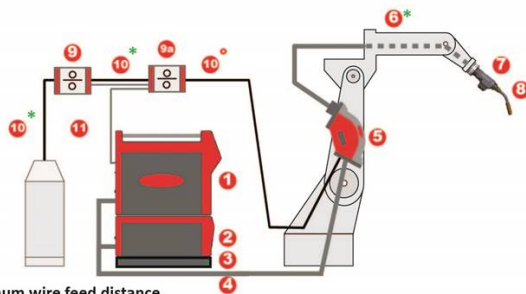
/ between WF Reel and Wire Drum max. 8m (max. 10m with PowerL.)

* Use biggest inner liner (like in Basic kit)

* Use appropriate inner liner for wire diameter (like in Basic kit)

Push-Pull System:

PUSH-PULL PAP WITH SB60i & 2 REEL & 4 REEL & WIRE DRUM



- 1 Power source TPS/i
- 2 Cooling Unit CU
- 3 Podium
- 4 Connection hose pack HP
- 5 Splitbox SB 60i R
- 6 Welding torch hosepack MHPi
- 7 WF 25i Robacta Drive
- 8 Torch body MTB/i R
- 9 WF 25i Reel 4R (position is mandatory)
- 9a WF 30i Reel 2R (position is mandatory)
- 10 Wire feeding hose with inner liner
- 11 SpeedNet Cable COM

Maximum wire feed distance

/ between Drive (7) and SB60i (5) max. 4m

/ between SB60i (5) and WF Reel 2R (9a) max. 6m

/ between WF Reel 2R (9a) and WF Reel 4R (9) max. 20m

/ between WF Reel 4R and Wire drum max. 8m (max. 10m PowerL.)

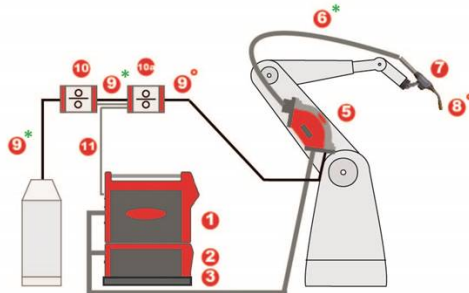
* Use biggest inner liner (like in Basic kit)

* Use appropriate inner liner for wire diameter (like in Basic kit)

Wire diameter: 0,8 - 2,0 mm AL / 0,8 - 1,6 mm Steel

CMT System:

CMT CONV WITH SB60i & 2 REEL & 4 REEL & WIRE DRUM



- 1 Power source TPS/i
- 2 Cooling Unit CU
- 3 Podium
- 4 Connection hose pack HP
- 5 Splitbox SB 60i R
- 6 Torch hose pack MHP/i R
- 7 WF 60i Robacta Drive CMT
- 8 Torch body MTB/i R
- 9 Wire feeding hose with inner liner
- 10 WF 25i Reel 4R (position is mandatory)
- 10a WF 30i Reel 2R (position is mandatory)
- 11 SpeedNet Cable COM

Maximum wire feed distance

/ between Drive (7) and SB 60i R (5) max. 4m

/ between SB 60i R (5) and WF Reel 2R (10a) max. 6m

/ between WF Reel 2R (10a) and WF Reel 4R (10) max. 20m

/ between WF Reel 4R and Wire drum max. 8m (max. 10m PowerL.)

* Use biggest inner liner (like in Basic kit)

* Use appropriate inner liner for wire diameter (incl. in Basic kit)

Wire diameter: 0,8 - 1,6 mm AL / 0,8 - 1,4 mm Steel

1.3 Fixed bugs

Error Message “17013 - Cooling Pump doesn't reach the required rotations” for CU1400i Pro/MC & CU2000i Pro/MC.

The Issue that the message "17013 - Cooling Pump doesn't reach the required rotations " appears at some new charge numbers of rotary pumps in the colling units 4,048,017,633 CU1400i Pro/MC & 4,048,009,633 - CU2000i Pro/MC is now solved;

Air hits if the Touch function is activated and more than one welding system is used on the part

The problem that caused air hits during the Touch function is activated, when using multiple power sources on one component, has now been resolved; This Issue occurred only if the “Touchsensing sensitivity” was set between 1- 5

CHANGES FROM V2.4.2 TO V2.4.5

Date: May. 10th 2021

1.4 Software version of system components

MCU	2.4.1379
Spider	4.2.21
SR63	1.703.10
iJob	3.4.1
iUpDo	1.0.6
FKS	1.5.10
PullMig / CMT	1.174.1
RC Panel Basic	1.0.72
RC Panel Standard	1.3.3
RI FB Inside/i & RI FB Extended interfaces	2.0.105
RobIORel	2.0.0
AI IO/i & AI IO/i V2	1.24.0
RI IO	1.24.0
RI IO PRO/i	1.44.0
iRob	2.4.1
Scrat	2.18.0
TMC	1.3.1

1.5 New functions RI FB Inside/i & RI FB Extended interfaces

ProcessActive Timeout for ModbusTCP can be set on the Smart Manager

On the RI FB Inside with Modbus/TCP interface, this setting ensures that if the cable is accidentally disconnected from the interface, the weld is aborted and all signals from the power source are reset to a defined state.

New Working Mode Standard Manually can be selected via the robot interface

The "Standard Mode" can be selected via the interface using the Working Mode Bit 0 - 4.

1.6 Fixed bugs

Freezing of the Operating Unit in JobMode

The Issue that caused the operation to freeze when the "Optimize job window" was open has now been fixed;

In rare cases, the error message "16836 - Weld start during gas pre-calibration" appears during motor calibration

The Issue that the message "16836 - Weld start during gas pre-calibration" appears when the gas pressure is too low during motor calibration is now fixed;

Collision signal for double-head systems

The collision signal is not evaluated during the changeover time in the case of double-head changeover and the actual Signal Status remains the same

Problem with the gas regulator with error message "16831 - Gas valve electrically disconnected

The Issue that the message "16831 - Gas valve electrically disconnected." Appers randomly for short seams is now fixed. When the gas valve get's activated, the actual gas value display is no longer briefly displayed as zero;

2 CHANGES FROM V2.3.1 TO V2.4.2

Date: Oct. 20th 2020

2.1 Software version of system components

MCU	2.4.1364
Spider	4.2.20
SR63	1.703.9
iJob	3.4.1
iUpDo	1.0.6
FKS	1.5.10
PullMig	1.174.1
RC Panel Basic	1.0.72
RC Panel Standard	1.3.3
RI FB Inside/i	2.0.105
RI FB Extended interfaces	2.0.105
RobIORel	1.2.0
ROB202	1.24.0
ROB302	1.24.0
ROB502	1.44.0
iRob	2.4.1
Scrat	2.18.0
TMC	1.3.1

2.2 New functions TPS 320i – 600i

EasyJobs

EasyJobs which have no welding parameters stored are now clearly visible.

It's not possible to accidentally delete an already programmed EasyJob.



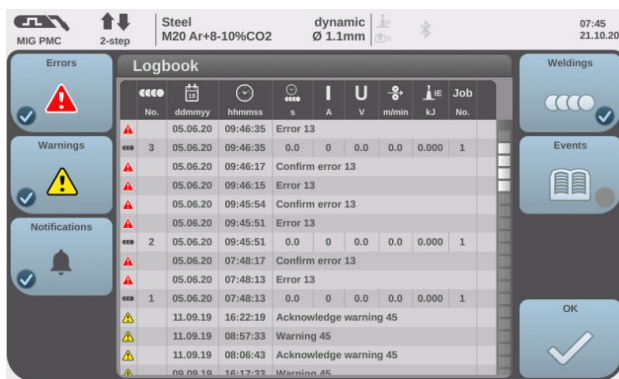
Intermediate arc range

The intermediate arc range for Standard and LSC processes is now visualized in the status bar of the display.

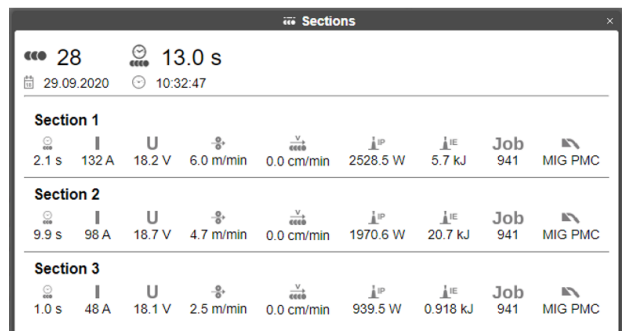


Logbook

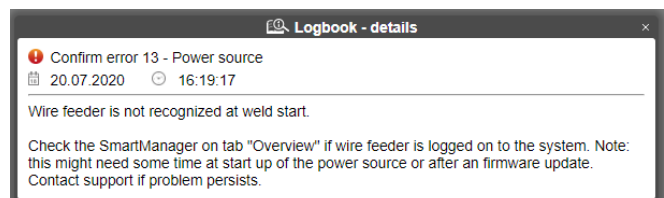
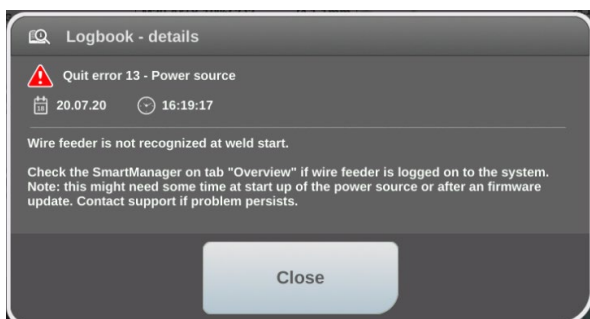
Logbook entries on the power source and on the SmartManger can now be extended by a simple click. That way all details of the entry are available at any time.



- Visualization of welding sections → Section 1: Start current phase / Section 2: Main current phase / Section 3: End current phase



- Recall logbook entries to visualize error message details



OPT/i Digital gas controller

The minimum gas flow rate setting has been extended from 0.5l/(1.06 CFH) min to "off".

With setting "off" the control valve will not be opened → no shielding gas.

CU – Flow sensor

At a coolant temperature below 10°C/50°F the lower warning limit for the minimum coolant flow rate was reduced from 0.7l/min to 0.5l/min.

Auto backup

The network file system SMB 2.02 and SMB 3.02 is now supported.

New system components are supported

TPS 320iC configurable

4,075,234	TPS 320i C /4R/FSC
4,075,234,800	TPS 320i C /4R/FSC/nc
4,075,234,830	TPS 320i C /4R/FSC/MV/nc
4,075,234,970	TPS 320i C /4R/FSC/S/nc

CU variantes

4,048,014	CU 800i
4,048,014,800	CU 800i /460V
4,048,015	CU 800i Pro
4,048,016	CU 1100i
4,048,016,800	CU 100i /460V
4,048,016,830	CU 1100i /MV
4,048,016,850	CU 1100i /MV RVP
4,048,017,633	CU 1400i Pro/MC

Wire buffer

4,001,131	Wire buffer set CMT TPS/i 8,0m
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High-Speed Touch Sensing installation kit

4,101,283,IK/CK	OPT/i TPS HighSpeed Touch Sensing OUT
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MMA/SMAW mode

The open circuit voltage has been increased to the max. open circuit voltage of the power source for better arc ignition.

Laser Hybrid

The Crossjet pressure is now visualized on the system data screen of the SmartManager.

3 CHANGES FROM V2.2.5 TO V2.3.1

Date: March 31st 2020

3.1 Software version of system components

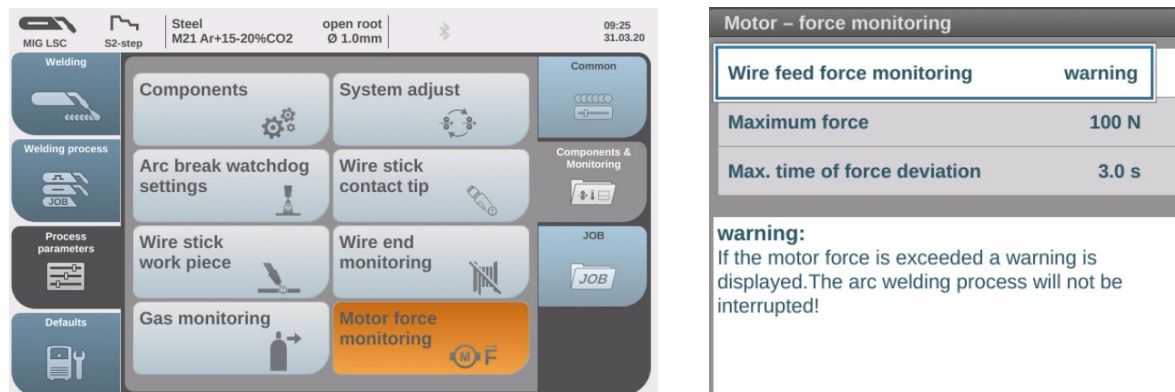
MCU	2.3.1304
Spider	3.3.20
SR63	1.642.22
iJob	3.3.0
iUpDo	1.0.6
FKS	1.3.10
PullMig	1.133.7
RC Panel Basic	1.0.72
RC Panel Standard	1.3.2
RI FB Inside/i	1.15.9
RI FB Extended interfaces	1.12.38
RobIORel	1.2.0
ROB202	1.24.0
ROB302	1.24.0
ROB502	1.44.0
iRob	2.4.1
Scrat	2.18.0
TMC	1.3.1

3.2 New functions TPS 320i – 600i

Motor force monitoring

To get feedback about the wire feeding conditions (wear of the inner liner, wire feed motor,...) it is now possible to monitor the motor force. A specific reaction can be defined if the limit is exceeded.

Note: always the process relevant motor M1 is monitored.



A limit violation with setting “warning” will be displayed in the logbook of the SmartManager. It is necessary to add the column motor force.

Documentation: Welds, Errors, Warnings, Notifications, Events

		start time (local ...													
	4	20.03.2020, 10:25:08	15.0 s	0 A	67.2 V	2.0 m/min	0.000 W	0.000 kJ	0.0 l	0.20 A	0 N		99 N		
	3	20.03.2020, 10:24:48	11.0 s	349 A	29.7 V	12.8 m/min	10426.9...	115.7 kJ	0.0 l	0.41 A	0 N		41 N		
		20.03.2020, 10:23:41	Quit error 49												
		20.03.2020, 10:23:20	Error 49												
	2	20.03.2020, 10:23:05	14.9 s	349 A	29.8 V	12.8 m/min	10440.0...	156.0 kJ	0.0 l	0.42 A	0 N		1 N		

Wi-Fi functionality

All systems, which have the certificate **4,067,101 NFC/BLE/WIFI24** factory installed, now support Wi-Fi functionality. This can be found in the “Network Setup” menu.

WPA/WPA2 Personal Key networks are supported as client.

Hint: to establish a direct connection between a PC and a power source, a hotspot must be set up. Both the PC and the power source need to be connected to this Hotspot.



Arc Gouging

The setting range for the electrode characteristic has been extended with Arc Gouging. This setting is optimized to get the best results when arc gouging.

Recommended setting for arc gouging:

Characteristic: Arc Gouging

Anti-Stick: off

TIG/MMA/SMAW Setup	
Hot start time	0.5 s
Characteristic	Arc Gouging
Antistick	off
V cut off	90.0 V
V cut off	14.0 V
Comfort Stop Sensitivity	0.8 V

Enhancements for limit monitoring

Monitoring of the submitted energy per weld seam:

Monitoring of the welding duration per weld seam:

If limit monitoring is enabled on the power source, it is now possible in the limit monitoring settings to enter a energy command value and/or a welding duration time command value.

Energy command value	150.0 kJ
Lower energy limit	-10.0 kJ
Upper energy limit	15.0 kJ
Energy monitoring	on

Welding duration command value	5.0 s
Lower welding duration limit	-1.0 s
Upper welding duration limit	1.0 s
Welding duration monitoring	off

To be able to use limit monitoring with the two new parameters it is necessary to assign one Job to a specific welding seam.

With the right setting (Error/Warning) an upper- or lower limit violation will be documented in the log book.

If the setting is at Error, the weld will be interrupted immediately if the upper level is exceeded.

MIG Standard		2-Takt		Steel		M21 Ar+15-20%CO2		universal		Ø 1.0mm		13:54		15.01.20	
Fehler	Warnung	Benachrichtigung	Logbuch	Events	Schweißungen	OK									
Nr.	time	time	time	time	time	time	time	time	time	time	time	time	time	time	time
65	15.01.20	13:45:50	22.3	110	24.4	10.5	115.0	25							
66	15.01.20	13:45:50	0.3	110	34.1	5.1	1.2	25							
67	15.01.20	13:46:49	25.1	136	23.7	8.2	99.1								
68	15.01.20	13:15:22	8.1	211	25.2	10.2	41.1	25							
69	15.01.20	13:13:40	0.7	191	25.6	8.4	3.2	25							
70	15.01.20	13:13:34	0.5	186	21.7	8.5	2.6	25							
71	15.01.20	13:09:29	3.5	213	23.8	10.2	18.3	25							
72	15.01.20	13:04:38	5.1	209	25.0	10.1	25.3	25							
73	15.01.20	13:02:25	10.0	209	24.7	10.3	51.0	25							
74	15.01.20	12:57:33	2.6	201	27.3	9.5	13.8	25							
75	15.01.20	12:57:16	0.8	0	66.3	1.8	0.000								
76	15.01.20	12:56:11	6.4	215	24.9	10.2	33.2	25							
77	15.01.20	12:52:16	8.1	214	24.0	10.4	41.7	25							
78	15.01.20	12:49:16	5.6	202	25.2	10.1	24.2	25							

Dokumentation: Schweißungen, Fehler, Warnungen	
15.01.2020 13:15:30	Fehler 47
15.01.2020 13:15:30	Fehler 51 quittieren
15.01.2020 13:15:30	Fehler 51
63 15.01.2020 13:15:22	211 A 25.2 V 10.2 m/min 5066.7 W 41.1 kJ 0.0 l 25
62 15.01.2020 13:13:40	0.7 s 191 A 25.6 V 8.4 m/min 4557.8 W 3.2 kJ 0.0 l 25
61 15.01.2020 13:13:34	0.5 s 186 A 21.7 V 8.5 m/min 4526.2 W 2.6 kJ 0.0 l 25
15.01.2020 13:13:15	Fehler 50 quittieren
15.01.2020 13:09:32	Fehler 50
15.01.2020 13:09:32	Fehler 47 quittieren
15.01.2020 13:09:32	Fehler 47
60 15.01.2020 13:09:29	213 A 23.8 V 10.2 m/min 5146.5 W 18.3 kJ 0.0 l 25
15.01.2020 13:05:43	Fehler 47 quittieren
15.01.2020 13:04:44	Fehler 47
59 15.01.2020 13:04:38	5.1 s 209 A 25.0 V 10.1 m/min 5082.2 W 25.3 kJ 0.0 l 25
15.01.2020 13:02:25	Fehler 48 quittieren
15.01.2020 13:02:25	Fehler 48
58 15.01.2020 13:02:25	10.0 s 209 A 24.7 V 10.3 m/min 5072.4 W 51.0 kJ 0.0 l 25
15.01.2020 12:58:54	Fehler 50 quittieren

The limit monitoring is only possible in Job Mode.

If one welding seam contains two or more Jobs and a specific weld sequence, the energy value and welding duration of the previous Job has to added to the following Jobs. The total duration and energy must be the value for the last Job being welded.

Extension of Job names to 30 characters

The Job name was limited in length to 20 characters only – this has been extended to 30 characters.

3.3 New functions RI FB Insid/i

Interface signal description overview online available

<https://manuals.fronius.com/html/4204260227/en-US.html#Cover>

“System Not Ready” Bit (Digital Output)

Bit 39 “System Not Ready” only turns only LOW if all error messages are acknowledged. If the bit remains with status HIGH an error message is present at the system and the power source is not ready to weld.

The bit refers to system failures that prevent the arc welding process from starting. (e.g. Robot not Ready is no error message of the welding system, therefore the bit “System Not Ready” is LOW)

Status information:

System is ready to weld → Status Bit LOW

System is not ready to weld → Status Bit HIGH

Defined length for wire forward / backward (Analogue Input)

WORD 15 / Byte 30 and 31 / Bits 240-255 defines a specific wire length being fed forward or backward when wire forward (Bit 9) or wire backward (Bit 10) is activated.

Unit: mm

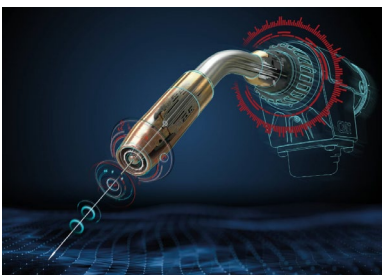
The value must be minimum 10mm and max. 10.000mm and can be changed in steps of 10mm.

Example: if a value of 250mm is set and “Wire backward” (Bit 10) is activated, the wire will be fed backwards for a distance of 250mm.

Bit 7 (Touch) will turn HIGH as soon as this distance is achieved.

If “wire forward” (Bit 9) is used and the wire is touching the work piece prior of achieving the set distance, Bit 5 (STF/Touch) will turn HIGH

WireSense



WireSense uses the wire electrode as sensor and delivers a corresponding signal to the robot by precisely scanning the component in advance of performing the weld.

To use the function WireSense the OPT/i WireSense 4,067,020 must be activated at the power source and the system must be CMT-Ready on the hardware site.

Input signals:

“WireSense start” (Bit 5) – activate the WireSense routine and the wire will be moved forward and backward with a frequency of 100Hz

“WireSense break” (Bit6) – this bit can only be high if Bit 5 “WireSense start” is HIGH. “WireSense break” stops the wire movement and the actual distance value will be stored.

“WireSense edge detection” (WORD 16 / Byte 32 / Bit 256-271) – transmits the edge height in the range between 0,5 – 20mm

If this value is exceeded when WireSense is active, Bit 7 (Touch) will get HIGH and the real measured value of the height will be transmitted via WORD 16 “Wire position”.

The function edge detection is not working if a value lower than 0,5mm is transmitted.

Output signals:

“Wire position” (WORD 16 / Byte 32 und 33 / Bit 256-271) – transmits the wire position in mm.

Depending on the change in the length of the free wire electrode between contact tip and work piece, the value is transferred.

If the input “WireSense edge detection” is active, the value will only be transmitted if the set edge height is achieved.

The signal “Wire position” will be as well transmitted when using “TeachMode”

3.4 New functions RI FB Extended Interfaces

Higher sampling rate

For all Extended Interfaced the sampling rate for the following signals has been increased.

- Welding voltage
- Welding current
- Wire feed speed
- Seam tracking value

If the robot's bus cycle time is 20ms or greater, these signals will be transmitted using the robot's set sampling rate. If the robot's bus cycle time is lower than 20ms, these signals will be set at the Fronius Interface's bus speed of 20ms and be deterministic.

3.5 WeldCube Premium

The WeldCube Premium software has to be updated to minimum Version V2.5.97 if the systems is connected to a WeldCube Premium.

To get the full functionality with the TPS/i an update to V2.8 is recommended.

3.6 Fixed bugs

Display of available Welding packages

After turning the power source Off/ON all Welding Packages were displayed as available though they were not enabled. This caused confusion.

This bug was fixed.

WF Reel Stand Alone

Specific error messages were not defined within the WF Reel Stand Alone version. If such an error occurred the wire feed motor kept feeding wire constantly.

This bug was fixed – if a non-defined error message should occur the wire feed motor will stop immediately.

4 CHANGES FROM V2.2.3 TO V2.2.5

Date: Dec. 16th 2019

4.1 Fixed bugs

SmartManager

When exporting the Job data's from the SmartManager into a PDF or Excel document, the common values for current and voltage were incorrectly determined in relevance to the set wire feed speed.

This bug has been fixed.

5 CHANGES FROM V2.1.0 TO V2.2.3

Date: Oct. 21st 2019

5.1 Software version of system components

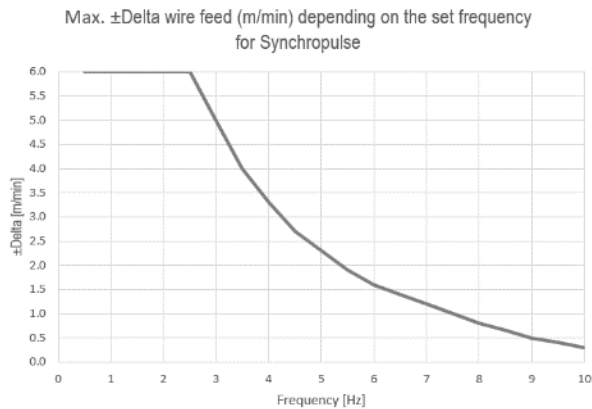
MCU	2.2.1243
Spider	3.2.42
SR63	1.623.9
iJob	3.3.0
iUpDo	1.0.6
FKS	1.2.4
PullMig	1.124.0
RC Panel Basic	1.0.72
RC Panel Standard	1.0.36
RI FB Inside/i	1.14.5
RI FB Extend interfaces	1.11.25
RobIORel	1.2.0
ROB202	1.21.0
ROB302	1.21.0
ROB502	1.41.0
iRob	2.3.2
Scrat	2.17.0
TMC	1.2.0

5.2 New functions TPS 320i – 600i

Synchropulse 10Hz

The frequency range for Synchropulse has been extended from 3Hz to 10Hz. This is available as standard feature. The power source, and wire feeder, automatically adjusts the maximum possible delta wire feed speed for the frequency range according to the table below, even if a higher delta wire feed speed is set.

Synchropulse	
Synchropulse enable	on
Wire Feed Speed	7.1 m/min
Delta wire feed	6.0 m/min
Frequency	10.0 Hz
Duty cycle	50 %
Arc length correction high	0.0
Arc length correction low	0.0



Even if a higher delta wire feed speed is set, the frequency range in the table takes priority. The true Delta wire feed value will not be displayed in the setting menu.

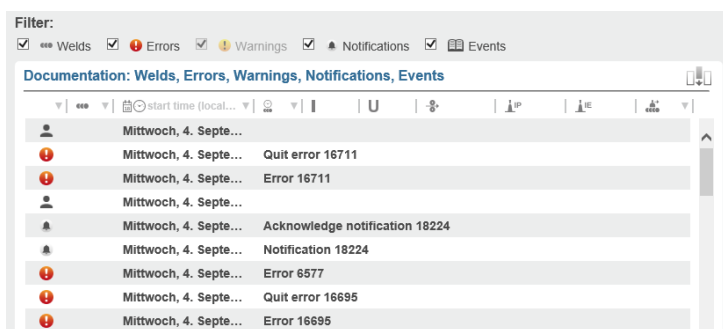
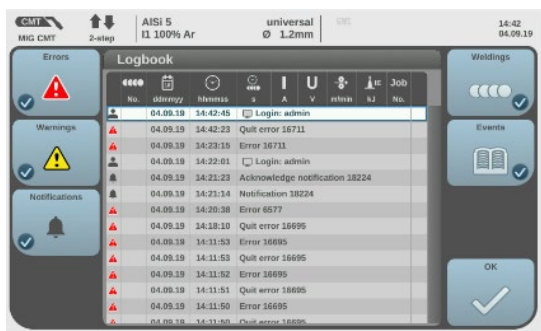
Improvement error statistics

In order to simplify the evaluation of the error messages present in the system, they will now be subdivided into 3 categories.

- Errors – Message will be displayed immediately and the welding process is interrupted.
- Warnings – Message will be displayed if a defined warning level is reached, the welding process is not interrupted.
- Notifications – will be displayed if triggered by adjustable limits (e.g. wire end sensor). Those are no errors or warnings which would affect the functionality of the welding system.

* Due to different influencing factors some error numbers can have a different reaction than the once stated above

It is possible to filter the messages in the SmartManager and power source according to the three different categories.

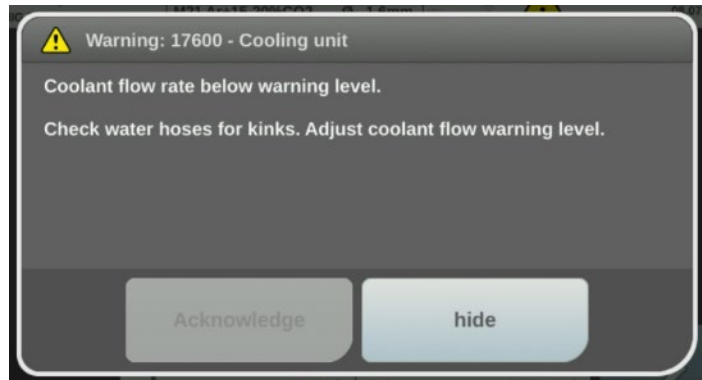
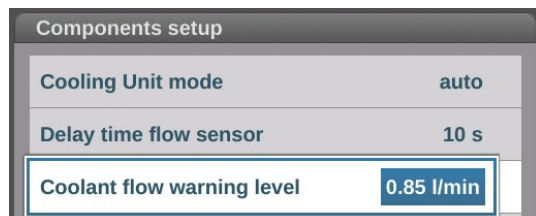


Adjustable limit value for coolant flow

A warning level for the coolant flow rate can now be entered in the components setup.

Setting range: Off; 0,75 – 0,95l/min

Factory setting: Off



With factory setting “off” a warning message will pop up if the coolant flow rate is lower than 0,7l/min.

The welding process is interrupted in this case, the pump will still pump coolant through the water circuit.

Trial License

Power sources, which have Firmware V2.2.1 factory installed, can now take advantage of the Trial License feature.

5.3 New functions RI FB Inside/i

Job correction

The Job correction values for welding power and arc length correction can now be changed within the predefined limits set in the Job. The signals “wire feed speed command value” and “Arc length correction” are used by the controller to modify both values. These signal functions in a value/setting range from -32768 to +32768 and can be entered directly as number. If the entered value is outside the range, the “Correction Out of Range” bit will appear. Each value will have a division factor (Factor) that will show the scale of the interface value to the set value.

The Job correction for welding power is specified as percentage:

Factor: 100

Data type: SINT

Example: +15% set value = 1500 interface value

The Job correction for arc length is specified as absolute value:

.....

Factor: 10

Data type: SINT

Example: +2 set value = 20 interface value

Process visualization CMT

If the welding process CMT is selected, the interface will transmit the value 8 via "Process mode"

5.4 New functions RI IO Pro/i







Job correction

The Job correction values for welding power and arc length correction can now be changed within the predefined limits set in the Job. The signals "wire feed speed command value" and "Arc length correction" are used by the controller to modify both values. Each signal requires a 0 – 10V analogue value from the controller. 0V always corresponds to the set minimum value, 10V to the set maximum value and 5V always corresponds to the value 0

5.5 Fixed bugs

User management with front panel standard and RC Panel Standard

Under most circumstances, the power source's user management system would prevent welding processes from being changed when activated. However, when an Standard front panel was mounted on the wire feeder or an RC panel was connected to the welding system, the welding process could be changed regardless of the user management system. To prevent this, a new setting was created in the user management system.

Edit role: "Maintenance"	
Rolename:	Maintenance
Auto log out time:	off
Enable welding	disabled
RC/WF Standard - full control	disabled
Save as Job	
Jobs	
Optimize Job	
Correction limits	
Pre-settings for store Jobs	
Welding process	

„Setting RC/WF Standard – full control → disabled“

This feature blocks the ability to change the process from either the WF panel or the RC panel. With this disabled, the process can only be changed through the MCU when the proper user role has been selected.

PMC-Twin process

For TWIN systems, the PMC process could not be selected even when the TWIN Controller was connected. This problem has been solved.

6 CHANGES FROM V2.0.2 TO V2.1.0

Date: May 23rd 2019

6.1 Software version of system components

MCU	2.2.1179
Spider	3.1.43
SR63	1.606.5
iJob	3.3.0
iUpDo	1.0.6
FKS	1.0.92
PullMig	1.116.0
RC Panel Basic	1.0.72
RC Panel Standard	1.0.35
RI FB Inside/i	1.13.5
RI FB Extend interfaces	1.10.14
RobIORel	1.2.0
ROB202	1.18.0
ROB302	1.21.0
ROB502	1.39.0
iRob	2.2.1
Scrat	2.17.0
TMC	1.1.9

6.2 New functions TPS 270iC and 320i C

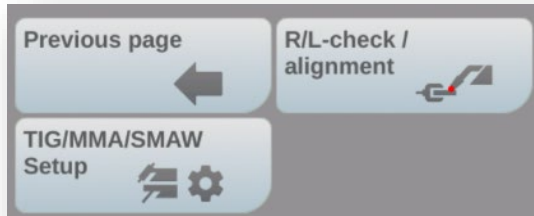
TIG U/D control with TMC

TIG torches with TMC U/D functionality are supported if OPT/i TPS C TIG TMC (4,100,907,IK/CK) is built in in the compact power source.

6.3 New functions TPS 320i – 600i

New icons

For better identification, various MCU setting icons have been added or changed.



Data interfaces – API (Application Programming Interface)

There are now 2 standardized protocols available to choose from.



Open Platform Communications – Unified Architecture

OPT/i OPC-UA 4,067,023

Supported functions:

Provide live data for adoptions into other systems

Ability to transfer data from other systems

Defined amount of data

Read & write



Message Queuing Telemetry Transport

OPT/i MQTT 4,067,024

Supported functions:

Provide live data for adoptions into other systems

Defined amount of data

Read only

Both API's have to be configured on the SmartManager in the power source settings.

The screenshot shows the 'MQTT settings' tab in the SmartManager interface. It includes a checkbox for enabling MQTT, a 'Broker' text field, a 'Port' field with the value '1883', and a 'Device topic' field with the value '00001207'. Below these is a 'Security' section with fields for 'CA certificate', 'Client certificate', and 'Client private key', each with a 'Durchsuchen...' (Browse...) button.

Picture: MQTT

The screenshot shows the 'OPC-UA settings' tab in the SmartManager interface. It includes a checkbox for enabling the OPC-UA server, a 'Security policy' dropdown menu set to 'Basic128Rsa15', and fields for 'Server certificate' and 'Server private key', each with a 'Durchsuchen...' (Browse...) button.

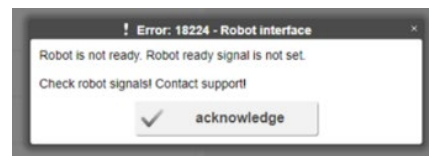
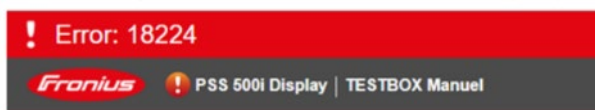
Picture: OPC-UA

WeldConnect-App – Connect mobile devices (Smart-phones, tables, etc.) with the power source

Mobile devices can be individually assigned to a defined user in the user management of the power source. This makes it possible to establish a direct connection to the power source via the WeldConnect app.



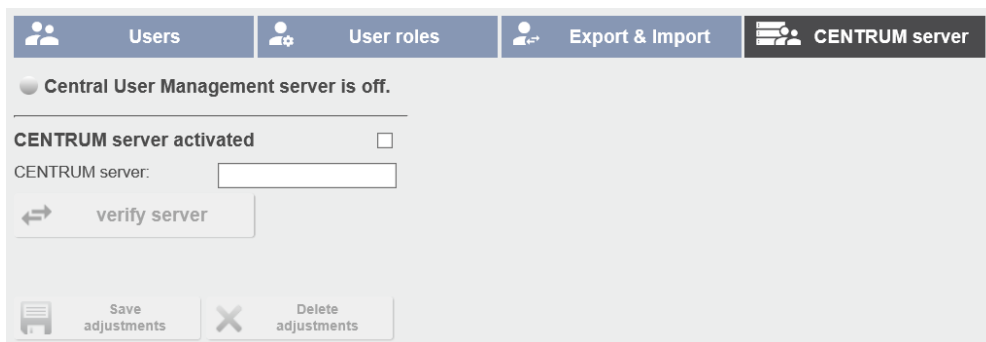
Display error messages on the SmartManager



A click on the red status bar will open an info window for the current error message.

Central User Management

The connection to the Central User Management is supported. Settings for connecting to the Central User Management Server can be made on the power source or on the SmartManager.



Torch LED



By briefly pressing the torch trigger, the LED will now light up for 60 sec.

The LED can be switched off by pressing the trigger again.

At welding start, the LED switches off automatically.

Error messages

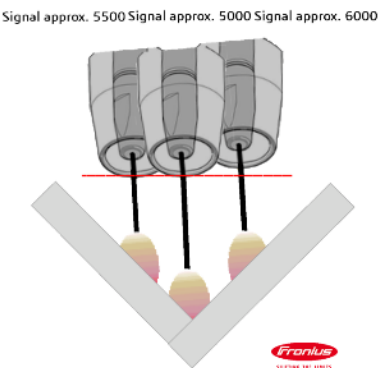
The displayed texts for error messages have been updated for better understandability.

Touch sensing sensitivity

Improvements on setting 0 implemented.

Seam tracking

The output signal “Actual real value for seam tracking” was improved. The value is now independent of the filler metal, wire diameter or welding process. The signal can be used for the welding processes Standard (CV), Pulse, PMC, CMT and PMC TWIN.



Signal visualization on the SmartManager

For better state recognition, the current status of the signal will now display 0 or 1 respectively.

OUT

Bitpo...	Signalname	Wert	Daten...
0	Heartbeat powersource	0	BOOL
1	Power source ready	1	BOOL
3	Process activ	0	BOOL

6.4 New functions RI IO Pro/i

Limit signal

The limit signal can now be configured to the configurable outputs. When limit monitoring is activated, a signal is sent to the controller if the limit is exceeded.

▼ Outputs:

Connector pin	Actual setting	Change setting to	Factory setting
X1/12 Digital	Arc stable	Arc stable	Arc stable
X3/16 Digital	Current flow	Current flow	Current flow
X6/10 Digital	Limitsignal	Limitsignal	Limitsignal
X3/7+,X3/14- Analog	Motor current M1	not used	Motor current M1
X7/3+,X7/11- Analog	not used	Limitsignal	not used
		Torch body gripped	

6.5 New functions RI FB Inside/i

Safety status

Two new output bits have been implemented in the standard signal range which transmit the status of the safety circuit to the robot.

Safety-Status Bit 0

Safety-Status Bit 1

Status definition:

0 0 Self-test

0 1 Halt

1 0 Stop

1 1 Active / Not available

6.6 TWIN functionality for TPS/i

This release implements all functionalities required to operate Push-TWIN systems with the TPS/i platform.

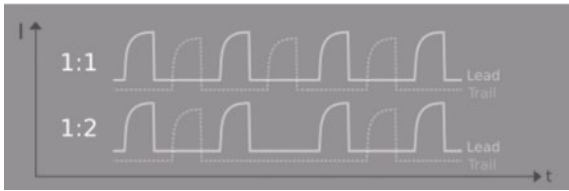
With TWIN systems the menu “TWIN process control” will be available in the process parameters.

This includes the following settings:



TWIN Process control	
Wire Feed Speed	10.0 m/min
Arclength correction	0.0
Pulse/dynamic correction	0.0
Penetration stabilizer	0.0 m/min
Arc length stabilizer	0.3
Pulse Synchronization Ratio	auto
Phase shift Lead/Trail	auto
Ignition delay Trail	auto

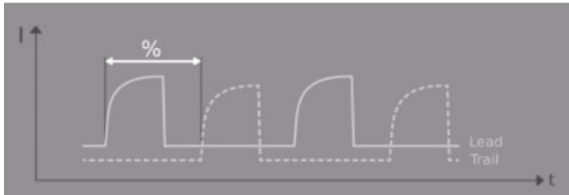
Below are three new functions with the following parameters:



Pulse Synchronization Ratio

Setting range: Auto; 1:1; 1:2; 1:3

Default setting: Auto



Phase shift Lead/Trail

Setting range: Auto; 0 – 95%

Default setting: Auto



Ignition delay Trail

Setting range: OFF; Auto; 0,00 – 2,00 sec

Default setting: Auto

For all three functions, the optimum parameters are stored in the TWIN-Synergic line characteristic with factory setting “Auto”.

This functions allow:

- / Large wire feed speed differences between Lead- and Trail arc
- / The choice of any time offset between the droplet detachment of Lead- and Trail arc
- / A synchronized Arc-start sequence

If needed, all parameters are individual adjustable.

With the expansion of the process variant PMC to tandem processes, the stabilizer for TPS/i TWIN Push are also available.

7 CHANGES FROM V2.0.1 TO V2.0.2

Date: March 18th 2019

7.1 Software version of system components

MCU	2.1.1110
Spider	3.0.16
SR63	1.569.12
iJob	3.3.0
iUpDo	1.0.6
FKS	1.0.89
PullMig	1.101.6
RC Panel Basic	1.0.72
RC Panel Standard	1.0.35
RI FB Inside/i	1.13.1
RI FB Extend interfaces	1.9.3
RobIORel	1.2.0
ROB202	1.16.0
ROB302	1.19.0
ROB502	1.36.0
iRob	1.5.3
Scrat	2.17.0
TMC	1.1.9

7.2 New functions TPS 320i - 600i

The DB/i Steel Edition 4,069,050 is supported.

7.3 Fixed bugs

Low coolant flow with CU 1400i and CU 2000i

The firmware V2.0.1 causes a reduced flow rate of the coolant in combination with a CU 1400i/2000i.

This lead to error messages of the flow sensor.

This bug has been fixed.

8 CHANGES FROM V1.9.0 TO V2.0.1

Date: Jan. 21st 2019

8.1 Software version of system components












MCU	2.1.1109
Spider	3.0.16
SR63	1.569.12
iJob	3.3.0
iUpDo	1.0.6
FKS	1.0.87
PullMig	1.101.6
RC Panel Basic	1.0.72
RC Panel Standard	1.0.35
RI FB Inside/i	1.12.19
RI FB Extend interfaces	1.9.3
RobIORel	1.2.0
ROB202	1.16.0
ROB302	1.19.0
ROB502	1.36.0
iRob	1.5.3
Scrat	2.17.0
TMC	1.1.9










8.2 New functions TPS 320i - 600i

Documentation of gas consumption on display and SmartManager

The total gas consumption is documented if either **OPT/i WF gas flow sensor** or **OPT/i gas controller** are installed in the system.

The total consumption is displayed as a sum value in the system data screen

System-Daten			
	0.000 kW		0.000 kJ
	--- A		--- A
	--- A		
	--- l/min		--- °C
	--- l/min		36740 l
	26.2 h		13374.1 h

	171 A		19.7 V		7.5 m/min
	0.0		0.0		0.000 kW
	0.0		0.0 m/min		0.000 kJ
	0.22 A		0.34 A		
	0.00 l/min		0.0 l/min		36740 l
	24.0 °C		854.5 h		8074.6 h

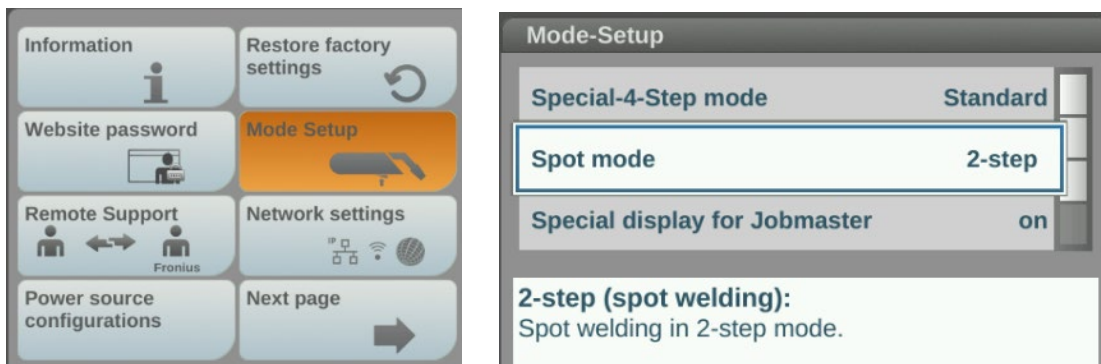
The documentation logbook on the SmarManager will show the gas consumption per welding seam

Documentation: Welds, Errors, Events

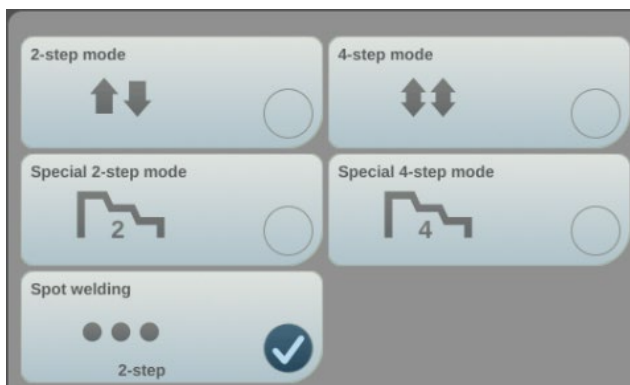
▼	☰ ▼	📅 start time (local ti...	▼	👤 ▼	I	U	🔌	📏	📏	📏	📏	▼
☰	70	Montag, 21. Jänner 2...	2.6 s		139 A	15.9 V	5.2 m/min	0.0 cm/min	2647.0 W	7.1 kJ	0.7 l	
☰	69	Montag, 21. Jänner 2...	7.6 s		145 A	15.4 V	6.2 m/min	0.0 cm/min	2640.5 W	20.4 kJ	1.9 l	
☰	68	Montag, 21. Jänner 2...	3.4 s		152 A	15.2 V	5.9 m/min	0.0 cm/min	2803.4 W	9.7 kJ	0.9 l	
☰	67	Montag, 21. Jänner 2...	3.3 s		150 A	15.6 V	6.1 m/min	0.0 cm/min	2829.2 W	9.6 kJ	0.8 l	

New trigger mode for spot welding

The trigger mode for spot welding can now be changed from the known 4-step mode to a 2-step mode. For critical welding applications, which are welded in spot mode, the weld can now be stopped at any time from the welder.



The actual setting for the spot welding trigger mode is as well visible in the trigger mode setting.

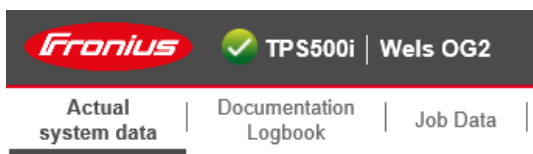


Network settings

The network settings are immediately active when set or changed. It is not necessary to cycle the system anymore.

SmartManager

The power source name is now visible on the status bar



Bluetooth LE available



All systems, which have the certificate **4,067,101 NFC/BLE/WIFI24 Inside** factory installed, support now the following Bluetooth LE remote controls.



4,046,111 RC Panel Basic /BT – Supports power and arc length correction



4,046,112 RC Pedal TIG /BT – Supports the power setting in MMA/Stick (electrode) mode.

8.3 Fixed bugs

TPS 400i LSC Advanced

The power source loses after cycling the power all installed Welding Packages – this bug has been fixed.

9 CHANGES FROM V1.8.6 TO V1.9.0

Date: Oct. 31st 2018

9.1 Software version of system components

MCU	2.0.1028
Spider	2.6.162
SR63	1.536.4
iJob	3.2.1
iUpDo	1.0.6
FKS	1.0.81
PullMig	1.94.1
RC Panel Basic	1.0.72
RC Panel Standard	1.0.33
RI FB Inside/i	1.12.19
RI FB Yaskawa WeldCom 2.0	1.8.19
RobIORel	1.1.0
ROB202	1.16.0
ROB302	1.18.0
ROB502	1.27.0
iRob	1.5.3

9.2 New functions TPS 320i - 600i

New option: OPT/i CMT Cycle Step (4,067,012)

With OPT/i CMT Cycle Step it is possible to use the Cycle Step process for all CMT synergic lines.

Attention: WP CMT necessary! (4,066,016)



Settings for Cycle Step:

Cycles: 1 – 2000

The number of welding drops (CMT-cycles) for one welding spot. In combination with the wire feed speed it defines the size of the welding spot.

Interval break time: 0,01 – 2 sec
The interval break time is the time between each welding spot. A higher time allows the welding spot to cool down longer, the more defined is the seam appearance (ripples).

Interval cycles: Permanent/ 1 – 2000
The number of repetitions of the CMT-cycles (incl. break time) till weld stop. If setting is on permanent the repetitions are ongoing until Arc Off (weld stop).

Logbook enhancements

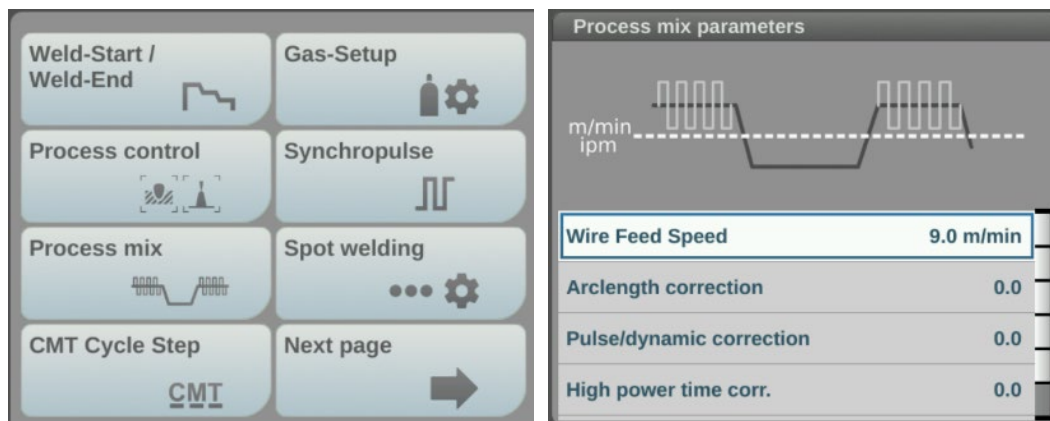
The login/logoff of users is now documented in the logbook under Events. Users who log on via SmartManager are also listed. An extra filter for Error log was implemented.

No.	ddmmyy	hhmmss	s	A	V	m/min	kJ	No.
31.10.18	15:22:36							Logout: welder2
31.10.18	15:22:33							Login: welder2
31.10.18	15:22:29							Login: admin
31.10.18	15:22:25							Login: welder2
31.10.18	15:22:22							Logout: admin
31.10.18	15:22:19							Login: admin
31.10.18	15:22:15							Logout: welder1
31.10.18	15:22:11							Login: welder1
31.10.18	15:22:08							Login: admin
31.10.18	15:22:03							Login: welder1
31.10.18	15:21:59							Login: admin
31.10.18	15:21:50							Login: welder2
31.10.18	15:10:54							Login: admin
31.10.18	08:02:34							Login: admin

No.	ddmmyy	hhmmss	s	A	V	m/min	kJ	No.
19.07.12	20:57:15							Quit error 13
19.07.12	20:57:13							Error 13

Symbols

New symbols were added for the process parameters.



Enhancement for Spot welding

Start- and End current conditions are now active in spot welding mode if a time is set for Weld-start/Weld-end.

Attention: if the End-current time is set, the spot welding time will not end with the set spot welding time. The set End-current time will be added to the spot welding time.

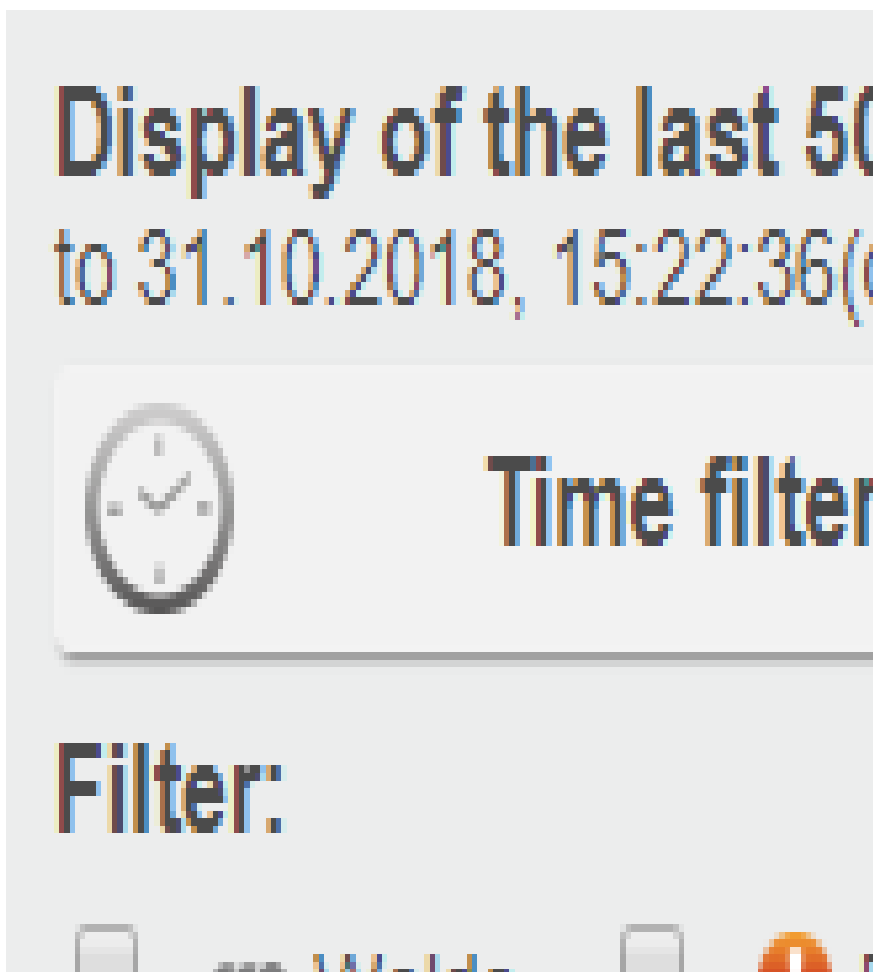
Unique Firmware ID

The Firmware has now a unique 5 digit ID added. This allows to identify the installed Firmware.
Example: V1.9.0-17349.**10743**

SmartManager

Logbook enhancements

The logbook entry's can now be filtered for Welds / Errors / Events
Events are Logins and Logouts of users on the SmartManager as well as on the power source.



9.3 Fixed bugs

SpeedNet Improvements

The system stability could be increased due optimizations on the SpeedNet communication.

10CHANGES FROM V1.8.5 TO V1.8.6

Date: May 28th 2018

10.1 Fixed bugs

Wire feeder is not detected

In case of wire feeder exchange with installed firmware V1.8.5, the feeder (WFxx or SBxx) couldn't be identified in the system. This bug has been fixed

11CHANGES FROM V1.8.4 TO V1.8.5

Date: May 15th 2018

11.1 Software version of system components

MCU	1.7.805
Spider	2.6.146
SR63	1.515.8
iJob	3.2.1
iUpDo	1.0.6
FKS	1.0.72
PullMig	1.83.4
RC Panel Basic	1.0.70
RC Panel Standard	1.0.31
RI FB Inside/i	1.11.6
RI FB Yaskawa WeldCom 2.0	1.7.5
RobIORel	1.1.0
ROB202	1.13.0
ROB302	1.15.0
ROB502	1.22.0
iRob	1.5.2

11.2 New functions TPS 320i - 600i

Information screen: serial number

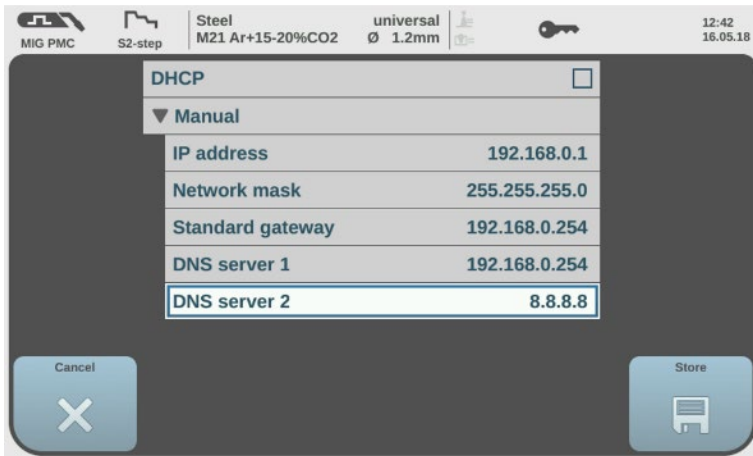
The information screen includes now the serial number of the power source.



DNS Server configuration with static IP-address

For static IP configuration the DNS Server information can be configured as well.

Many features in networking are using the name resolution with DNS.



New add on for Date & Time setting: NTP-Server

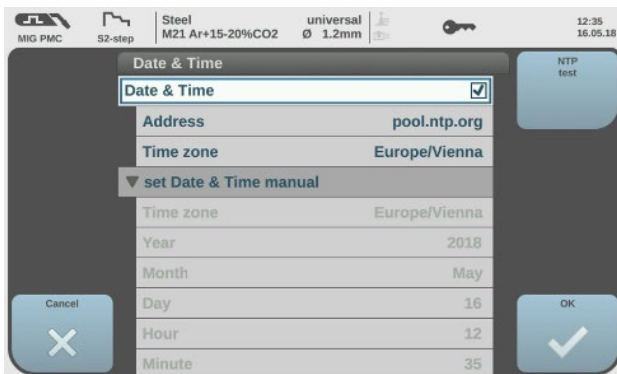
Time and date can be now be configured via NTP (Network Time Protocol).

Therefore the TPS/i is asking the current time from an NTP Server in the local network (ask your IT Administrator for the Address) or Internet (for example: **pool.ntp.org**).

Also the time zone must be set according to the location of the TPS/i.

Afterwards the local time is synchronised with the time displayed on the TPS/i.

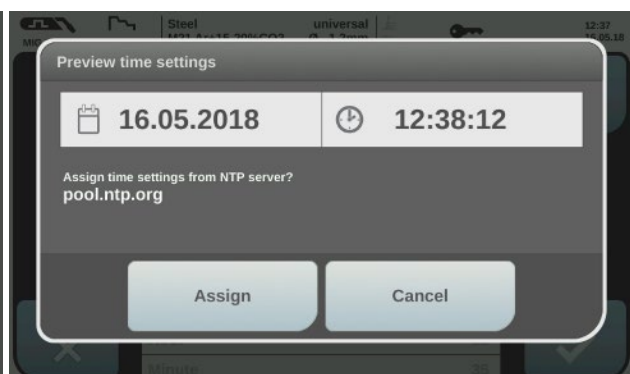
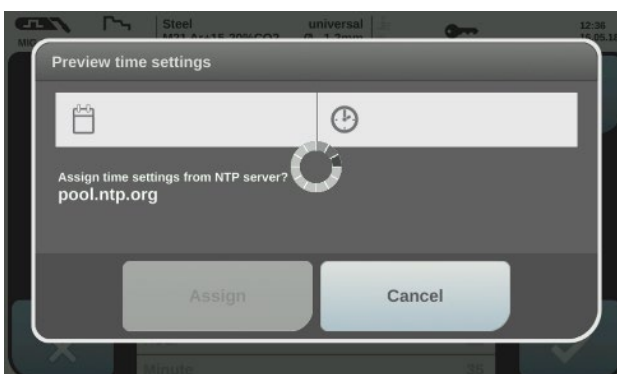
For the service, a DNS server must be reachable and configured, if IP configuration is made manually.



The Synchronisation can also be manually triggered using the "NTP test" button

This synchronizes time from the NTP-Server to the time on the TPS/i

If the NTP-server is configured, the time is as well synchronized when turning the power source ON



Set Date & Time

If the power source is not used for a longer period of time it is possible that the system loses its time settings. In this case an information screen will pop up to set again Date & Time



WebJob Editor

The WebJob Editor (4,067,002) was optimized to fit the user interface of KUKA, Kawasaki and Comau teach panels.

TMC

OPT/i WF TMC connector is supported.

Smart Manager

The robot travel speed is now part of the documentation overview and the CSV-Export file.

The robot travel speed has to be transmitted through the robot interface.

Documentation: welds										
		Startzeit (Ortszeit)			U		V	IP	IE	
117	Freitag, 4. Mai 2018...	3.0 s	135 A	26.9 V	4.9 m/min	31.2 cm/min	3918.8 W	11.8 kJ		
116	Freitag, 4. Mai 2018...	31.2 s	276 A	29.3 V	9.9 m/min	31.2 cm/min	8535.9 W	266.5 kJ		

11.3 New functions RI FB Inside/i

Robot travel speed

The robot travel speed can now be transmitted in cm/min in the standard process image.

(Word 9 / Byte 8-19 / Bit 144-159)

11.4 WeldCube

This Firmware supports the WeldCube Release 2.0 - Software On Premises

11.5 Arc technology

Improvements Synchropulse

An improvement on Synchropulse got implemented on all PMC synergic lines an all Pulse Aluminum synergic lines. This improvement in only relevant in the low power range (<2m/min) of the synergic line and supports the arc stability.

Improvements SFI ignition

The SFI ignition was optimized on all PMC syneric lines.

11.6 Fixed bugs

Error IP on Compact power sources

In some cases it could happen that the Compact power source displayed Error IP during welding. This bug was fixed.

Adaptions in the Special-2 Step start time handling implemented.

12CHANGES FROM V1.8.2 TO V1.8.4

Date: March 16th 2018

Interim release which contains minor bug fixes.

Downgrade-Lock!

Important information! A Downgrade lock has been implemented in this software.

Due compatibility reasons it is not possible to downgrade to a lower software version anymore.

13CHANGES FROM V1.8.1 TO V1.8.2

Date: December 21th 2017

13.1 Software version of system components

MCU	1.7.744
Spider	2.6.131
SR63	1.457.18
iJob	3.0.1
iUpDo	1.0.6
FKS	1.0.71
PullMig	1.62.7
RC Panel Basic	1.0.70
RC Panel Standard	1.0.31
RI FB Inside/i	1.9.12
RI FB Yaskawa WeldCom 2.0	1.5.22
RobIORel	1.1.0
ROB202	1.13.0
ROB302	1.15.0
ROB502	1.22.0
iRob	1.5.0

13.2 New functions TPS 270i C

Trigger mode: Spot welding

Selecting MODE on the trigger selection now offers the spot welding function. The spot welding time can be adjusted in the Setup-Menu.



MAC-Address

The MAC address of the optional Ethernet Port is now displayed when accessing the information about Software Version of the system.

13.3 New functions TPS 320i - 600i

Arc length and penetration stabilizer active

The status bar now displays if the stabilizers are active in the individual welding process.



LSC – penetration stabilizer active



PMC – penetration and arc length stabilizer active

A symbol displayed in gray indicates that the respective function is available but not used for the current welding task.



Penetration stabilizer active, arc length stabilizer available but not used

Trigger mode: Spot welding

Spot welding is now included in the trigger mode setup menu.

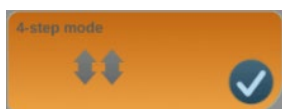
The spot welding time can be adjusted in the section process parameters.

Setting range: 0,1 – 10 sec.

Default setting: 1 sec.



Start / End current time active on 4-step mode



This feature prevents being in the Start or End current phase for an undefined time.

A set **Start current time** ends latest the start current. The start current is not active anymore if the trigger is released prior the set time.

A set **End current time** stops the weld even if the trigger is still pressed. Releasing the trigger within the set time will stop the weld immediately.

Edit Job online

The Job, which is active on the main window, will be immediately loaded for editing if the button „Job number online“ is selected.

For robotic applications in Job mode, the Job number automatically changes with the robot Job number call of the robot. All job changes are taken over immediately and are directly active.



Enable / disable wire feeder potentiometer



The potentiometers on the wire feeder can now be enabled or disabled on the power source.

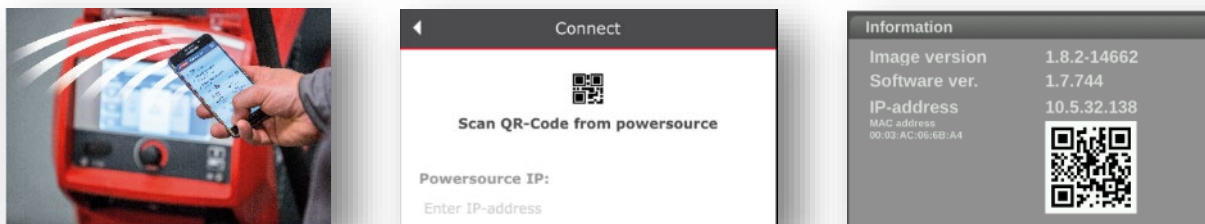


MAC – Address

The MAC address of the power source service port will now be displayed when the power source information is requested. This now facilitates the clear identification of the power source in the network.

QR-Code of the IP-Address

In order to connect to the power source with the WeldConnect app, the IP address of the power source is now displayed as a QR code. This can be read directly from the app.



Monitoring gas flow

Required option: OPT/i gas flow sensor

With the gas monitoring function, a lower gas flow limit can be defined. If the gas flow is below this limit for a defined time, an immediate error message occurs and the welding is stopped.

Setting range gas flow: 0,5 – 30 l/min

Setting range time: off, 0,1 – 10 sec.

Default Setting: 7 l/min / 2 sec.



SmartManager

User Management

Users and user roles can now be created in the User management tab. This allows easy and fast editing of different roles and users. With the help of an external NFC reader, the corresponding data of the NFC card can also be stored.

Create a new user

User name:

User role:

administrator

First name:

Last name:

Language:

English

Unit:

Metric

Standard:

EN

NFC card:

Web password:

✓

Ok

✕

Cancel

Create a new user role

Rolename

Copy values from:

administrator

✓

Ok

✕

Cancel

Following user roles are stored in the welding system

User role

administrator

locked

Welder

Putzer

Welder

Parameter

Setting

change setting to

Parameter	Setting	change setting to
Auto log out time	off	off
Enable welding	✓ enabled	✓ enabled
Save as Job	✎ read-write	✎ read write
Jobs	✎ read-write	✎ read-write
Welding process	✎ read-write	✎ read-write
Process parameters	✎ read-write	✎ read write
Defaults	🔒 hidden	🔒 hidden
Webpage	🔒 hidden	🔒 hidden

Save adjustments

✕ Delete adjustments

Save as

🗑 Delete user role

13.4 Fixed Bugs

Job Mode

It could happen that Jobs which were edited or newly created via the SmartManager (WebBrowser) could not be selected at the power source or the corresponding job number does not contain any job data. This bug has been fixed.

License Key

The new generation of the TPS/i License Keys are now recognized.

14CHANGES FROM V1.8.0 TO V1.8.1

Date: October 13th 2017

14.1 Software version of system components

MCU	1.5.706
Spider	2.6.105
SR63	1.457.5
iJob	3.0.1
iUpDo	1.0.6
FKS	1.0.65
PullMig	1.62.2
RC Panel Basic	1.0.70
RC Panel Standard	1.0.28
RI FB Inside/i	1.9.8
RI FB Yaskawa WeldCom 2.0	1.5.15
RobIOrel	1.1.0
ROB202	1.5.4
ROB302	1.6.21
ROB502	1.11.52
iRob	1.5.0

14.2 Fixed Bugs RC Panel Pro

NFC function

The NFC function was not active. The NFC Key Card and the NFC Key Fob can now be used with the RC Panel Pro.

15CHANGES FROM V1.7.4 TO V1.8.0

Date: September 22nd 2017

15.1 Software version of system components

MCU	1.5.706
Spider	2.6.105
SR63	1.457.5
iJob	3.0.1
iUpDo	1.0.6
FKS	1.0.65
PullMig	1.62.2
RC Panel Basic	1.0.70
RC Panel Standard	1.0.28
RI FB Inside/i	1.9.8
RI FB Yaskawa WeldCom 2.0	1.5.15
RobIORel	1.1.0
ROB202	1.5.4
ROB302	1.6.21
ROB502	1.11.52
iRob	1.5.0

15.2 New functions TPS 270i C

Readout enhancement

Error texts have been added, the complete text can be recalled by pushing the left rotary push button.



If the text of the filler material is too long, it is abbreviated by „...“. To show the complete text use the left rotary push button.



New language

Serbian has been added

15.3 New functions TPS 320i - 600i

User management

Via user management it is now possible to limit access to different functions of the user interface and the SmartManager.

The user, which is currently registered on the power source, is visible in the status line.



Display administrator

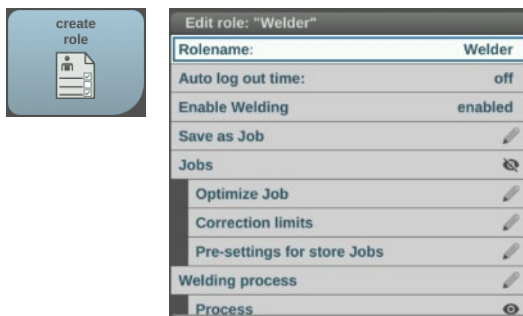
Display welder

Note: To enable active use of the user management, it is necessary to define at least one administrator card!

Creating an administrator card:

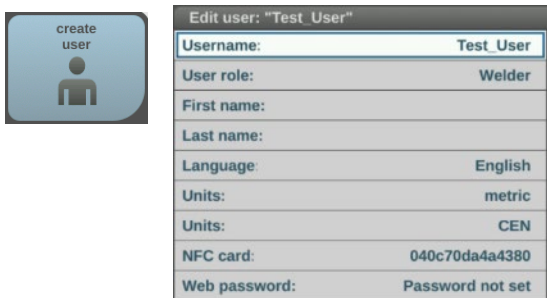


Creating roles:



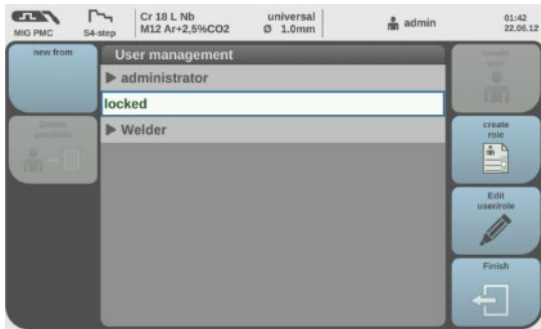
The tab „create role“ enables the setting of the access level.

Creating users:



The tab „create user“ enables the adjustment of settings depending on the NFC card.

Profile „Locked“

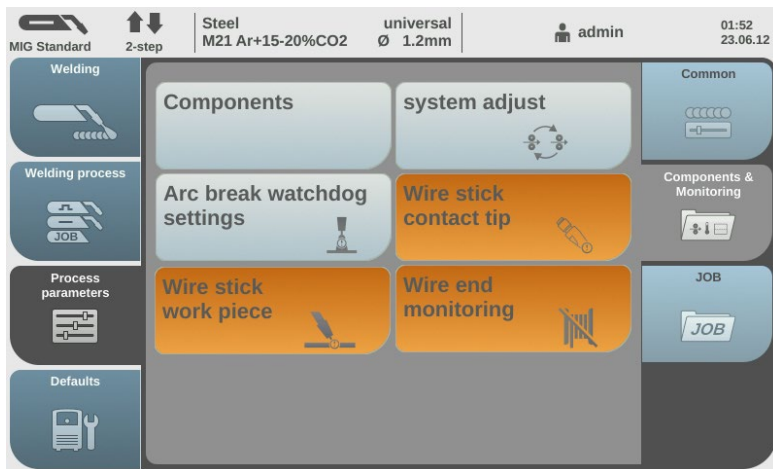


This is a default user role , but it can be individually adjusted. If the registered user logs out of the power source, the power source switches over to the profile “locked” – the key symbol appears in the status line.



New functions of components and monitoring:

Extended functions include: Wire stick contact tip, Wire stick work piece, Wire end monitoring



Wire stick contact tip:

Setting range: Error/ignore
 Filter time: 0,5 – 5 sec.
 Default settings: ignore , 0,5 sec.

It is now possible to recognise wire stick during short-circuited welding processes (short arc, PMC arc with active arc length stabiliser). The setting “filter time” defines the period, where at least one short circuit has to occur. An error message appears, if no short circuit is detected.

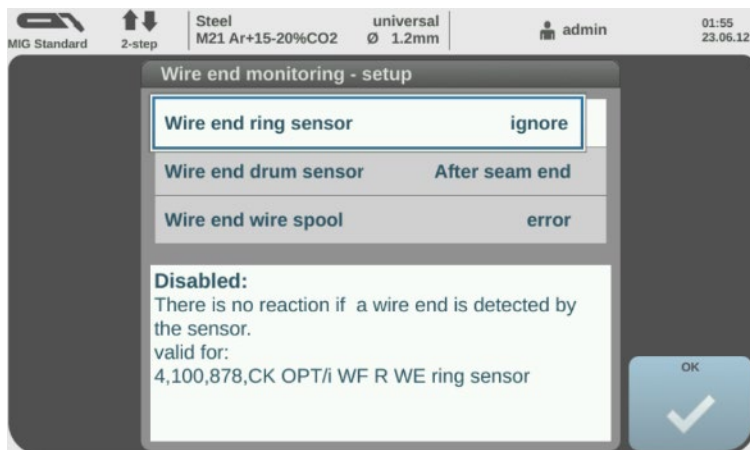
Wire stick work piece:

Setting range: Error/ignore

Default settings: ignore

If wire stick is recognised on the work piece (noodeling), the welding process is interrupted and an error message appears.

Wire end monitoring



Following settings can be adjusted:

ignore: no reaction

After seam end: error is displayed after welding end; another welding start is not possible

error: error is displayed immediately; welding process is stopped

New option: Opt/i Limit Monitoring

If OPT/i Limit Monitoring is activated on the power source, the settings of limit monitoring are added to the „Optimize Job” menu.

Limit Monitoring can be activated or deactivated globally in the default setting of the power source.



With Limit Monitoring it is possible to set defined limits per Job to define a weld as approved.

A reaction of the power source (warning, error, ...) can be set if the limits are exceeded.

- Current → setting range -100A up to +100A
- Voltage → setting range -10V up to +10V
- Wire feed (Wfs) → setting range -10m/min up to +10m/min
- Time of maximum deviation individually for all 3 parameters → **off** up to **10 sec.**

The screenshot displays the MG Standard welding control interface. The top status bar includes the following information: 'MG Standard', '2-step', 'steel M21 Ar+15-20%CO2', 'universal Ø 1.2mm', '01:58 23.06.12', and 'admin'. The main screen is divided into several sections: 'Welding' with a 'RECEIVE' button; 'Welding process' with a 'JOB' button; 'Process parameters' with a 'JOB' button; 'Defaults' with a 'JOB' button; 'Optimize Job' with a pencil icon; 'Correction limits' with a diagram of a weld joint; 'Pre-settings for "Save as Job"' with a gear icon; 'Common' with a 'RECEIVE' button; and 'Components & Monitoring' with a 'JOB' button.

Violations of limits are displayed in the log book entries in red.

The figure displays two screenshots of the MIG Welding software interface, showing the 'Documentation' window for different power sources.

Left Screenshot (MIG Puls):

- Power Source:** MIG Puls
- Material:** Steel M21 Ar+15-20%CO2
- Wire:** universal Ø 1.0mm
- User:** admin
- Time:** 15:00 / 23.08.17
- Documentation Table:**

No.	date	time	message	Job No.
20	06.09.17	12:44:25	Quit of error 6577	
20	06.09.17	12:43:55	Quit of error 7415	
20	06.09.17	12:43:55	Error 7415	
20	06.09.17	12:43:04	Quit of error 6577	
20	06.09.17	12:42:19	Error 6577	
20	06.09.17	12:42:10	Quit of error 7415	
20	06.09.17	12:42:09	Error 7415	
20	06.09.17	12:42:09	Quit of error 6577	
20	06.09.17	12:42:04	Error 6577	
1	20.04.17	12:30:21		
3	20.04.17	13:41:22	8.0 99 9.8 -19.3 11.4	
2	20.04.17	13:40:02	29.1 132 13.9 -11.7 69.5	
1	20.04.17	13:39:35	2.8 74 22.4 5.7 6.6	

Right Screenshot (MIG PMC):

- Power Source:** MIG PMC
- Material:** Steel M21 Ar+15-20%CO2
- Wire:** dynamic Ø 1.2mm
- User:** admin
- Time:** 15:07 / 04.09.18
- Documentation Table:**

No.	date	time	message	Job No.
21	04.09.17	15:06:28	0.8 144 18.1 4.8 2.7	
20	04.09.17	15:06:00	0.9 124 17.8 5.1 2.7	
19	04.09.17	15:05:26	0.8 131 17.9 6.5 21.1	
18	04.09.17	15:04:42	8.1 142 17.0 5.7 24.2	
17	04.09.17	15:04:41	0.0 0 0.0 0.0 16.4	
16	04.09.17	15:03:12	4.0 107 16.4 7.4 16.2	
15	04.09.17	15:03:11	0.0 0 5.0 0.1 0.000	
14	04.09.17	15:02:38	1.0 130 21.4 5.5 3.7	
13	04.09.17	15:02:14	0.8 165 17.3 6.6 3.3	
12	04.09.17	15:02:01	1.2 269 20.0 11.5 8.1 3	
11	04.09.17	15:00:17	1.3 267 21.0 10.1 8.2 3	
10	04.09.17	14:58:57	1.1 191 21.7 7.5 4.8 3	
9	04.09.17	14:58:52	0.9 178 22.8 6.6 3.9 3	
8	04.09.17	14:55:37	3.0 0 29.5 1.6 0.001 3	

Setting range: 0 – 10 sec.

The screenshot shows the 'MIG Standard' control panel. At the top, it displays 'MIG Standard' and '2-step' on the left, and 'Steel M21 Ar+15-20%CO2' and 'universal Ø 1.2mm' on the right. The top right corner shows the time '02:00' and date '23.06.12'. Below the top bar, there is a 'Job number/ Job parameter' section with a 'Job: 0001 Sonde' entry. The main display area shows parameters: '140 A', '20.6 V', and '9.0 m/min'. Below these are 'Command value gas' (15.0 l/min) and 'Gas factor' (auto). A dropdown menu is open, showing 'Job slope' selected. Other options in the menu are 'Job slope' (0.1 s), 'Documentation', 'Sampling rate' (0.1 s), and 'Limit monitoring'. At the bottom, 'Voltage command value' is shown as 25.2 V. A 'Exit' button with a return arrow is in the bottom right corner.

Parameter	Value
Job	0001 Sonde
Current	140 A
Voltage	20.6 V
Feed rate	9.0 m/min
Command value gas	15.0 l/min
Gas factor	auto
Job slope (selected)	
Job slope	0.1 s
Documentation	
Sampling rate	0.1 s
Limit monitoring	
Voltage command value	25.2 V

Fronius Data Channel

With the Fronius Data Channel it is possible to transmit component data's (part number, serial number, seam number) via the Service-Port of the power source.

Different signals and data's can be exchanged and written between the power source and a control unit (Robot/PLC).

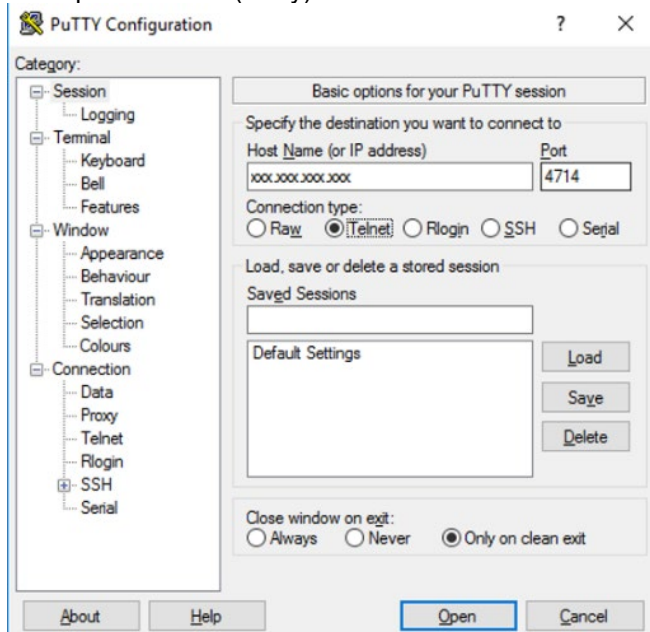
Scope of signals and data:

Key	Name		Description	E/A
1	Process active		0/1	A
2	Current flow		0/1	A
3	Article number		String	E
4	Serial number		String	E
5	Seam number		Integer	E

There are different opportunities of exchanging/writing data depending on the operating system.

Basically, a TCP socket connection (Telnet) must be set up. The IP address of the TPS/i service port and the declaration of the port number 4714 are necessary for this purpose.

Example Windows (Putty):



Note: OPT/i Docu must be installed on the power source in order to enable an active use of the Fronius Data Channel.

Error Management

The displayed error messages got redefined and are now clearly understandable.

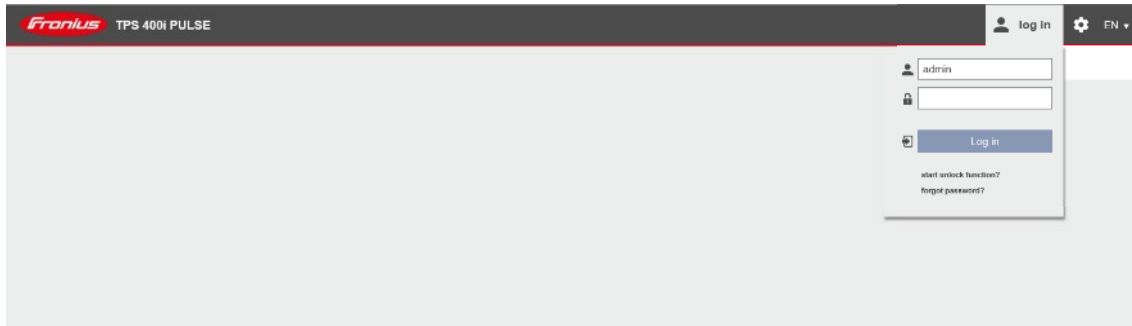
SmartManager (web browser)

New user interface:

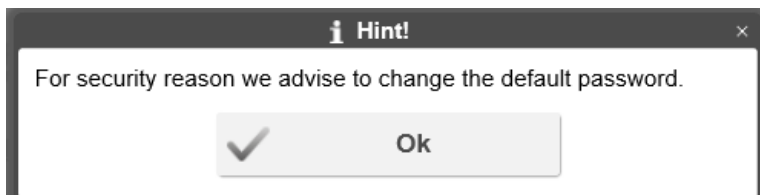
The SmartManager displays a new user interface and new functions.

Login:

New surface for login. – The login is directly carried out in the SmartManager (web browser).



The following hint becomes visible with initial registration:



New areas (tabs):

- Actual system data

MIG LSC		test1 LSC		Job: 0001	
IST					
I	123 A	U	17.9 V	5.5 m/min	
0.0		-1.5		0.000 kW	
0.0		0.0 m/min		0.000 kJ	
		0.0 l/min			
		1.0 h		320.6 h	

Steel	universal	ID
M21 Ar+15-20%C...	1.0 mm	3359

Real and command values (live view) of current welding parameters are displayed.

- Power source settings

Parameter	Value	change Value to	Adjustment range
Starting current	85 %	<input type="text" value="85"/>	0 - 200
Start Arc length correction	0.0	<input type="text" value="0"/>	-10 - 10
Start current time	0.1 s	<input type="text" value="0.1"/> <input type="button" value="v"/>	0.1 - 10
Slope 1	0.2 s	<input type="text" value="0.2"/>	0 - 9.9
Slope 2	0.1 s	<input type="text" value="0.1"/>	0 - 9.9
End current	60 %	<input type="text" value="60"/>	0 - 200
End Arc length correction	0.0	<input type="text" value="0"/>	-10 - 10
End current time	0.1 s	<input type="text" value="0.1"/> <input type="button" value="v"/>	0.1 - 10

All settings, which are available on the power source can be comfortably adjusted via SmartManager.

Extension OPT/i Docu:

The CSV export has been expanded by sections and the export of the set sampling values.

Following settings can be chosen by the CSV export:

CSV-Settings

Welds

☒ seams

☐ seams & sections

☐ sampling values

Additional data

☐ min/max values

☐ title list

☐ Limit monitoring

Automatic backup

The tab „Backup & Restore“ has been expanded by the function “automatic backup”.

Inside the interval settings, the time and date of the backup can be configured.

automatic backup

Interval settings ☒

interval: weekly
on: Monday
at: 12 15

Backup path

protocol: SMB
server: 10.6.112.131
port:
filepath: /Backuppathexample/
domain/user: backup
password: *****

Proxy settings ☐

server:
port:
user:
password:

trigger automatic backup

This function can be activated or deactivated by clicking the checkbox next to „Intervall settings“.

Settings regarding backup are chosen in the section „Backup path“.

The protocol can be selected under “protocol”, available options are SFTP (Secure File Transfer Protocol) and SMB (Server Message Block – Microsoft Network File Sharing). The IP address of the SFTP or Windows File Server must be entered in the field “server”.

A port for the SFTP server can be configured in the field “port”. If this field remains empty, the standard port 22 is used. When setting SMB, it is recommended to leave this field blank in order to use the standard port for SMB.

The field “filepath” configures the subfolder, where the backup is stored. If this field remains empty, the backup is stored in the root register of the server. Please consider that a slash “/” must always be used for SMB and SFTP.

The fields „domain/user“ and „password“ are provided for the user name and password, which are configured in the

SFTP/SMB server.

In case of a domain user, the domain must be written first, then a backslash “\” and afterwards the user name. [DOMAIN\USER]

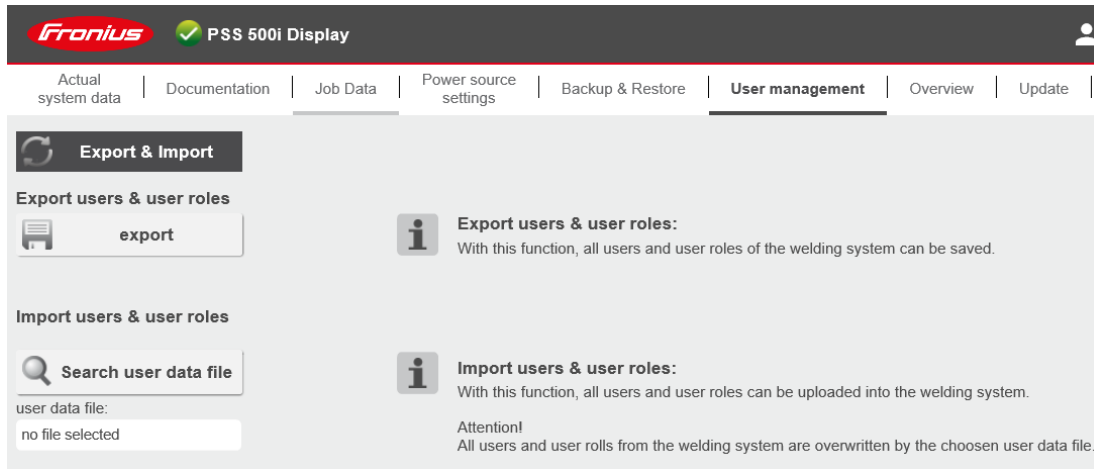
The proxy settings can be used if the connection via a proxy server is necessary.

If you have any questions about the configuration, please contact your network administrator.

User management for individual use:

All created roles and users can be exported to a hard disk and uploaded into any number of power sources.

– Therefore, creating roles and users is only once necessary.



RC Panel Pro is supported

This software must be installed on the power source and on the RC Panel Pro in order to use the RC Panel Pro.

15.4 New function RI FB Inside/i

Transfer of seam number

The transfer of the seam number for the Inside Interface is now supported.

BIT 37 Documentation Mode HIGH/LOW
WORD 19 Weld number 0 - 65535

Functionality LOW: a seam number can be transferred as starting point, with every ignition the power source will counts up one point

Functionality HIGH: the seam number is always transferred via Interface and must be defined for each welding seam from the robot

Wire end sensors are supported

BIT 24 - Sensor Status 1 - OPT/i WF wire end spool
BIT 25 - Sensor Status 2 - OPT/i WF R wire end drum
BIT 26 - Sensor Status 3 - OPT/i WF R wire end ring sensor

RI FB/i FANUC 1.0

With Firmware V1.8.0 the interface RI FB/i FANUC 1.0 is supported.

15.5 New function Rob IO Pro

Analogue job selection

The analogue job selection has been implemented now and is based on the function principle of the ROB5000.

▼ Signal Configuration:

▼ Inputs:

Connector pin	Actual setting	Factory setting
X6/3+, X6/11- Analog	Pulse-/dynamic correction	Pulse-/dynamic correction
X3/1+, X3/8- Analog	Wire retract correction	Wire retract correction

► Outputs:

Save adjustments Delete adjustments Apply factory settings

Both analogue inputs (0-10V) are thereby divided into 16 ranges at 0,625V.

Analogue job - part value 1 generates the job number in steps of 16 (0,16,32,48,...)

Analogue job - part value 2 generates the job number in steps of 1 (0,1,2,3,...)

The addition of both results in the desired job number of 1-255

15.6 New function AI IO

The signal Robot Ready has been added.

▼ Signal Configuration:

▼ Inputs:

Connector pin	Actual setting	Change setting to	Factory setting
IN 1 Digital	Welding start	Welding start	Welding start
IN 2 Digital	Robot Ready	Robot Ready	not used
IN 3 Digital	Wire forward	Wire forward	not used
IN 4 Digital	Job number bit 0	Job number bit 0	not used

▼ Outputs:

Connector pin	Actual setting	Factory setting
OUT 1 Digital	Process active	Process active

16CHANGES FROM V1.7.3 TO V1.7.4

Date: April 21th 2017

16.1 Software version of system components

MCU	1.4.608
Spider	2.6.76
SR63	1.4.19.2
iJob	3.0.1
iUpDo	1.0.6
FKS	1.0.61
PullMig	1.47.2
RC Panel Basic	1.0.70
RC Panel Standard	1.0.28
RI FB Inside/i	1.8.4
RI FB Yaskawa WeldCom	2.0 1.4.5
RobIORel	1.1.0
ROB202	1.5.4
ROB302	1.6.2
ROB502	1.11.3
iRob	1.5.0

16.2 Fixed bugs TPS 320i - 600i

Backup function:

A backup or restoration of more than 200 jobs sometimes resulted in errors. This bug has been fixed now.

Bugfixes for extended interface variants:

Errors in the signal sequences have been fixed.

16.3 New functions RI FB Inside/i

Double head

Function double head switching is supported.

17CHANGES FROM V1.7.1 TO V1.7.3

Date: March 23th 2017

17.1 Software version of components

MCU	1.4.602
Spider	2.6.76
SR63	1.4.19.1
iJob	3.0.1
iUpDo	1.0.6
FKS	1.0.61
PullMig	1.47.2
RC Panel Basic	1.0.70
RC Panel Standard	1.0.28
RI FB Inside/i	1.8.2
RI FB Yaskawa WeldCom	2.0 1.4.2
RobIORel	1.1.0
ROB202	1.5.4
ROB302	1.6.2
ROB502	1.11.3
iRob	1.5.0

17.2 New functions TPS 320i - 600i

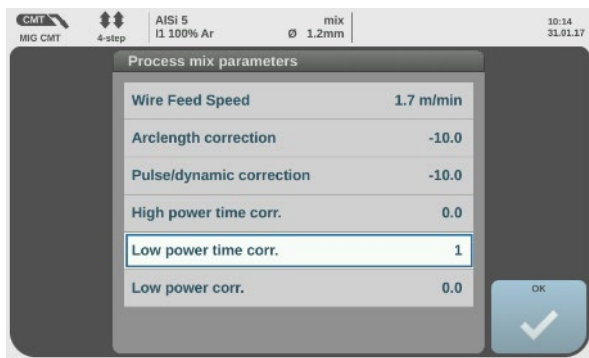
Gas regulation

The digital gas regulator is supported. A display for setting the amount of gas has now been implemented. The real value of gas is indicated in the system data.



New synergic lines

The CMT Mix synergic lines are now implemented.



A dynamic switchover of the **Low power time correction** determines the amount of CMT cycles within the cold process period of the CMT Mix combination process.

Range: 1-100

Default: 1

A rise of the **Low power time correction** results in a reduction of the process frequency and an extended CMT process period.

A reduction of the **Low power time correction** causes a rise of the process frequency and a reduction of the CMT process period.

OPT/i Synergic Lines

This option can unlock all special synergic lines on the TPS/i. Even future synergic lines are automatically available.

SB60i R

The new splitbox is now identified and supported by the system.

License Key

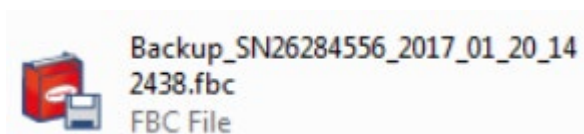
The License Key (4,044,033 TPS/i License Key) is supported.

Web Browser

Syntax Downloadfiles

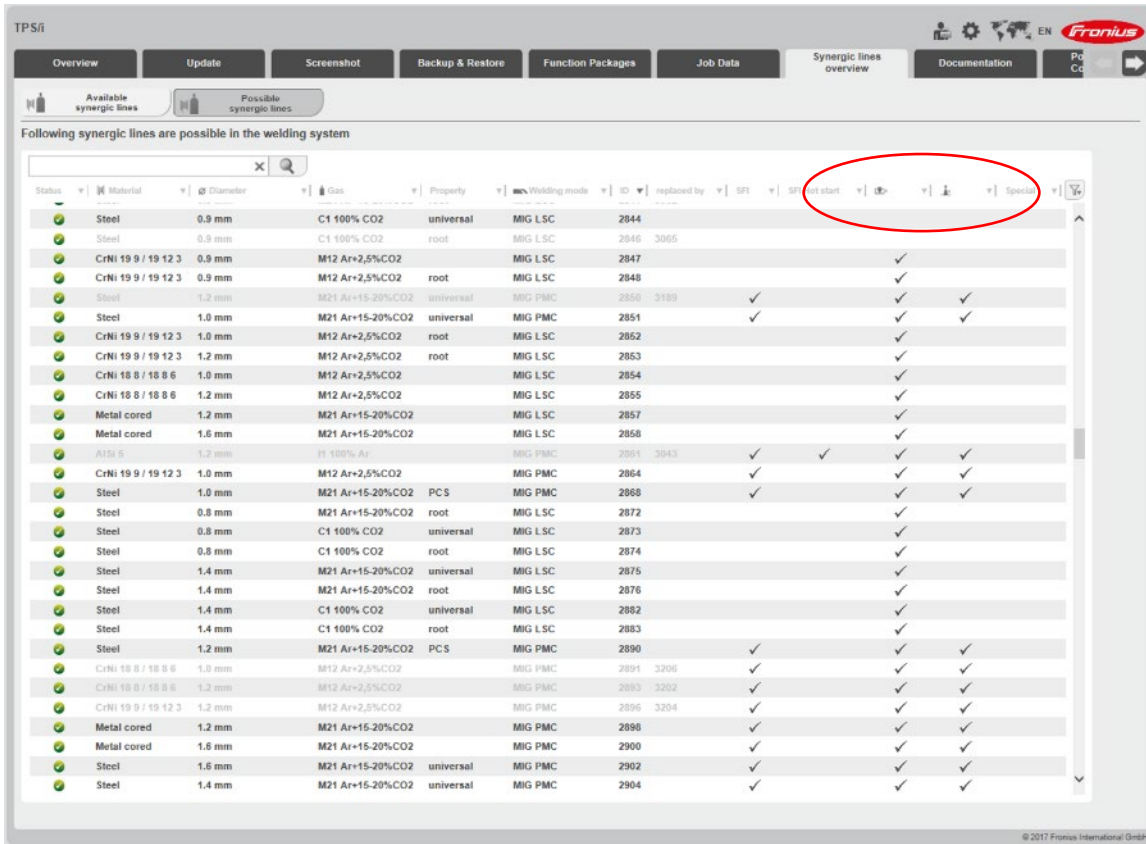
The syntax of a TPS/i download file (backup, components overview) has been changed and contains now information about the serial number of the TPS/i and the date of download.

e.g. backup:



Correction parameter per synergic line

The possible correction parameters (penetration stabilizer, arc length stabilizer) per synergic line are now visible in the synergic line overview.



TPS/i

Overview Update Screenshot Backup & Restore Function Packages Job Data Synergic lines overview Documentation

Available synergic lines Possible synergic lines

Following synergic lines are possible in the welding system

Status	Material	Diameter	Gas	Property	Welding mode	ID	replaced by	SFT	Start	Stop	Speed
✓	Steel	0.9 mm	C1 100% CO2	universal	MIG LSC	2844					
✓	Steel	0.9 mm	C1 100% CO2	root	MIG LSC	2846	3065				
✓	CrNi 19 9 / 19 12 3	0.9 mm	M12 Ar+2,5%CO2		MIG LSC	2847				✓	
✓	CrNi 19 9 / 19 12 3	0.9 mm	M12 Ar+2,5%CO2	root	MIG LSC	2848				✓	
✓	Steel	1.2 mm	M21 Ar+15-20%CO2	universal	MIG PMC	2850	3189	✓		✓	✓
✓	Steel	1.0 mm	M21 Ar+15-20%CO2	universal	MIG PMC	2851		✓		✓	✓
✓	CrNi 19 9 / 19 12 3	1.0 mm	M12 Ar+2,5%CO2	root	MIG LSC	2852				✓	
✓	CrNi 19 9 / 19 12 3	1.2 mm	M12 Ar+2,5%CO2	root	MIG LSC	2853				✓	
✓	CrNi 18 8 / 18 8 6	1.0 mm	M12 Ar+2,5%CO2		MIG LSC	2854				✓	
✓	CrNi 18 8 / 18 8 6	1.2 mm	M12 Ar+2,5%CO2		MIG LSC	2855				✓	
✓	Metal cored	1.2 mm	M21 Ar+15-20%CO2		MIG LSC	2857				✓	
✓	Metal cored	1.6 mm	M21 Ar+15-20%CO2		MIG LSC	2858				✓	
✓	AlSi 5	1.2 mm	It 100% Ar		MIG PMC	2861	3043	✓	✓	✓	✓
✓	CrNi 19 9 / 19 12 3	1.0 mm	M12 Ar+2,5%CO2		MIG PMC	2864		✓		✓	✓
✓	Steel	1.0 mm	M21 Ar+15-20%CO2	PCS	MIG PMC	2868		✓		✓	✓
✓	Steel	0.8 mm	M21 Ar+15-20%CO2	root	MIG LSC	2872				✓	
✓	Steel	0.8 mm	C1 100% CO2	universal	MIG LSC	2873				✓	
✓	Steel	0.8 mm	C1 100% CO2	root	MIG LSC	2874				✓	
✓	Steel	1.4 mm	M21 Ar+15-20%CO2	universal	MIG LSC	2875				✓	
✓	Steel	1.4 mm	M21 Ar+15-20%CO2	root	MIG LSC	2876				✓	
✓	Steel	1.4 mm	C1 100% CO2	universal	MIG LSC	2882				✓	
✓	Steel	1.4 mm	C1 100% CO2	root	MIG LSC	2883				✓	
✓	Steel	1.2 mm	M21 Ar+15-20%CO2	PCS	MIG PMC	2890		✓		✓	✓
✓	CrNi 18 8 / 18 8 6	1.0 mm	M12 Ar+2,5%CO2		MIG PMC	2891	3206	✓		✓	✓
✓	CrNi 18 8 / 18 8 6	1.2 mm	M12 Ar+2,5%CO2		MIG PMC	2893	3202	✓		✓	✓
✓	CrNi 19 9 / 19 12 3	1.2 mm	M12 Ar+2,5%CO2		MIG PMC	2896	3204	✓		✓	✓
✓	Metal cored	1.2 mm	M21 Ar+15-20%CO2		MIG PMC	2898		✓		✓	✓
✓	Metal cored	1.6 mm	M21 Ar+15-20%CO2		MIG PMC	2900		✓		✓	✓
✓	Steel	1.6 mm	M21 Ar+15-20%CO2	universal	MIG PMC	2902		✓		✓	✓
✓	Steel	1.4 mm	M21 Ar+15-20%CO2	universal	MIG PMC	2904		✓		✓	✓

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Signal visualization (Rob IO Visualize)

The signals can be monitored on the webpage, if the TPS/i is connected with a fieldbus interface. Depending on the mode (Standard/Economy/Retro), all available signals and values will be displayed.

TPS/i

update Screenshot Backup & Restore Function Packages Job Data Synergic lines overview Documentation Power source Configuration Signal visualization Ri

Interface: RI FB INSIDE/i connected

Bit pos...	Signal name	Value	Data L...
0	Welding start	●	BOOL
1	Robot ready	●	BOOL
2-6	Working mode	1	GROUP
8	Gas on	●	BOOL
9	Wire forward	●	BOOL
10	Wire backward	●	BOOL
11	Error quit	●	BOOL
12	Touch sensing	●	BOOL
13	Torch blow out	●	BOOL
16	Welding simulation	●	BOOL
17	Synchro pulse on	●	BOOL
22	Wire brake on	●	BOOL
23	Torchbody Xchange	●	BOOL
25	Teach mode	●	BOOL
56	ExtInput1 -> OPT_Output1	●	BOOL
57	ExtInput2 -> OPT_Output2	●	BOOL
58	ExtInput3 -> OPT_Output3	●	BOOL
59	ExtInput4 -> OPT_Output4	●	BOOL
60	ExtInput5 -> OPT_Output5	●	BOOL
61	ExtInput6 -> OPT_Output6	●	BOOL
62	ExtInput7 -> OPT_Output7	●	BOOL
63	ExtInput8 -> OPT_Output8	●	BOOL
64-79	Welding characteristic - / Job number	2730	UINT16
80-95	Wire feed speed command value	10.24 m/min	SINT16
96-111	Arclength correction	0.8	SINT16
112-127	Puls-dynamic correction	0.2	SINT16
128-143	Wire retract correction	0.0	UINT16
160-175	Process controlled correction	0.0	SINT16

Bit pos...	Signal name	Value	Data L...
0	Heartbeat Powersource	●	BOOL
1	Power source ready	●	BOOL
3	Process active	●	BOOL
4	Current flow	●	BOOL
5	Arc stable-/ touch signal	●	BOOL
6	Main current signal	●	BOOL
7	Touch signal	●	BOOL
8	Collisionbox active	●	BOOL
9	Robot Motion Release	●	BOOL
10	Short circuit timeout	●	BOOL
15	Torch body gripped	●	BOOL
16	Command value out of range	●	BOOL
17	Correction out of range	●	BOOL
22	Main supply status	●	BOOL
48-52	Process mode	2	GROUP
56	ExtOutput1 <- OPT_Input1	●	BOOL
57	ExtOutput2 <- OPT_Input2	●	BOOL
58	ExtOutput3 <- OPT_Input3	●	BOOL
59	ExtOutput4 <- OPT_Input4	●	BOOL
60	ExtOutput5 <- OPT_Input5	●	BOOL
61	ExtOutput6 <- OPT_Input6	●	BOOL
62	ExtOutput7 <- OPT_Input7	●	BOOL
63	ExtOutput8 <- OPT_Input8	●	BOOL
64-79	Welding voltage	33.67 V	UINT16
80-95	Welding current	408.0 A	UINT16
96-111	Wire feed speed	10.24 m/min	SINT16
112-127	Actual real value for seam tracking	0.0000	UINT16
128-143	Error number	0	UINT16
160-175	Motor current M1	— A	UINT16
176-191	Motor current M2	— A	UINT16
192-207	Motor current M3	— A	UINT16

17.3 Fixed bugs TPS 320i - 600i

Final current time

Sometimes it occurred, that the final current time has been longer active than set, when there was an opened Job Optimizing Window. This bug has been fixed now.

Rob Motion Release

The signal is now set on „LOW“ when there is an upcoming NO Prog error.

Exchange of MCU

In the past it sometimes occurred, that activations have not been recognised any more in case of an exchange of the MCU. This bug has been fixed now.

Indication error the operating mode

At certain constellations it has sometimes happened, that two operating modes (e.g. 2-step mode and S2T) were selected at the same time.

Touch mit Robacta Drive

The motor of the Robacta Drive is energized during the touch process - the wire is held tight.

18CHANGES FROM V1.7.0 TO V1.7.1

Date: November 03rd 2016

18.1 Software version of components

MCU	1.4.573
Spider	2.6.48
SR63	1.4.00.0
iJob	2.0.1
iUpDo	1.0.6
FKS	1.0.61
PullMig	1.47.2
RC Panel Basic	1.0.70
RC Panel Standard	1.0.24
RI FB Inside/i	1.6.8
RI FB Yaskawa WeldCom	2.0 1.0.26
RobIORel	1.1.0
ROB202	1.5.4
ROB302	1.6.2
ROB502	1.11.3
iRob	1.5.0

18.2 New functions TPS 320i - 600i

System adjustment for systems with Robacta Drive CMT

The system adjustment is now supported with Robacta Drive CMT.

19CHANGES FROM V1.6.5 TO V1.7.0

Date: August 17th 2016

19.1 Software version of system components

MCU	1.3.570
Spider	2.6.43
SR63	1.393.4
iJob	2.0.1
iUpDo	1.0.6
FKS	1.0.61
PullMig	1.47.2
RC Panel Basic	1.0.70
RC Panel Standard	1.0.24
RI FB Inside/i	1.6.7
RI FB Yaskawa WeldCom	2.0 1.0.26
RobIOrel	1.1.0
ROB202	1.5.4
ROB302	1.6.2
ROB502	1.11.3
iRob	1.5.0

19.2 General information

Downgrade lock!

Important information! A Downgrade lock has been implemented in this software.

Due compatibility reasons it is not possible to downgrade to a lower software version anymore.

Welding Package CMT

The welding package CMT (4,066,016) can now be installed as upgrade. This is possible for the whole product family of the TPS/i (270i – 600i).

19.3 New functions TPS 270i C



Welding process selection „SP“

The CMT process can be selected by pressing the „Welding process button“ until the LED „SP“ lights up.

Note: only possible with Welding Package CMT (4,066,016).

Display

The new parameter „UIBS“ was implemented in the setup menu to adjust the brightness of the display.

Default setting: 100%

Screenshot function

Via WebBrowser it is now possible to take screen shots of the display.

Factory reset

The programmable buttons „F1, F2 and Favorite“ are now deleted when „Restore factory setting“ is executed.

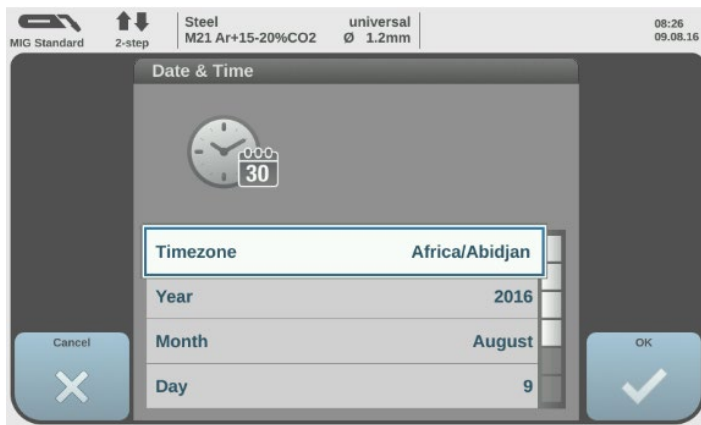
19.4 New functions TPS 320i - 600i

New language

The new languages Hindu and Serbian are now implemented with version 1.7.0.

Time zone settings

To ensure a standardized time stamp for documenting the time zone setting has been implemented.

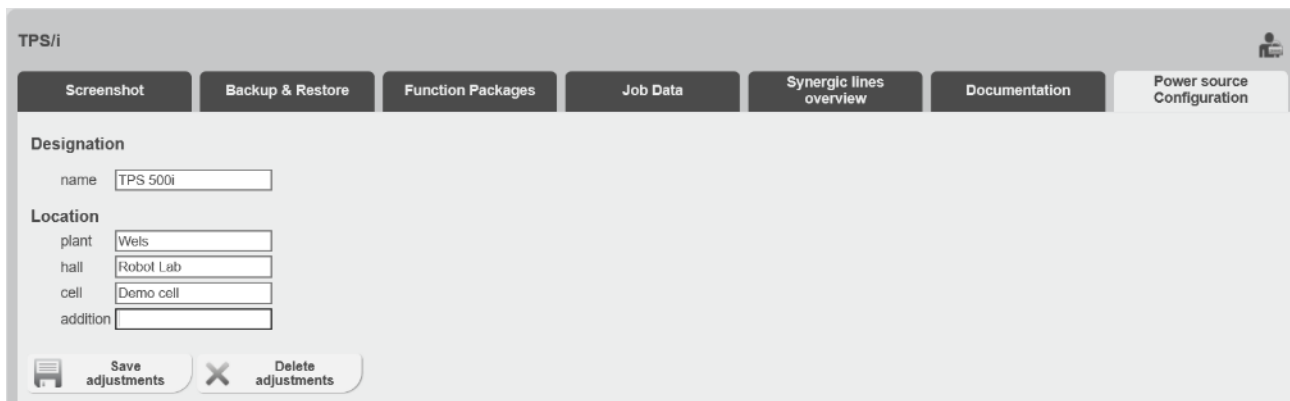


Power source configuration

To have a specific ID in the network for the welding equipment it's now possible to assign a “name” and “location” to the power source.



This settings can also be done on the WebServer via the Tab “Power source Configuration”:



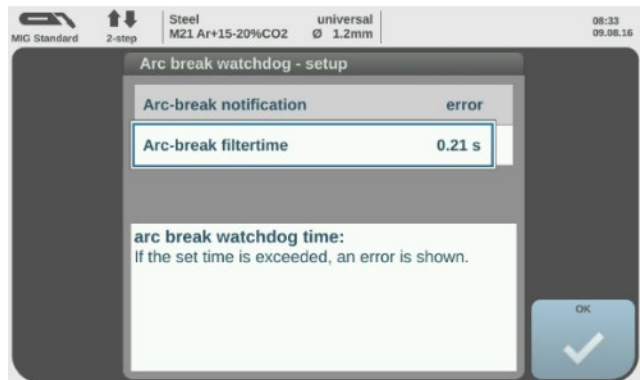
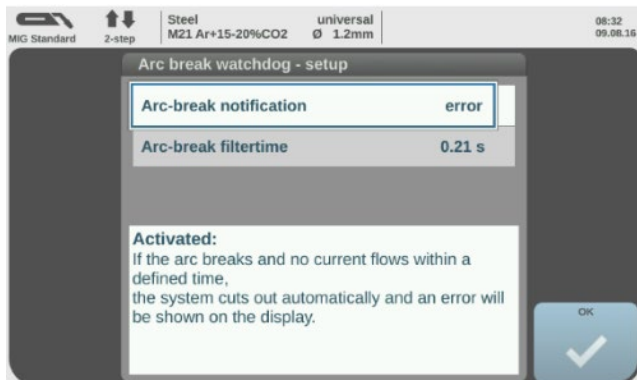
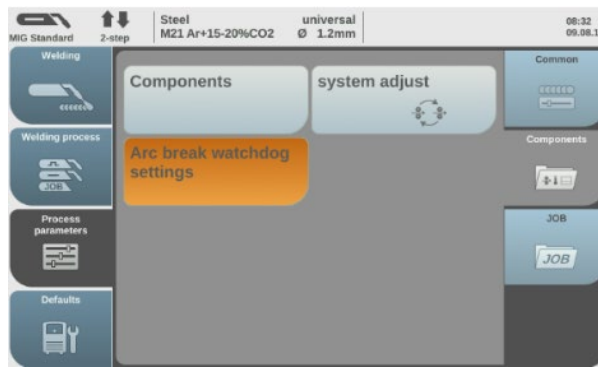
Arc break watchdog setting

Setting range: Ignore - Error (deactivated - activated)

Filter time: 0,00 sec. – 2,00 sec.

Default setting: 0,2 sec.

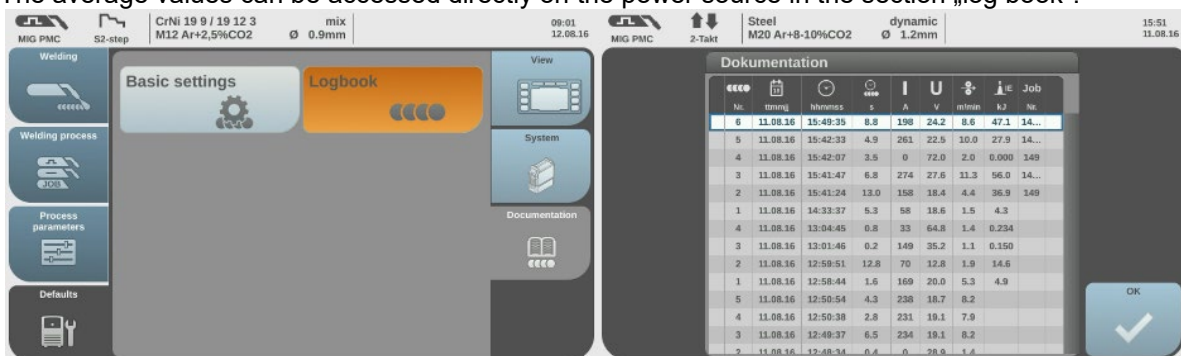
Find detailed information about this function in the pictures below:



Documentation

It is now possible to have for each weld the average values documented. This is standard. The built in memory of the TPS/i can store the values for at least 30 days (the maximum time frame can vary due to different files sizes of the welds, depending on the welding parameters, welding time, etc.). If the memory is gets full the oldest welds in the memory will be automatically deleted.

The average values can be accessed directly on the power source in the section „log book“.



Note: each weld generates a seam number (increasing) with average values (see picture)

The seam counter will restart with seam number 1 when cycling the power source.

The documentation datas can also be accessed via the WebBrowser. The last 100 welds will be displayed by default.

PDF export:

Overview seam welds



from: 11.08.2016 15:49:35 machine: TPS 500i PULSE serial number: 24160362
to: 30.06.2016 12:27:56 firmware-version: 1.7.0-9743

Seam number	start time (power source time)	Welding time	I	U	Wfs	Power	Energy	jobs
6	11.08.2016 15:49:35	8.8s	198A	24.2V	8.6m/min	5374.0W	47.1kJ	149,150,151
5	11.08.2016 15:42:33	4.9s	261A	22.5V	10.0m/min	6286.0W	27.9kJ	149,150
4	11.08.2016 15:42:07	3.5s	0A	72.0V	2.0m/min	0.001W	0.000kJ	149
3	11.08.2016 15:41:47	6.8s	274A	27.6V	11.3m/min	8242.5W	56.0kJ	149,150
2	11.08.2016 15:41:24	13.0s	158A	18.4V	4.4m/min	2840.6W	36.9kJ	149
1	11.08.2016 14:33:37	5.3s	58A	18.6V	1.5m/min	795.4W	4.3kJ	
4	11.08.2016 13:04:45	0.8s	33A	64.8V	1.4m/min	307.1W	0.234kJ	
3	11.08.2016 13:01:46	0.2s	149A	35.2V	1.1m/min	843.6W	0.150kJ	
2	11.08.2016 12:59:51	12.8s	70A	12.8V	1.9m/min	1143.2W	14.6kJ	

CSV export (only with OPT/i Documentation):

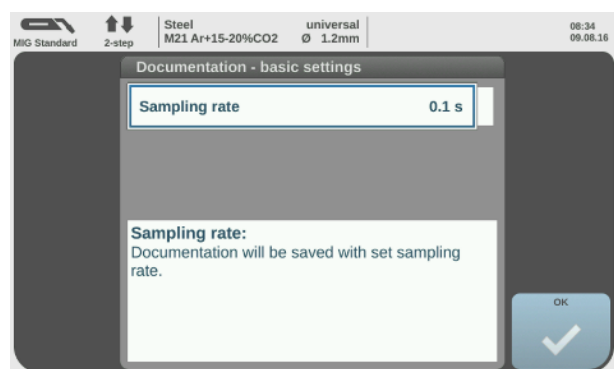
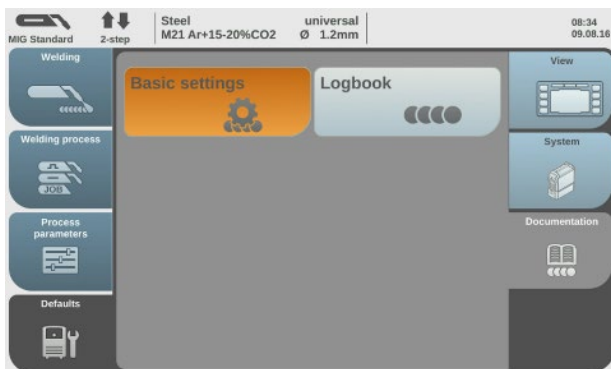
	A	B	C	D	E	F	G	H	I	J
1	Seam number	start time (local)	start time (power source)	Welding time	I	U	Wfs	Power	Energy	jobs
2	6	11.08.2016 15:49:35	11.08.2016 15:49:35	8.8s	198A	24.2V	8.6m/min	5374.0W	47.1kJ	149,150,151
3	5	11.08.2016 15:42:33	11.08.2016 15:42:33	4.9s	261A	22.5V	10.0m/min	6286.0W	27.9kJ	149,150
4	4	11.08.2016 15:42:07	11.08.2016 15:42:07	3.5s	0A	72.0V	2.0m/min	0.001W	0.000kJ	149
5	3	11.08.2016 15:41:47	11.08.2016 15:41:47	6.8s	274A	27.6V	11.3m/min	8242.5W	56.0kJ	149,150
6	2	11.08.2016 15:41:24	11.08.2016 15:41:24	13.0s	158A	18.4V	4.4m/min	2840.6W	36.9kJ	149
7	1	11.08.2016 14:33:37	11.08.2016 14:33:37	5.3s	58A	18.6V	1.5m/min	795.4W	4.3kJ	
8	4	11.08.2016 13:04:45	11.08.2016 13:04:45	0.8s	33A	64.8V	1.4m/min	307.1W	0.234kJ	
9	3	11.08.2016 13:01:46	11.08.2016 13:01:46	0.2s	149A	35.2V	1.1m/min	843.6W	0.150kJ	

Available option: OPT/i Documentation 4,067,003

Setting range: Off; 0,1 - 100sec

The sampling rate can be defined in the Basic setting.

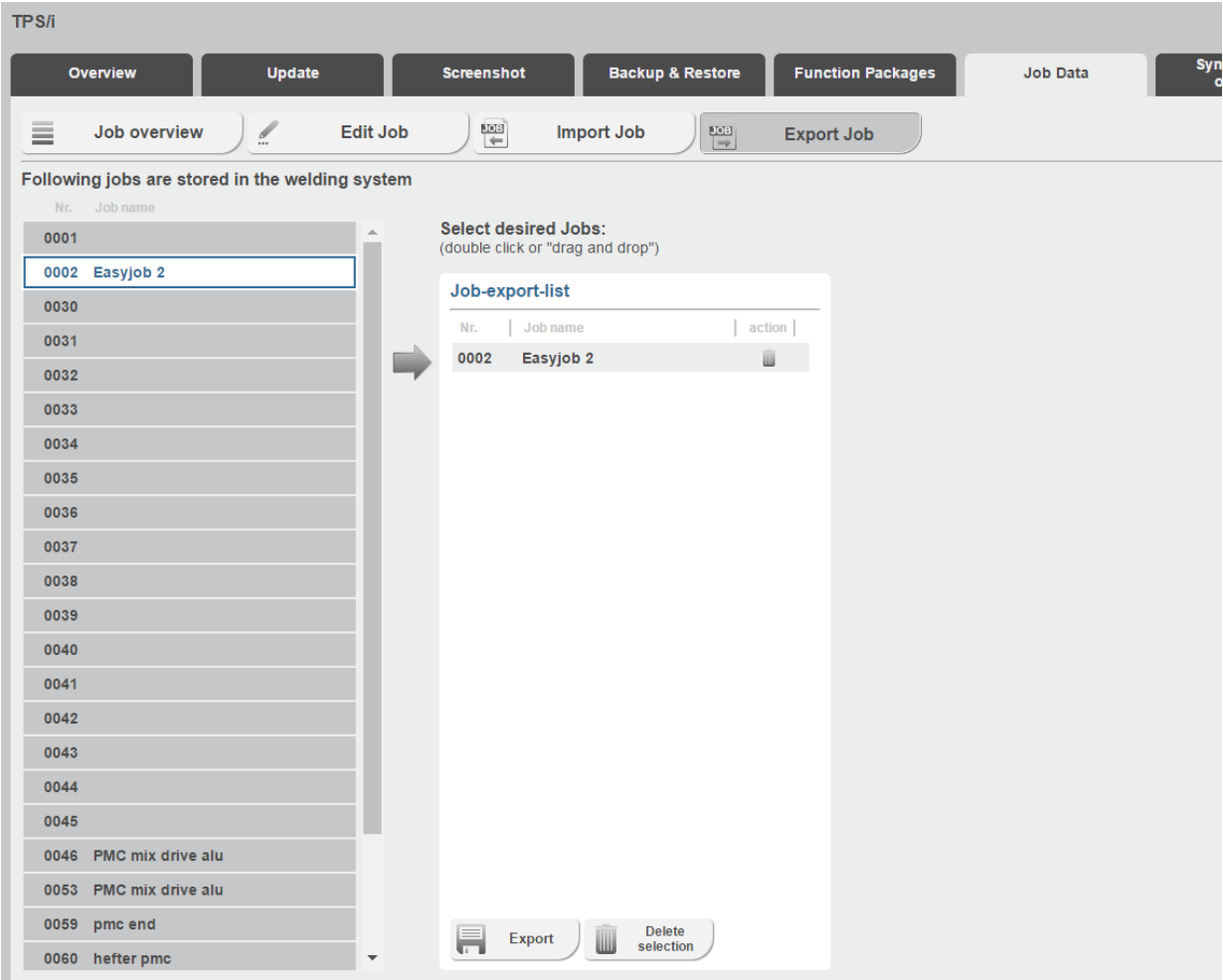
Note: the real values can right now only be evaluated with the WeldCube.



Webpage:

Jobs import/export

With the feature OPT/i Jobs (4,067,002) it is now possible to export one or more Jobs from the power source to a hard drive as an XML-file. This file can be used to import and restore the saved jobs on to another power source.



TPS/i

Overview

Update

Screenshot

Backup & Restore

Function Packages

Job Data

Synerg over

Job overview

Edit Job

Import Job

Export Job

Following jobs are stored in the welding system

Nr.	Job name
0001	
0002	Easyjob 2
0030	
0031	
0032	
0033	
0034	
0035	
0036	
0037	
0038	
0039	
0040	
0041	
0042	
0043	
0044	
0045	
0046	PMC mix drive alu
0053	PMC mix drive alu

Import Job file

Search Job-file

Job-file:

job.xml

Preview: Job-import-list

	Status	new Job no.	Nr.	Job name
<input checked="" type="checkbox"/>	!	0002	0002	Easyjob 2

☒ select all

Import

Create new jobs

With the feature OPT/i Jobs (4,067,002) it's now possible to create a new Job on the WebServer. In the section "Edit Jobs" is the Tab "Create a new Job". Material setting can be directly applied in the Wizard window.

Create a new Job

Job

Export job(s) as ...

PDF

CSV

Create a new Job

Select Job number: 0003 free

Job name:

Select synergic line:

Characteristic-ID 3043

Material AISi 5

Diameter 1.2 mm

Gas I1 100% Ar

Selection of available synergic lines per process:

MIG PMC ID:3043 1/2 universal

MIG Pulse ID:3041 1/1

MIG Standard ID:2616 1/1

Welding mode MIG PMC

Copy values from:

Job 0059 pmc end

default

Ok

Cancel

Compare jobs

In the tab job-data – several jobs can now be compared to each other.

Differences to the actual jobs are highlighted in red.

TPS/i

Overview Update Screenshot Backup & Restore Function Packages Job Data

Job overview Edit Job Import Job Export Job

Following jobs are stored in the welding system

Nr.	Job name
0035	
0036	
0037	
0038	
0039	
0040	
0041	
0042	
0043	
0044	
0045	
0046	PMC mix drive alu
0053	PMC mix drive alu
0059	pmc end
0060	hefter pmc
0063	pmc end
0070	hefter pmc
0100	PL ALU mix drive RAD
0109	PL ALU mix drive RAD

Export job(s) as ...

0059 pmc end

0059 pmc end

Parameter	Value	Value of job 1
Job name	pmc end	
Jobnumber	0059	0001
Welding mode	MIG PMC	MIG Standard
Trigger mode	2-step	2-step
Material	AlSi 5	Steel
Diameter	1.2 mm	1.0 mm
Gas	I1 100% Ar	M21 Ar+15-2...
Property	universal	dynamic
Characteristic-ID	3043	2629
Wire Feed Speed	2.5m/min	5.0m/min
Current	53A	119A
Voltage	16.8V	17.4V
Material Thickness	1.7mm	2.2mm
Arc length correction	0.0	0.0
Pulse/dynamic correction	0.0	0.0
Penetration stabilizer	0.0m/min	0.0m/min
Arc length stabilizer	0.0	0.0
Gas preflow	0.5s	0.1s
Gas postflow	1.0s	0.5s
Inching value	6.0m/min	10.0m/min

Add Job

19.5 Fixed bugs TPS 320i - 600i

BugFix

In the application Arc Air Gouging or MMA-welding it could happen that there is no open circuit voltage on the power sockets. → Welding is not possible.

This bug is fixed now.

When welding with one or more power sources on one part it could happen that the wire was only glowing and no arc occurred. → Welding is not possible.

This bug is fixed now.

Robot Motion Release

TPS/i

Screenshot Sichern & Wiederherstellen Funktionspakete Job-Daten

▼ Signal Configuration:

▼ Inputs:

Connector pin	Actual setting	Change setting to	Factory setting
IN 1 Digital	Welding start	Welding start	Welding start
IN 2 Digital	Wire backward	Touch sensing	not used
IN 3 Digital	Wire forward	Wire forward	not used
IN 4 Digital	Job number bit 0	Job number bit 0	not used

▼ Outputs:

Connector pin	Actual setting	Change setting to	Factory setting
OUT 1 Digital	Process active	not used Process active Current flow Arc stable Main current signal Robot motion release Touch signal	Process active

Save adjustments Delete adjustments Apply factory settings

► Connector pin assignment:

19.8 New function RI IO Pro

The signal „Error Reset“ has been implemented (PIN X4/5) – occurring error/warnings can be acknowledged.

The signal „Robot Motion Release“ can now be configured via interface.

TPS/i

Sichern & Wiederherstellen Funktionspakete Job-Daten Kennlinienübersicht Dokumente

▼ Signal Configuration:

▼ Inputs:

Connector pin	Actual setting	Change setting to	Factory setting
no adjustable signals			

▼ Outputs:

Connector pin	Actual setting	Change setting to	Factory setting
X1/12 Digital	Arc stable	not used Current flow Robot motion release	Arc stable
X3/16 Digital	not used		Current flow
X6/10 Digital	not used	not used	not used
X3/7+, X3/14- Analog	Motor current M1	Motor current M1	Motor current M1
X7/3+, X7/11- Analog	not used	not used	not used

Save adjustments Delete adjustments Apply factory settings

► Connector pin assignment:

The signal “wire retract correction” has been implemented (PINs X3/1 (0-10V) und X3/8 (GND)).

20CHANGES FROM V1.6.4 TO V1.6.5

Date: April 12th 2016

20.1 Software version of system components

MCU	1.2.511
Spider	2.6.4
SR63	1.369.7
iJob	2.0.1
iUpDo	1.0.6
FKS	1.0.55
PullMig	1.41.0
RC Panel Basic	0.0.70
RC Panel Standard	1.0.22
RI FB Inside/I	1.5.3
RI FB Yaskawa WeldCom	2.0 1.0.26
RobIORel	1.1.0
ROB202	1.4.3
ROB302	1.5.4
ROB502	1.10.5
iRob	1.4.8

20.2 New functions TPS 270i C

No changes

20.3 Fixed bugs TPS 270i C

No changes

20.4 New functions TPS 320i - 600i

No changes

20.5 Fixed bugs TPS 320i - 600i

No changes

20.6 New function RI FB Inside/i

No changes

20.7 Fixed bugs RI FB Inside/i

With image version (V1.6.4_8412) complications with the interfaces RI FB Inside may appear. An internal routine cannot be proceeded → this bug has been fixed.

21CHANGES FROM V1.6.3 TO V1.6.4

Date: February 24th 2016

21.1 Software version of system components

MCU	1.2.508
Spider	2.6.4
SR63	1.369.2
iJob	2.0.1
iUpDo	1.0.6
FKS	1.0.35
PullMig	1.25.0
RC Panel Basic	0.0.70
RC Panel Standard	1.0.22
RI FB Inside/I	1.4.13
RI FB Yaskawa WeldCom	2.0 1.0.24
RobIOrel	1.1.0
ROB202	1.4.3
ROB302	1.5.4
ROB502	1.10.5
iRob	1.4.8

21.2 New functions TPS 270i C

Parameter assignment of F1/F2

With this release, the parameter F1/F2 can now be programmed with a function.

Favorite button

This newly implemented feature allows a shortcut to any setting or function (including folders) to be generated in the setup.

Lock function

By pressing the trigger select button and the right parameter button simultaneously the front panel can be locked/unlocked.



Hint BETA Software

Betasoftware hint is now implemented and will be displayed when turning the power source ON.

Setup menu

The setup menu now includes the PMC-Mix parameter → see section on PMC Mix and PMC Mix Drive process.

21.3 Fixed bugs TPS 270i C

Handling/language:

Various language bugs – several terms have been improved or changed.

Long text scroll direction has been optimized.

21.4 New functions TPS 320i - 600i

Locking function via NFC transponder card

To avoid unwanted access or modifying welding parameters, it is now possible to lock the power source. The access control is contactless via NFC on the MCU (touch display) with a key card or a key fob.

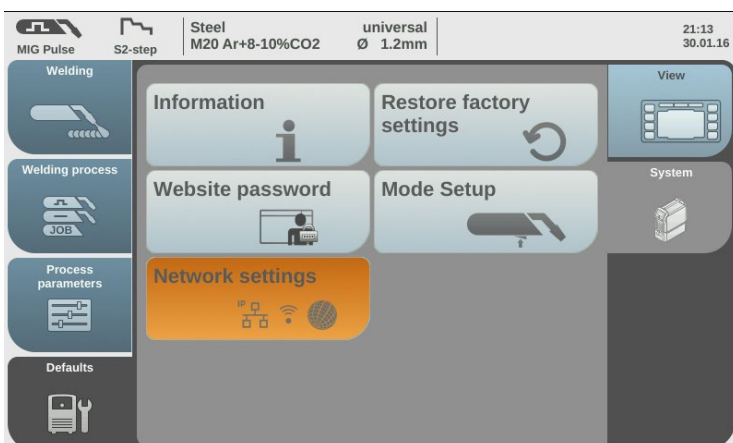


The lock function will be active on all TPS/i power sources that have the symbol below.

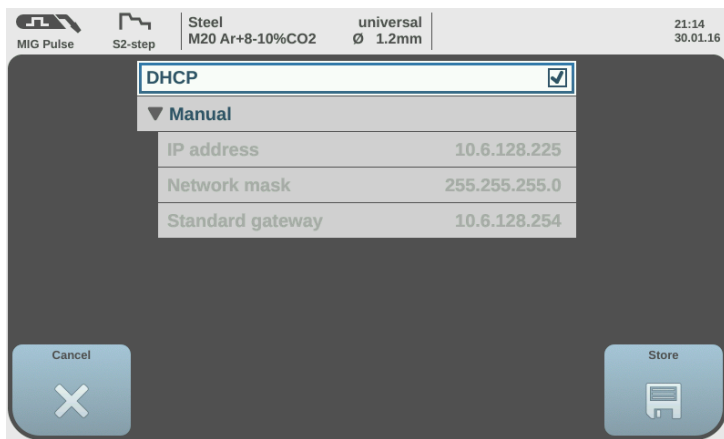


Setting static IP address

To simplify the implementation of the TPS/i in a network structure, it's now possible to set a static IP-Address for the Ethernet Port. This can be done directly on the touch screen through the set-up menus.



Default setting is DHCP – with this setting the IP address is dynamically assigned to the power source through the network.



If the DHCP function is disabled, the network settings (IP-Address / Network mask / Standard gateway) can all be manually assigned.



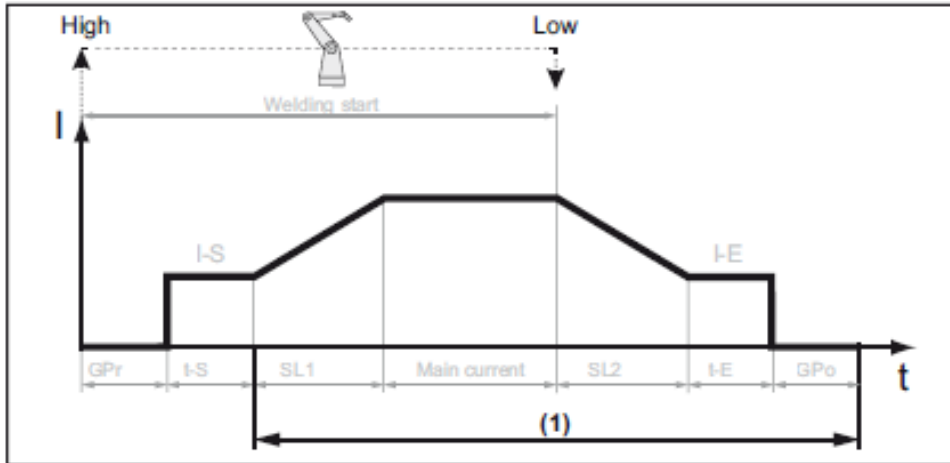
WeldCOM 2.0 is supported (Yaskawa)

The RI FB/i Yaskawa WeldCOM 2.0 is now supported.

New signal: Robot Motion Release

This new signal is now available in all fieldbus interfaces when they are set to Standard or Economy mode. When using the RI IO Pro interface, it is available as a configurable signals.

This signal links the robot motion to the welding process better. The robot receives this signal once the starting arc conditions have been completed (signal goes HIGH after the start current time) and loses the signal at the end of the gas post flow time (signal goes LOW). This signal is only useful when the welding process is controlled by the welder. When the process is controlled by the robot, this signal is not used.



(1) = Robot motion release (Freigabe Roboterbewegung)

Easy Jobs

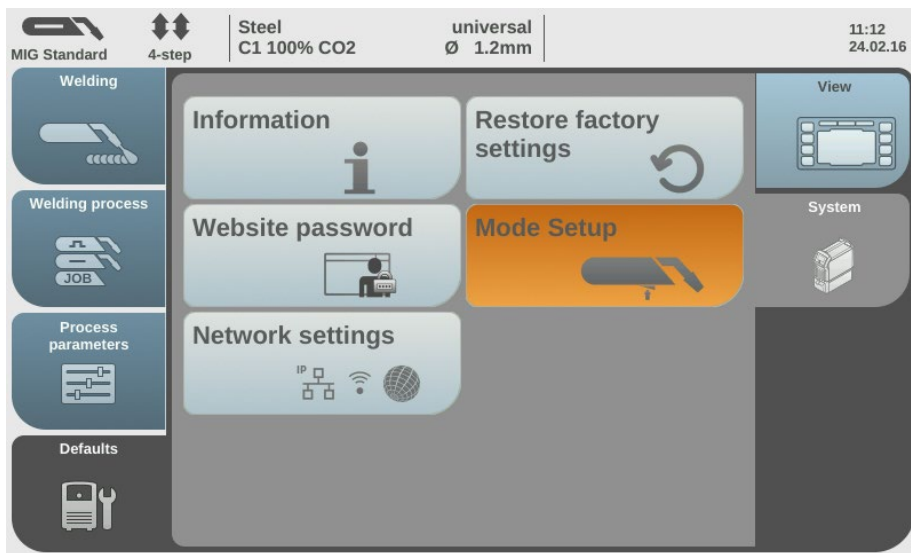
As soon as the Easy Jobs are activated on the power source, the Easy Job number is displayed on the upper right corner of the JobMaster display.

Now it is possible to change the EasyJobs and all parameters direct on the JobMaster torch.

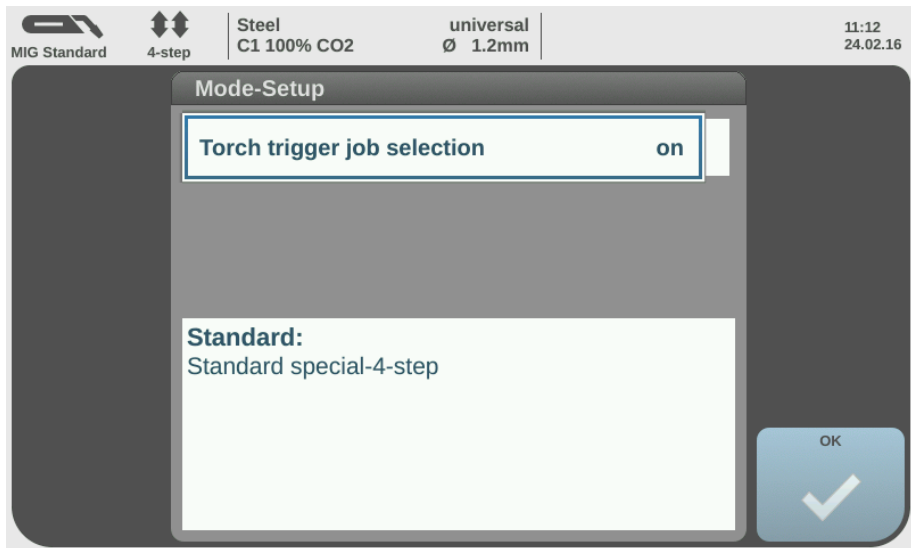


Torch trigger job selection

This function allows the welder to conveniently change jobs with a press of the torch trigger. The selection can be found in the following location Defaults → System → Mode Setup.



In the Mode Setup menu, the torch trigger job selection can be turned on or off.



By pressing the torch trigger once, the welder can switch between jobs in the same group (e.g. from Job 5 to Job 6). If the torch trigger is pressed twice in quick succession, the welder will go to the next group if one is available (e.g. from job 8 to job 23).

WebServer OPT/i Jobs

Programmed jobs can now be deleted, restored, or set as a new job directly from the WebServer. The picture below shows the new tabs marked in red.

0011 Jobcorrection

Parameter	Value	change Value...	Adjustment...
Job name	Jobcorrection	<input type="text" value="Jobcorrection"/>	
Jobnumber	0011		
Welding mode	MIG Pulse		
Trigger mode	S2-step	<input type="text" value="S2-step"/>	
Material	Steel		
Diameter	1.0 mm		
Gas	M20 Ar+8-10...		
Characteristic-ID	3220		
Wire Feed Speed	10.0m/min	<input type="text" value="11"/>	1 - 30
Current	185A	201	25 - 400
Voltage	22.5V	23.4	16.3 - 31
Material Thickness	6.0mm	7.1	1 - 25
Arclength correction	2.0	<input type="text" value="2"/>	-10 - 10
Pulse/dynamic correction	0.0	<input type="text" value="0"/>	-10 - 10
<div><div> Save adjustments</div><div> Delete adjustments</div><div> Save as</div><div> Delete job</div></div>			

WebJob Editor

The function WebJob Editor is now supported. To use WebJob Editor, the option OPT/i Jobs (4,067,002) is required.

New languages implemented

The Indoneisan, Vietamaese and Thai languages have been implemented into the power source and can now be selected through the set-up menus.

New settings for process parameters

PMC Mix and PMC Mix Drive process

PMC Mix are specially designed synergic lines that have a cyclic process change implemented. They are automatically available as process variations (PMC Mix and PMC Mix Drive) so long as the PMC software option has been enabled in the machine. The two processes can be selected as a synergic line through the material wizard selection on the MCU.

MIG PMC

S2-step

CrNi 18 8 / 18 8 6
M12 Ar+2,5%CO2

Ø 1.0mm

15:18
23.02.16

Selection of available synergic lines per process

> Steel > 1.2mm > M21 Ar+15-20%CO2

Standard, LSC, Puls, PMC

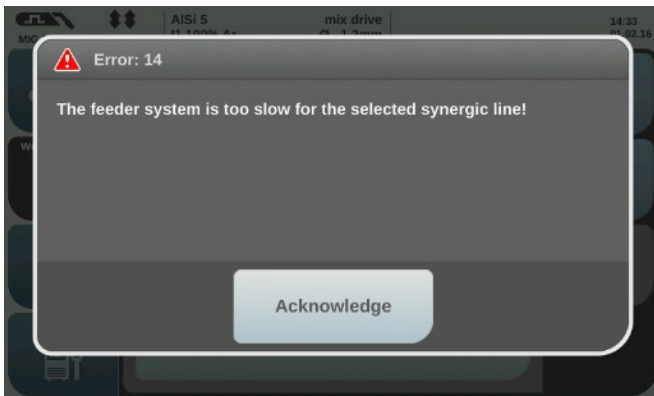
Standard	universal	1/3	2566
Puls	universal	1/1	2785
LSC	universal	1/2	2765
PMC	mix	3/4	3287

Cancel

Back

Next

If the **PMC Mix Drive** synergic line is selected without a Robacta Drive wire feeder detected, an error will be displayed when trying to ignite an arc. Please note, there will NOT be an error during the selection process.

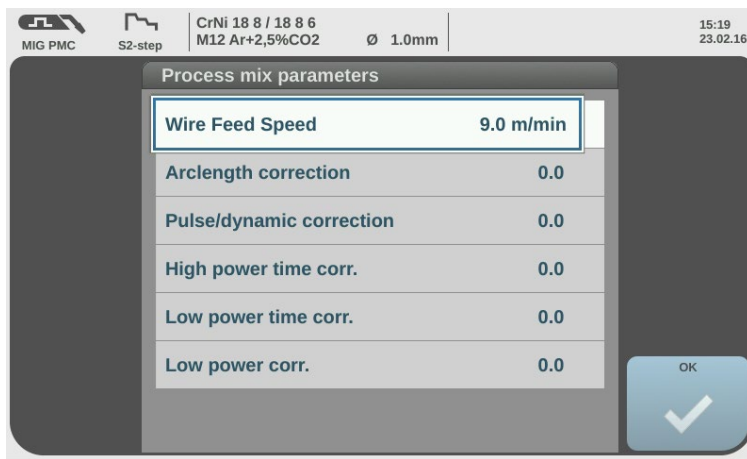


Prozess Mix corrections

Both the PMC Mix and PMC Mix Drive synergic lines have new setup parameters available.

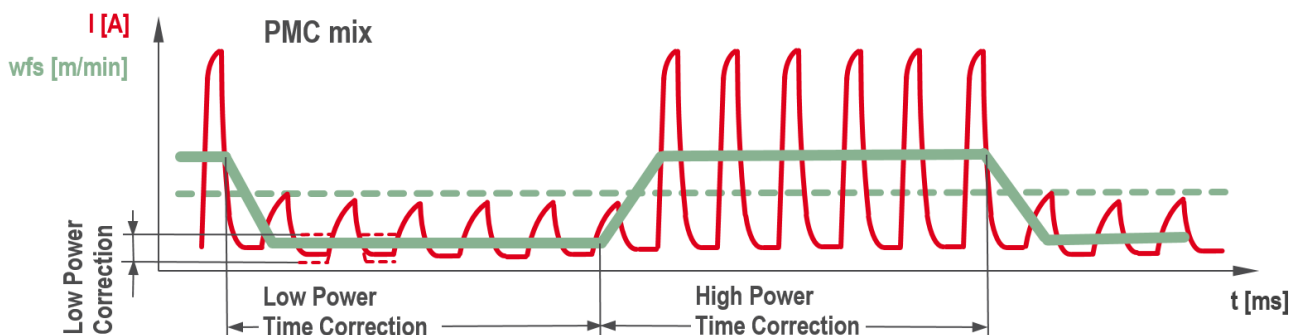


When the PMC Mix line is selected, the "Process Mix Parameters" menu will have several selections that can be changed. The "Wire Feed Speed" selection is the average value of the pulse arc phase and the short circuit arc/alignment phase. The "Arclength Correction" and "Pulse/dynamic Correction" function the same way as the conventional PMC process synergic lines.



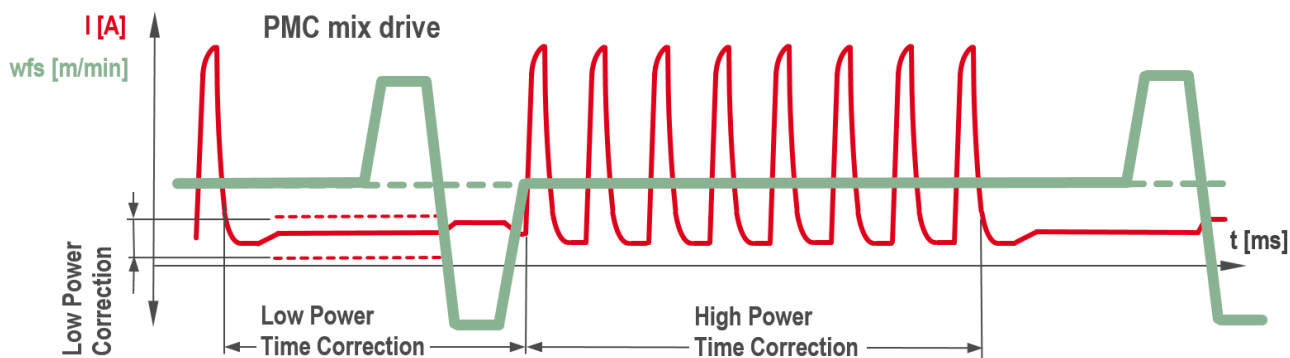
Explanation PMC Mix corrections

The **High Power Time Correction** has a setting range of ± 10 and influences the length of the pulse phase. The **Low Power Time Correction** also has a setting range of ± 10 and influences the time of the short circuit phase. With the **Low Power Correction**, the power of the short circuit arc can be adjusted within a range of ± 10 .



Explanation PMC Mix Drive corrections

The **High Power Time Correction** has a setting range of ± 10 and influences the length of the pulse phase. The **Low Power Time Correction** also has a setting range of ± 10 and influences the time of the adjustment phase. With the **Low Power Correction**, the power of the adjustment phase can be adjusted within a range of ± 10 .



New synergic lines for PMC Mix & PMC Mix Drive:

The following synergic lines are available:

Material: steel

PMC Mix:

G3Si1: Ar 8-10%CO₂: 0,9mm/1,0mm/1,2mm

G3Si1: Ar 15-20%CO₂: 0,9mm/1,0mm/1,2mm

Material: nickel base

PMC Mix:

NiCrMo-3: Ar 100% für 1,0mm

Material: aluminium

PMC Mix Drive:

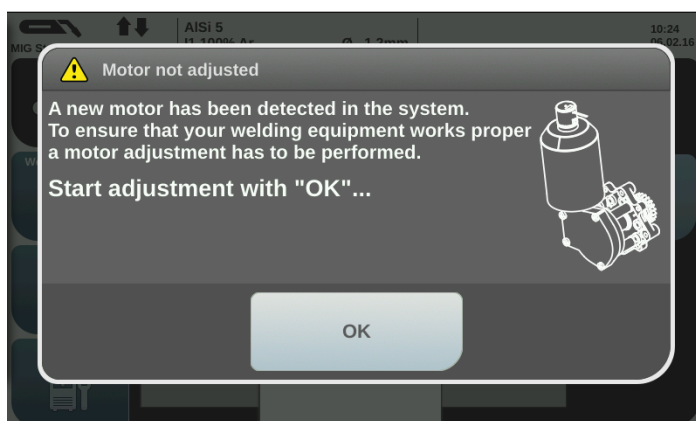
AlSi 5: Ar 100% für 1,0mm/1,2mm

AlMg 5: Ar 100% für 1,0mm

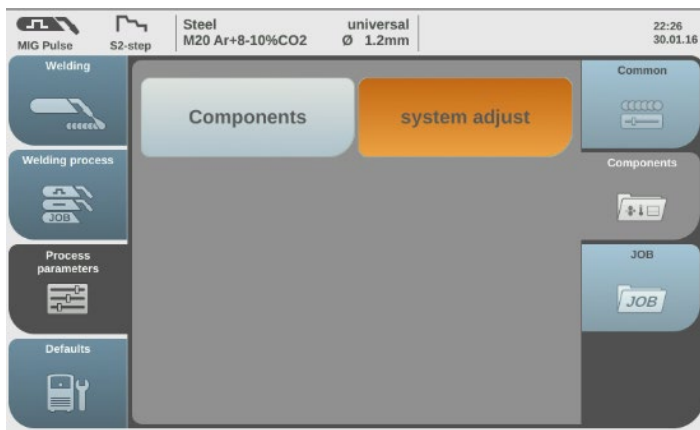
AlMg 4,5Mn: Ar 100% für 1,2mm

System adjustment for systems with Robacta Drive

If a system has two wire feeder motors installed (i.e. WF Robacta Drive in combination with a WFxxi Reel), a calibration is necessary to ensure process stability. When such a system is first set-up or should one of the wire feeders be changed, the system will display the following message:



The system adjustment can also be started manually



Sequence through the System adjustment:

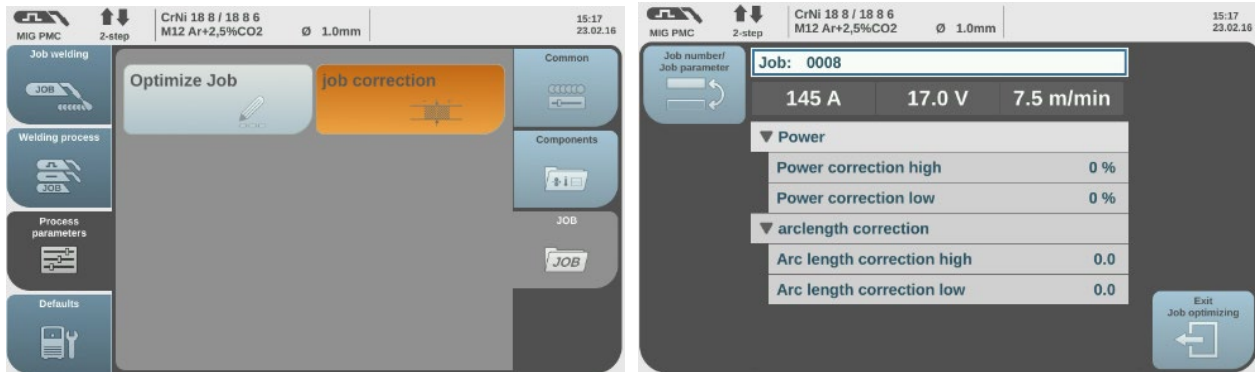
- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

Push or PullMIG Torch systems don't require a system adjustment, but it's possible to manually perform one if desired using the same procedure as above.

Job correction

To define a correction window in job welding, it's now possible to set the correction (High/Low) for power and arc length independently for each job.

This function can be found at "process parameter" – "job" – "job correction"



Setting range Power correction high/low: +20/-20 % (default setting 0%)
Setting range Arc length correction high/low: +10/-10 (default setting 0)

Job correction during welding is only possible with a JobMaster torch. You can't use job correction with a basic or U/D torch while welding.

21.5 Fixed bugs TPS 320i - 600i

Adaption languages

Minor corrections where implemented on a few languages.

21.6 New function RI FB Inside/i

Job 0

If Job 0 is called through the interface it is now possible to change the Job on the front panel

Welding simulation

When running in mode "welding simulation" the interface now transmits the signals: Process active, current flow, main current signal.

Process controlled correction

The arc length stabilizer for PMC welding can now be controlled via the interface.

Signal range from -327,68 till + 327,68 (equals 0.0 till 5.0 on the arc length stabilizer setting)

21.7 Fixed bugs RI FB Inside/i

Name for ProfiNet is now taken over

Attention: when performing a software update from V1.6.3 to V1.6.4 the ProfiNet Name will be deleted – the Profibus Master has to assign a new name to the module (the ProfiNet module is set back to factory setting)
If V1.6.4 is installed, the module will keep its name with the next updates.

Synergic line numbers

It's no longer possible to type letters into the synergic line number.

Signals

If the interface is lost or disconnected during welding, the system shuts down the arc.

Welding start is only possible if there is no error on the system.

Change in Retrofit Mode: the signal Synchro pulse disable has changed to Synchro pulse ON/OFF

The signal "Power source ready" is HIGH, if there is no error on the system and the signal "Robot ready" is set HIGH. This is the standard for all images (Standard- , Eco-, Retrofit -).

22CHANGES FROM V1.6.0 TO V1.6.3

Date: August 11th 2015

22.1 Software version of system components

MCU	1.2.442
Spider	2.5.24
SR63	1.305.0
iJob	1.5.0
iUpDo	1.0.6
FKS	1.0.34
PullMig	1.25.0
RC Panel Basic	0.0.69
RC Panel Standard	1.0.22
RI FB Inside/I	1.3.10
ROB202	1.3.0
ROB302	1.4.0
ROB502	1.9.0
iRob	1.4.8

22.2 New functions

TPS 270i C Pulse is supported

The following languages have been implemented on the TPS 270i C PULSE:

de, en, cs, es, fr, hr, hu, pl, pt, ro, ru, sk, sl, tr

Information: Japanese, Korean and Chinese cannot be displayed.

„Export Job(s) as...“

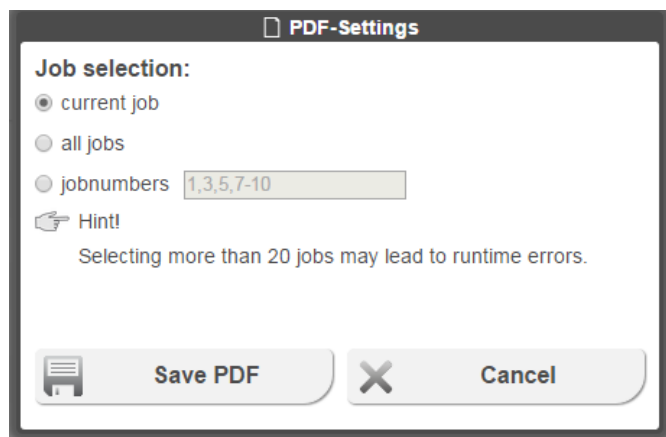
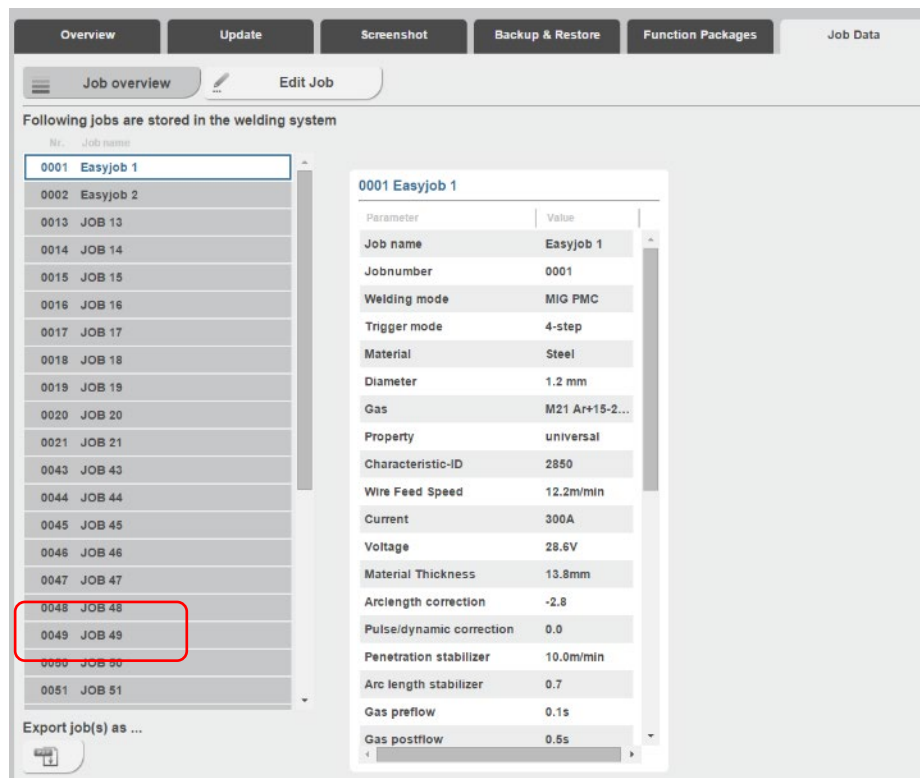
The function „export job(s) as,...“ enables the set value documentation of saved jobs.

This function is available as a standard.

The job data's can be exported as a pdf-file.

Requirement: The browser has to support HTML5 (e.g Internet Explorer 10 and higher, Chrome, Firefox)

Instruction: tab – “Job Data” → click button “Export job(s) as...” → job selection in detail → save pdf



New language implemented

The language Icelandic is now available and can be selected directly on the power source. The Korean language has been added on the web browser.

22.3 Fixed bugs

With the function "Edit Job" the parameter wire feed speed can now be set variably. Requirement: OPT/i Jobs is enabled.

23CHANGES FROM V1.5.1 TO V1.6.0

Date: April 30th 2015

23.1 Software version of system components

MCU	1.1.406
Spider	2.4.116
SR63	1.272.7
iJob	1.4.7
iUpDo	1.0.6
FKS	1.0.30
PullMig	1.16.0
RC Panel Basic	0.0.67
RC Panel Standard	1.0.21

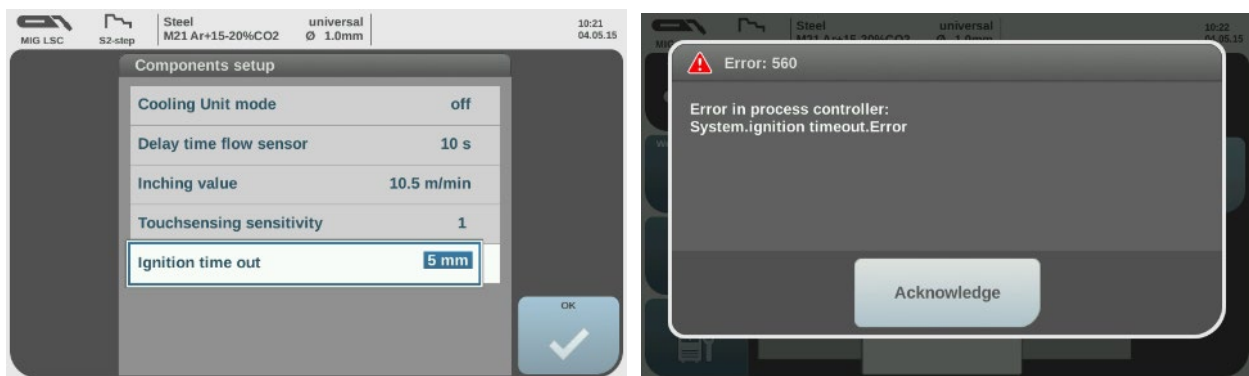
23.2 New functions

Ignition time out

The ignition time out can now be set in Component setup (wire length until safety stop)

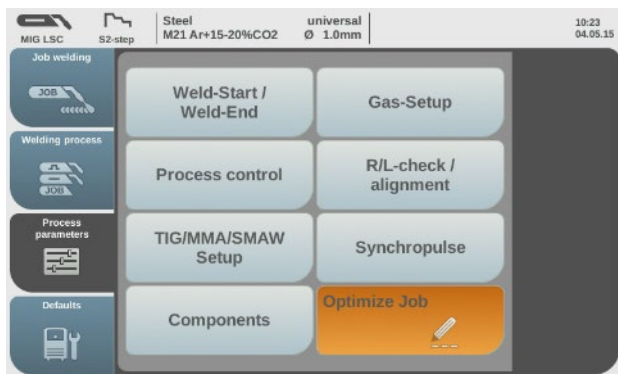
Setting range: off ; 5 – 100mm / 0,1 – 4 inch

Factory setting: off

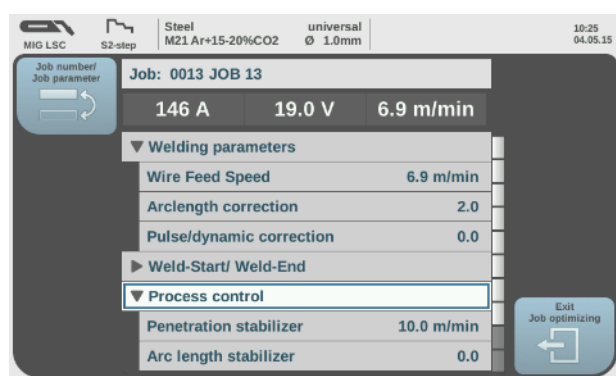


Optimize job

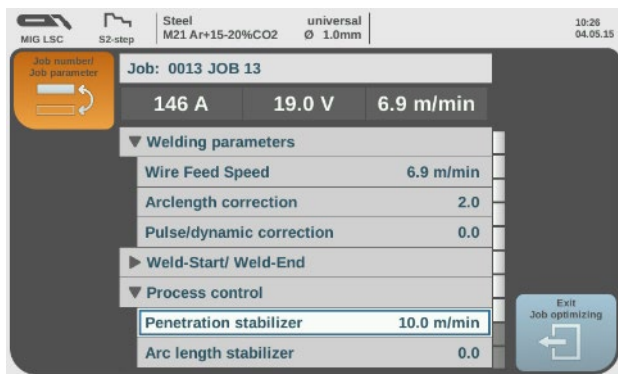
In process parameter the function Optimize Job has been added.
This function enables editing and saving job parameter in real time.



Optimizing Jobs is structured in process relevant parameter, which can easily be extended by selecting the desired parameter.



With the help of the tab „Job number / Job parameter“, an easy changing between the last edited parameter and the Job number is possible.



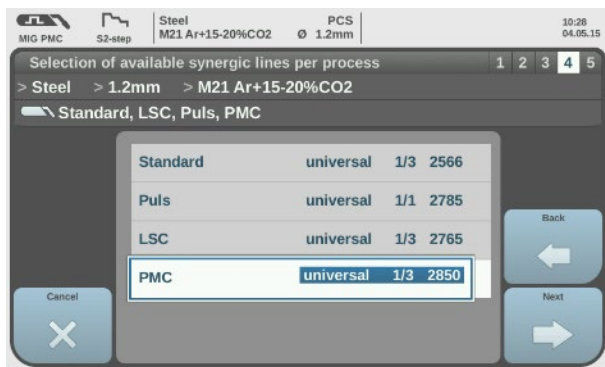
Priority setup activated

The priority setup manages, where parameter in the system can be adjusted.

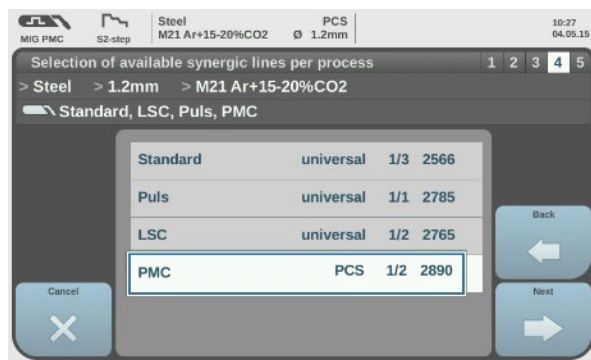
i.e.: if a WF 25i with operation panel Basic (Potentiometer) is connected, the parameters wire feed speed and arc length correction can only be adjusted on the wire feeder. If the operation panel Standard is installed, parameters can be adjusted on the power source or on the wire feeder.

Replaced synergic lines

At the selection of available synergic lines per process are only the newest synergic lines displayed now.

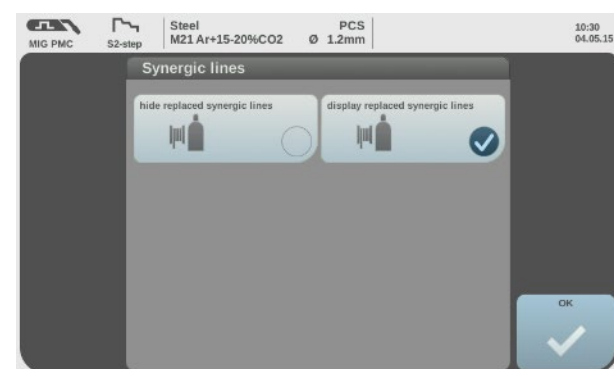
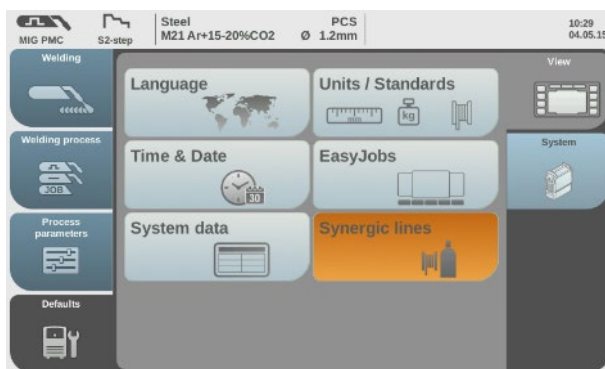


Up to V1.5.1 3 synergic lines are available



From V1.6.0 2 synergic lines are available

The previous synergic lines are still available in the background and can be displayed again.



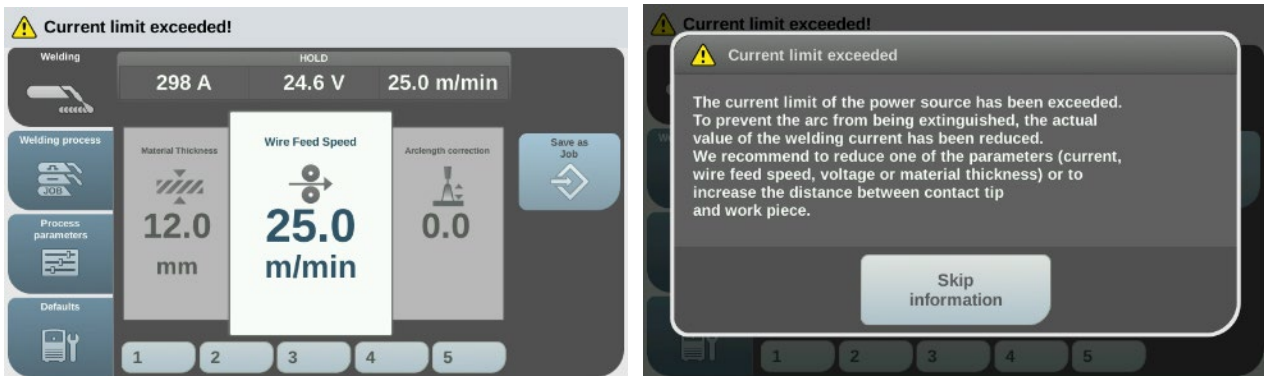
Extension keyboard

More symbols are available on the keyboard.



Power limit activated

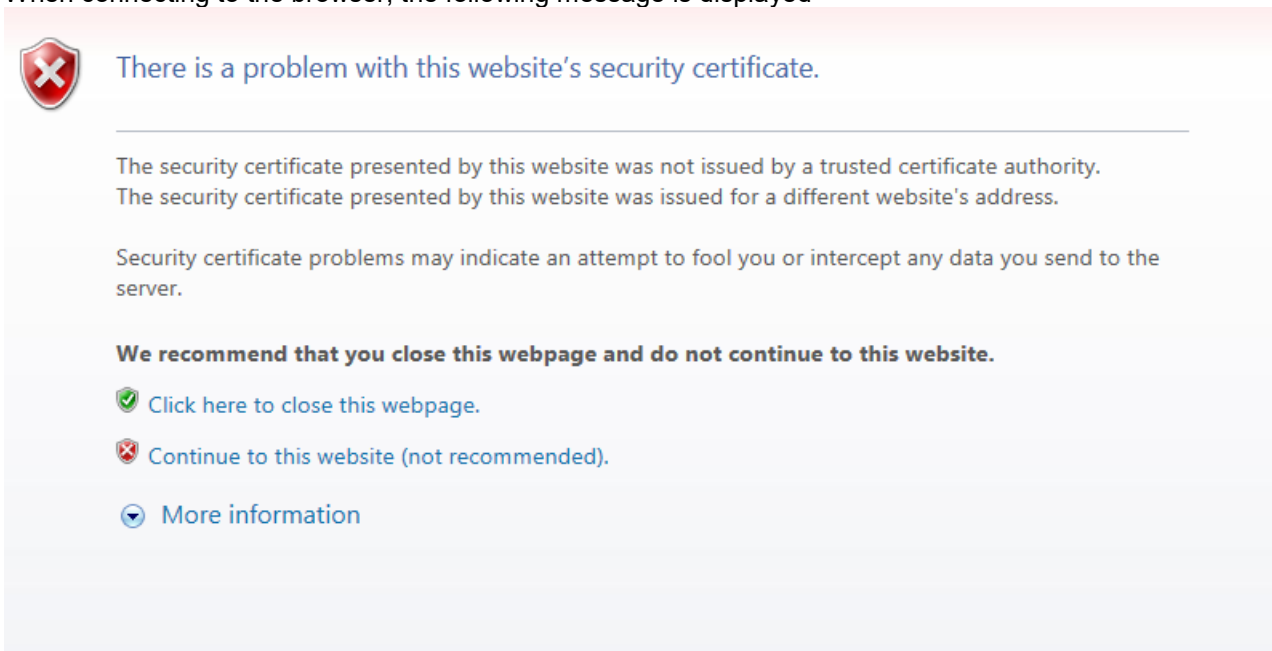
If a power source exceeds its current limit, the wire feed speed is automatically reduced. A hint is displayed in the status line. For more information an info window can be opened by touching on the status line.



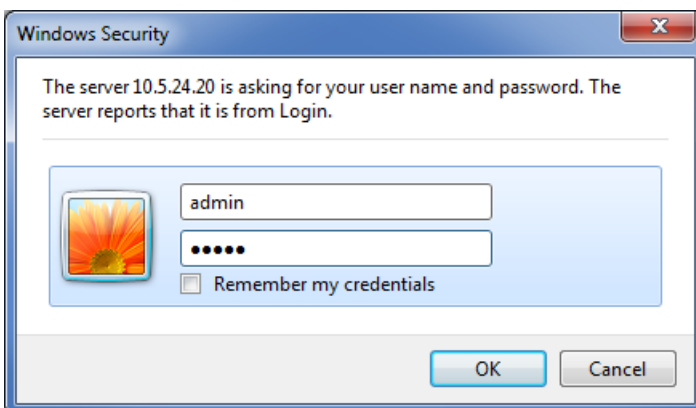
Login am WebBrowser

The protocol has changed from http:// to https://

When connecting to the browser, the following message is displayed



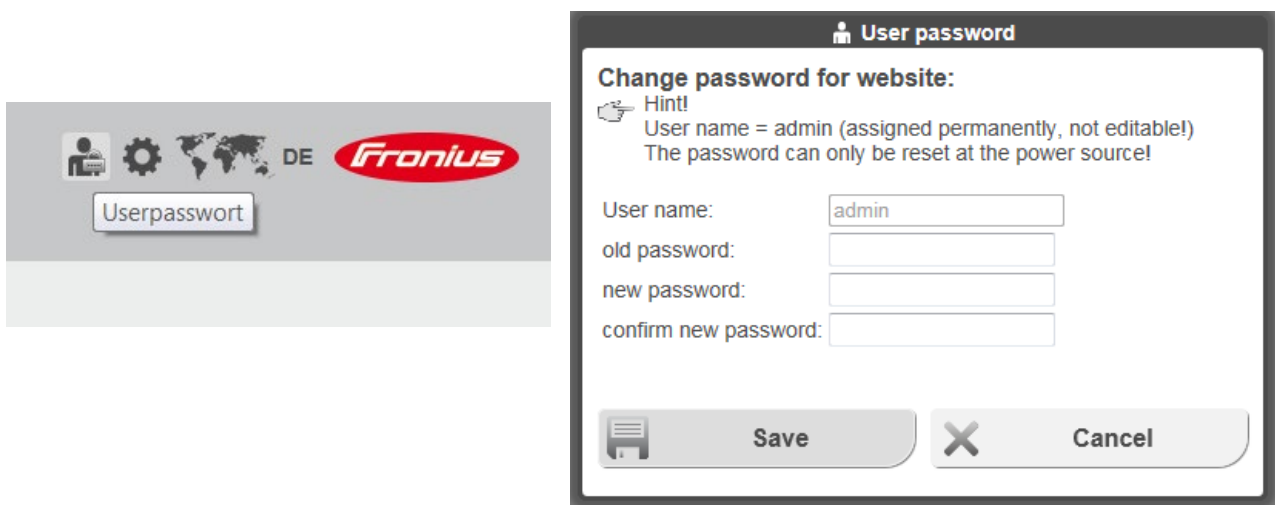
With „Continue to this website“ a Windows-safety window appears



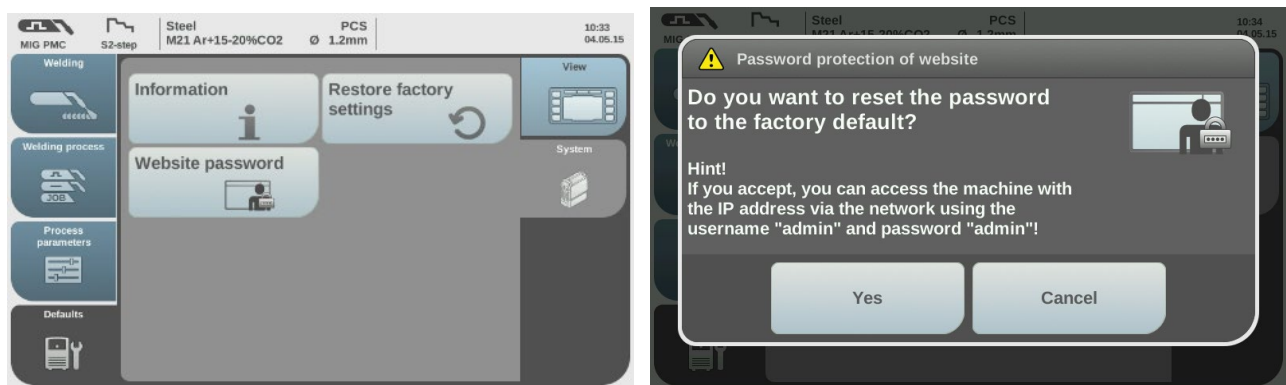
User name: admin

Password: admin

The password can be changed in the WebBrowser.



The password can be reset to factory setting on the power source.



24CHANGES FROM V1.5.0 TO V1.5.1

Date: March 18th 2015

24.1 Software version of system components

MCU	1.0.373
Spider	2.4.100
SR63	1.240.10
iJob	1.4.7
iUpDo	1.0.5
FKS	1.0.27
PullMig	0.51.1
RC Panel Basic	0.0.62
RC Panel Standard	0.0.15

24.2 New functions

MCU

New Bootloader Version 2014.01.0.2-svn6359 has been implemented

24.3 Fixed bugs

Cooling system

Limit values of level sensor have been adjusted.

25 CHANGES FROM V1.4.3 TO V1.5.0

Date: February 9th 2015

25.1 Software version of system components

MCU	1.0.373
Spider	2.4.95
SR63	1.240.10
iJob	1.4.7
iUpDo	1.0.5
FKS	1.0.25
PullMig	0.51.1
RC Panel Basic	0.0.62
RC Panel Standard	0.0.15

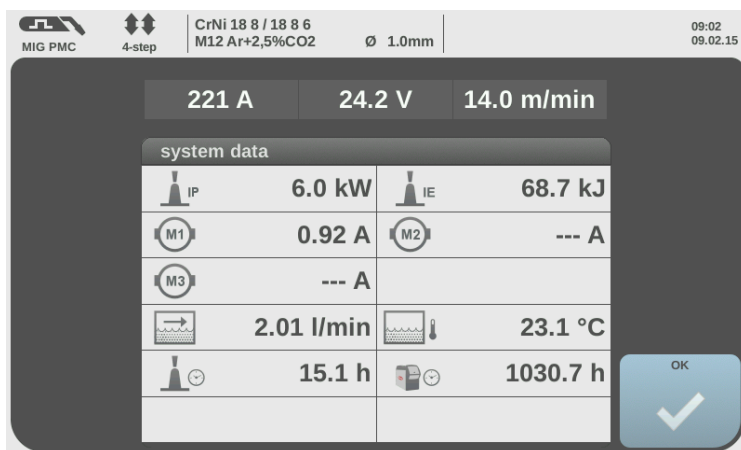
25.2 New functions

Changed display of pre-setting

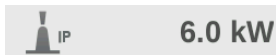
The pre-settings are split into two tabs now



Display system data



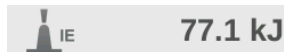
Instantaneous power



The **Instantaneous Power** (IP) is a result of current and voltage with very high sample rate.

At welding processes with variable current profiles, this value displays the correct result of the instantaneous power and is needed to calculate the energy input per unit length.

Real Energy



The Real Energy **IE** (Instantaneous Energy) summarizes the **Instantaneous Power** and calculates the heat input of the last welding seam. With the Real Energy and the seam length it is possible to calculate the Energy Input per Unit length.

This is especially needed for manual welding.

Calculation of energy input per unit length



$$E = \frac{\text{Lichtbogenenergie}}{\text{Schweißnahtlänge}}$$
$$E = \frac{77,1 \text{ kJ}}{10 \text{ cm}}$$
$$E = 7,71 \text{ kJ/cm}$$

Information: The values are calculated during welding.

The hold values are displayed until the next ignition.

Motor current

M1	0.93 A	M2	--- A
M3	--- A		

picture 1

M1	0.06 A	M2	0.29 A
M3	--- A		

picture 2

The motor current display depends on the existing wire feed motors in the system.

M1 is the motor, which is the closest to the arc

- Picture 1 is a Push-system with only one wire feeder
- Picture 2 is a Push-Pull-system – M1 is the motor current of the PullMIG-motor and M2 is the main motor.
- M3 is for additional synchronized reel wire feeders in future.

Flow rate and cooling liquid temperature




If the option Flow-Thermo sensor is installed, the actual cooling liquid flow rate and the cooling liquid temperature is displayed.


Limit value for flow rate: Errors when flow rate is less than 0,7l/min

Limit value for cooling liquid return temperature: Errors when the coolant temperature exceeds 70°C (158°F)

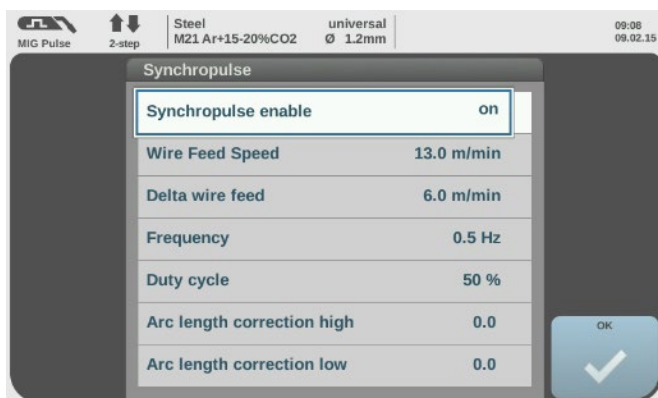
Operating hours and duty cycle



The  symbol indicates the actual welding time (arc on time) with this system.

The  symbol indicates how long the system has been switched on.

Synchropulse



The Synchropulse is now available as standard and can be used also with Pulse and Standard power sources.

New languages implemented

Korean language has been implemented at the power source and can be selected now.

On the WebBrowser the languages Chinese and Russian have been implemented additionally.

Synergic lines overview

On the WebBrowser you can find an overview of all available or possible synergic lines, depending on the Welding Packages in the power source.

With the filter function it is possible to search for synergic lines very easily.

TPS/i

Overview Update Screenshot Backup & Restore Function Packages Job Data Synergic lines overview

Available synergic lines Possible synergic lines

Following synergic lines are available in the welding system

Search: X

Status	Material	Diameter	Gas	Property	Welding mode	ID	replaced by	Special
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> select all	<input checked="" type="checkbox"/> select all	<input checked="" type="checkbox"/> select all	<input checked="" type="checkbox"/> select all	<input checked="" type="checkbox"/> select all			<input checked="" type="checkbox"/> no value
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Al 99.5	<input checked="" type="checkbox"/> 0.5 mm	<input checked="" type="checkbox"/> C1 100% CO2	<input checked="" type="checkbox"/> arc blow	<input checked="" type="checkbox"/> MIG LSC			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> AlMg 5	<input checked="" type="checkbox"/> 0.5 mm	<input checked="" type="checkbox"/> I1 100% Ar	<input checked="" type="checkbox"/> arcing	<input checked="" type="checkbox"/> MIG PMC			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> AlMg4.5Mn(Zr)	<input checked="" type="checkbox"/> 0.9 mm	<input checked="" type="checkbox"/> I3 Ar+30%He	<input checked="" type="checkbox"/> braze	<input checked="" type="checkbox"/> MIG Pulse			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> AlSi 5	<input checked="" type="checkbox"/> 1.0 mm	<input checked="" type="checkbox"/> I3 Ar+50%He	<input checked="" type="checkbox"/> cladding	<input checked="" type="checkbox"/> MIG Standard			
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Cr 10 L Nb	<input checked="" type="checkbox"/> 1.2 mm	<input checked="" type="checkbox"/> M12 Ar+2.5%CO2	<input checked="" type="checkbox"/> dynamic				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CrNi 13.4	<input checked="" type="checkbox"/> 1.4 mm	<input checked="" type="checkbox"/> M12 Ar+20.30%	<input checked="" type="checkbox"/> PCS				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CrNi 18.8 / 18...	<input checked="" type="checkbox"/> 1.6 mm	<input checked="" type="checkbox"/> M12 Ar+30%He...	<input checked="" type="checkbox"/> root				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> CrNi 19.9 / 19...	<input checked="" type="checkbox"/> 2.4 mm	<input checked="" type="checkbox"/> M12 Ar+33%He...	<input checked="" type="checkbox"/> universal				

ID	Material	Diameter	Gas	Property	Welding mode	ID	replaced by	Special
2797	Al 99.5	1.2 mm	I1 100% Ar		MIG Pulse	2797		
2798	Al 99.5	1.6 mm	I1 100% Ar		MIG Pulse	2798		
2799	AlMg 5	1.0 mm	I1 100% Ar		MIG Pulse	2799	3046	
3046	AlMg 5	1.0 mm	I1 100% Ar		MIG Pulse	3046		
3072	AlMg 5	1.0 mm	I1 100% Ar		MIG PMC	3072		
2612	AlMg 5	1.2 mm	I1 100% Ar		MIG Standard	2612		
2800	AlMg 5	1.2 mm	I1 100% Ar		MIG Pulse	2800	3044	
2917	AlMg 5	1.2 mm	I1 100% Ar		MIG PMC	2917	3045	
3044	AlMg 5	1.2 mm	I1 100% Ar		MIG Pulse	3044		
3045	AlMg 5	1.2 mm	I1 100% Ar		MIG PMC	3045		
2614	AlMg 5	1.6 mm	I1 100% Ar		MIG Standard	2614		
2801	AlMg 5	1.6 mm	I1 100% Ar		MIG Pulse	2801	3059	
2918	AlMg 5	1.6 mm	I1 100% Ar		MIG PMC	2918	3058	

25.3 Fixed bugs

Adaption languages

Minor corrections were implemented on few languages.

26 CHANGES FROM V1.4.2 TO V1.4.3

Date: November 3rd 2014

26.1 Software version of system components

MCU	1.0.338
Spider	2.4.68
SR63	1.235.0
iJob	1.4.4
iUpDo	1.0.5
FKS	1.0.17
PullMig	0.51.0
RC Panel Basic	0.0.62
RC Panel Standard	0.0.15

26.2 New functions

26.3 Fixed bugs

Touch Display remains dark after turning the power source on


With this software the BootLoader will be updated to Version 2014.01.0-svn5115

As soon as this BootLoader is active, the Fronius logo will appear on the display after approx. 2 seconds.

Important: Rebooting the software via the Web Browser doesn't activate the new BootLoader – the system has to be turned OFF and ON via the main switch!

Check the BootLoader version afterwards with the Web Browser – it is possible that the system has to be turned OFF and ON again.

System components



firmware-version: 1.4.3-5794
part number: 4,075,171
serial number: 24342111
production date: 2013-08-16, 10:43

▼ TPSi Touch

part number: 43,0001,3363

▼ MCU1

part number: 4,071,145
version: 1.0D_B
serial number: 24201000957690016
production date: 2013-05-22, 16:06

▼ bootloader

version: 2014.01.0-svn5115

► image

► licenses

Arc interruption during process change

If a process change is made during welding in Job mode (e.g. the process is changed from LSC to PMC) the arc breaks for a short moment.

This bug is fixed now!

Problem in 2-step mode

In 2-step mode it could happen, if the gun trigger is pressed in a fast and frequent manner, that the system was reacting like it was set to 4-step mode

This bug is fixed now!

Adaption of languages

Minor corrections were implemented on few languages.

27 CHANGES FROM V1.4.1 TO V1.4.2

Date: September 26th 2014

27.1 Software version of system components

MCU	1.0.338
Spider	2.4.57
SR63	1.217.0
iJob	1.4.2
iUpDo	1.0.4
FKS	1.0.16
PullMig	0.50.0
RC Panel Basic	0.0.62
RC Panel Standard	0.0.11

27.2 New functions

New language available

Ukrainian was implemented and is now selectable.

27.3 Fixed bugs

Adaption of languages

Minor corrections were implemented on few languages.

28 CHANGES FROM V1.4.1 TO V1.4.2

Date: August 1st 2014

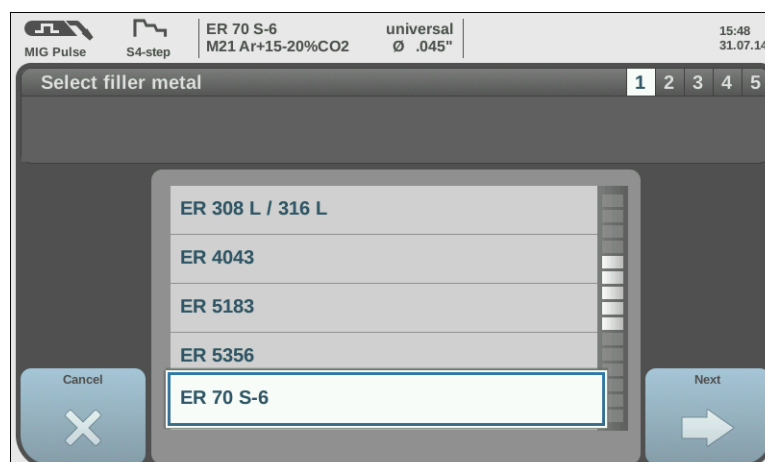
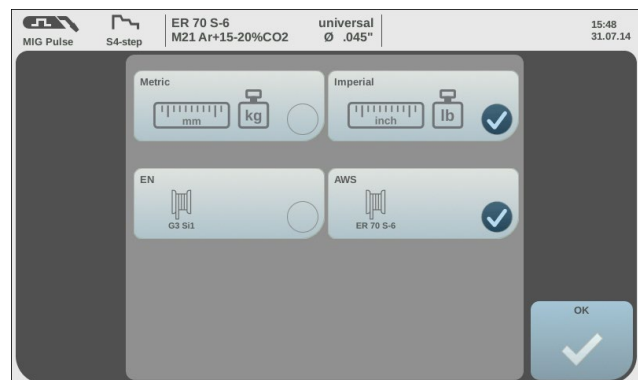
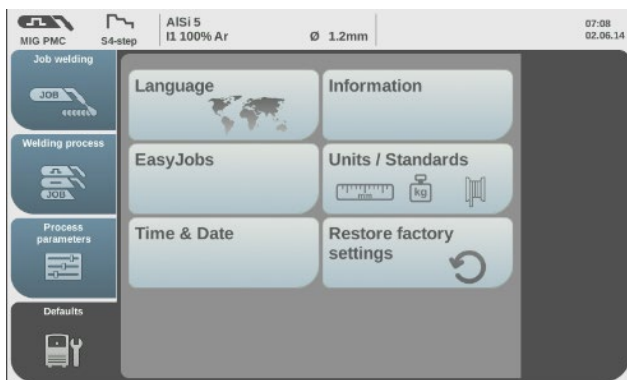
28.1 Software version of system components

MCU	1.0.338
Spider	2.4.40
SR63	1.210.0
iJob	1.4.2
iUpDo	1.0.4
FKS	1.0.16
PullMig	0.47.0
RC Panel Basic	0.0.62
RC Panel Standard	0.0.11

28.2 New functions

AWS wire designations

Under defaults it is now possible to change the desired wire designation in the tab “Units / Standards”.



OPT/i GUN Trigger (4,067,005)

This is a special gun trigger function for the mode Special-4-Step in combination with a Job-Master welding torch.



Display for default setting on MCU with activated OPT/i GUN Trigger

This option allows switching Jobs within defined Job-groups during welding via the gun trigger.

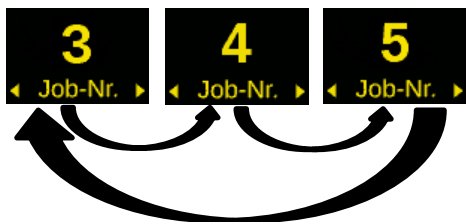
A Job-group is defined as being a sequential series of jobs, the group ends at a non-programmed job number.

Example:

Job-group 1: Job 3/4/5

Job 6: not assigned

Job-group 2: Job 7/8/9

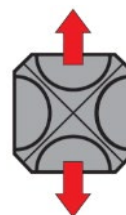


Within a Job-group the Job is changed to the next programmed Job by pressing the torch trigger shorter than 0,5 sec.

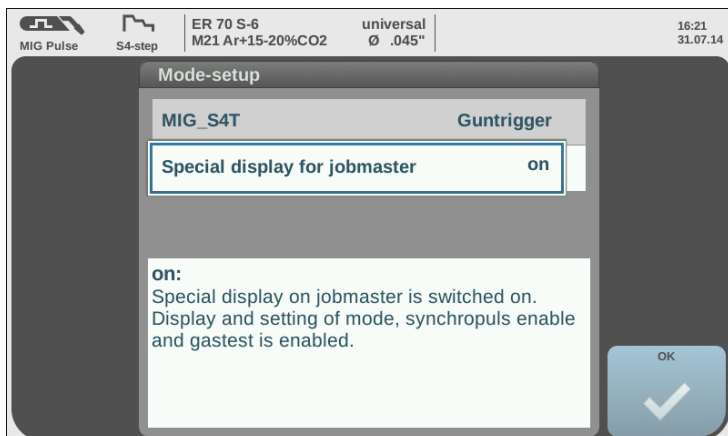
For arc end press the trigger longer than 0,5 sec.

The lowest Job number of the group is always called for the arc start.

To change to the next Job-group press the button for parameter adjustment on the Job-Master torch longer than 5 seconds.



Special display for Job-Master



Dies erlaubt am Jobmaster die zusätzlichen Einstellungen: Betriebsart, Synchropuls und Gastest



New language implemented

Japanese has been added and is now selectable.

28.3 Fixed bugs

R/L alignment

Welding potential has been on the contact tip if the gun trigger was used at the first step of the R/L-alignment to switch through the wizard.

This bug has been fixed and the alignment functions again.

29 CHANGES FROM V1.3.2 TO V1.4.0

Date: April 15th 2014

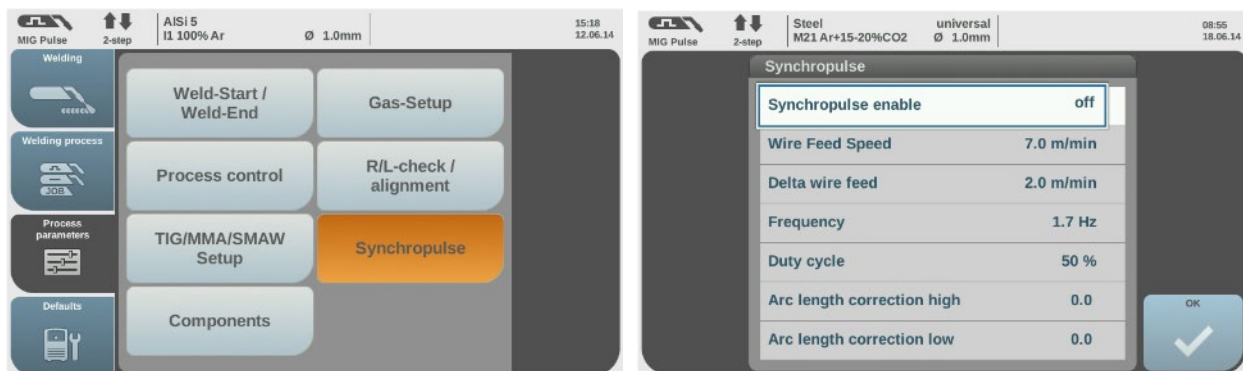
29.1 Software version of system components

MCU	1.0.330
Spider	2.4.36
SR63	1.195.12
iJob	1.4.1
iUpDo	1.0.4
FKS	1.0.16
PullMig	0.46.0

29.2 New functions

Synchropulse

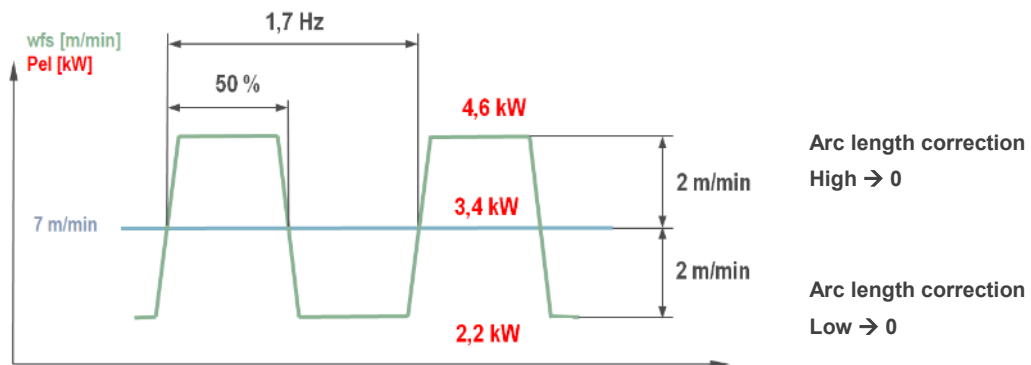
Synchropulse is as of right now for the TPS/i available as soon as either the process LSC or PMC is installed. Synchropulse works then for all installed processes. (Standard / Pulse / LSC / PMC)



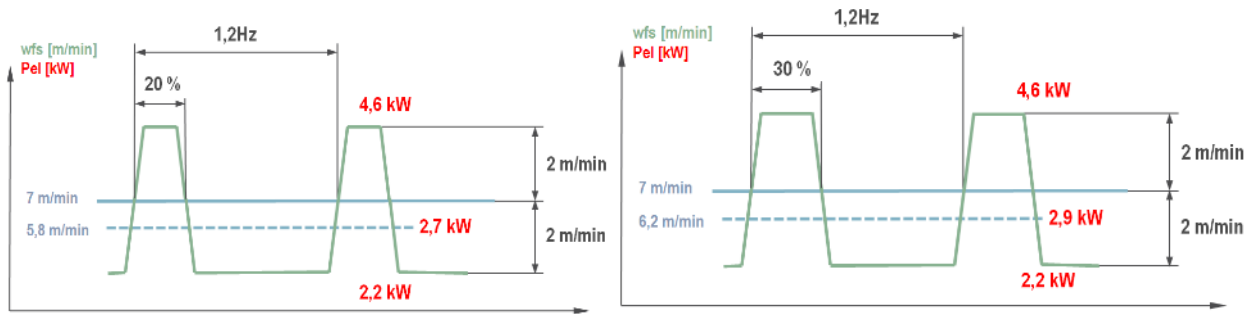
New parameter: Duty Cycle (high)

This parameter enables a controlled heat input

Setting range: 10 – 90% (default setting 50%)



Synchropuls Profil with adjustable parameters



Resulting heat input with adjusted Duty cycle parameter on Synchropulse

Additional parameters:

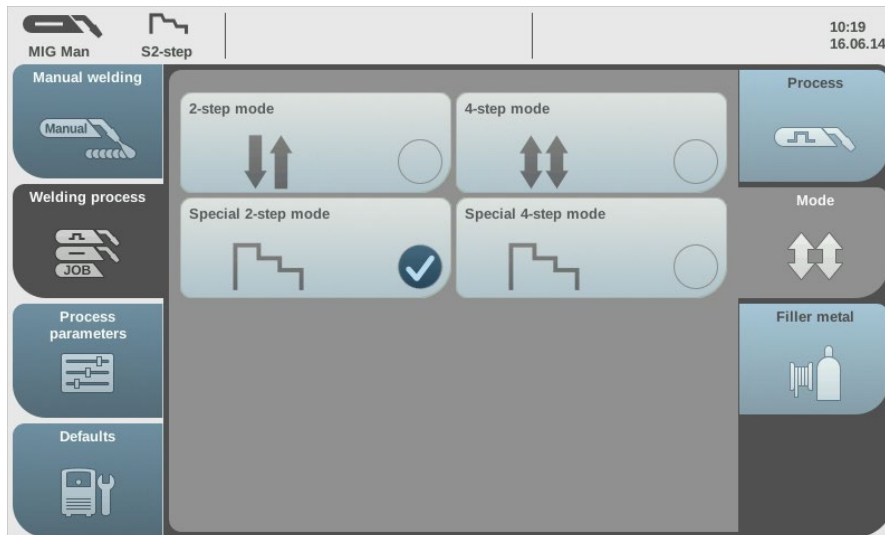
Frequency: Setting range from 0,5 to 3 Hz

Delta wire feed: Setting range from 0,1 to 6 m/min / 5 to 235 ipm (delta total 12m/min – 470ipm)

Arc length correction High/Low: Setting range from -10 to +10

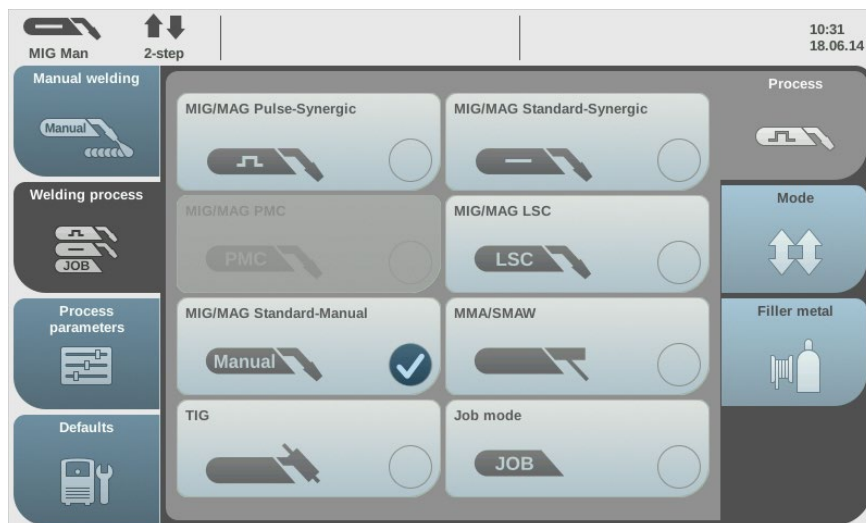
Special 2 step

Special 2 step mode (S2T) is now available.



MIG/MAG Standard Manual – WIG – MMA/SMAW welding implemented

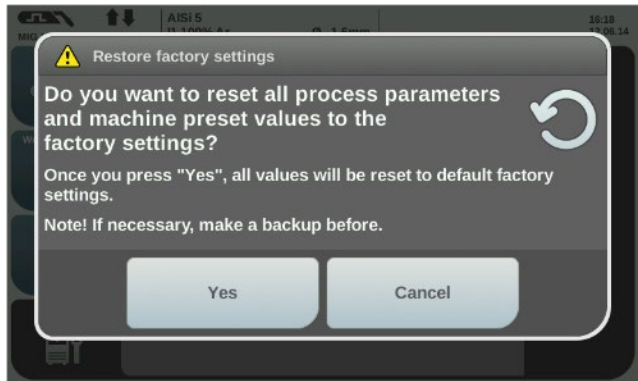
Standard manual -, MMA/SMAW – and TIG welding are now available as standard.



Restore factory settings

The power source can now be set back to factory settings. Saved EasyJobs or Jobs remain stored on the system.

A warning window will appear with the question if you really want to reset all parameters. If you press yes, all parameters will be set back to factory settings.

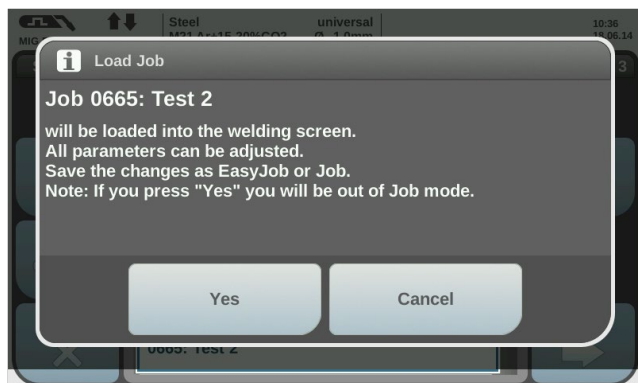
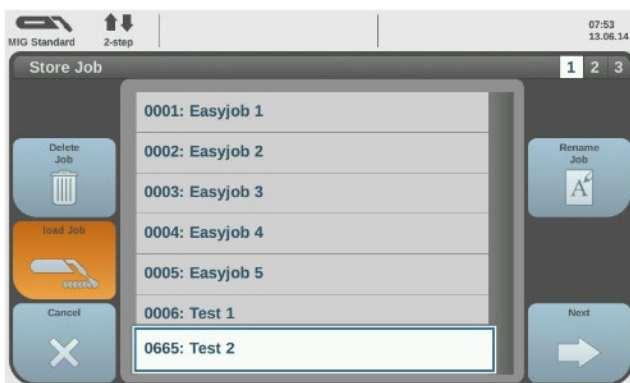


Load job

In the section **Save as Job** it is now possible to load an existing EasyJob or Job again into the section Welding (carousel) via **load Job**.

All parameters can now be changed.

Attention: if a Job is loaded into the section Welding you will be out of Job mode! Changes have to be saved again as Easy Job or Job!



View jobs on WebBrowser

The tab Job Data was implemented on the WebBrowser. All stored jobs of the power source can be visualized.

Note: it is not possible to edit or copy Jobs!

TPS/i

Overview

Update

Screenshot

Backup & Restore

Function Packages

Job Data

Following jobs are stored in the welding system

Nr.	Job name
0001	Easyjob 1
0002	Easyjob 2
0003	Easyjob 3
0004	Easyjob 4
0005	Easyjob 5
0006	Test
0024	ggg
0034	test

0001 Easyjob 1

Parameter	Value
jobname	Easyjob 1
Jobnumber	0001
Welding mode	MIG Puls
Trigger mode	S4-step
material	Steel
diameter	1,0
gas	M21 Ar+15-2...
property	universal
characteristic-ID	2784
Wire Feed Speed	14.9m/min
Arclength correction	-0.3
Pulse/dynamic correction	1.8
Penetration stabilizer	6.5m/min
Arc length stabilizer	0.0
Gas preflow	0.5s
Gas postflow	2.0s
Inching value	8.5m/min
Starting current	140%
Start Arclength correction	0.0
Slope 1	1.5s
Slope 2	0.3s
End current	60%

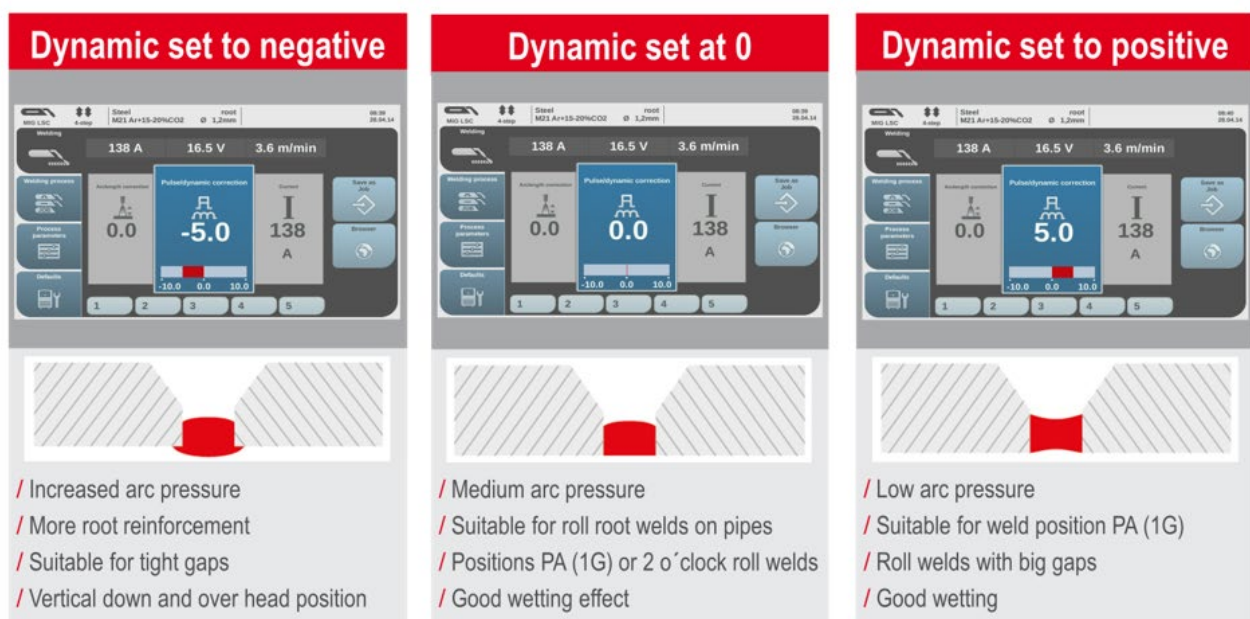
Screenshot

The tab Screen shot was implemented on the WebBrowser. The current display of the power source can now easily be saved as picture.



Neue LSC Steel Root synergic line characteristics (LSC & LSC Adv)

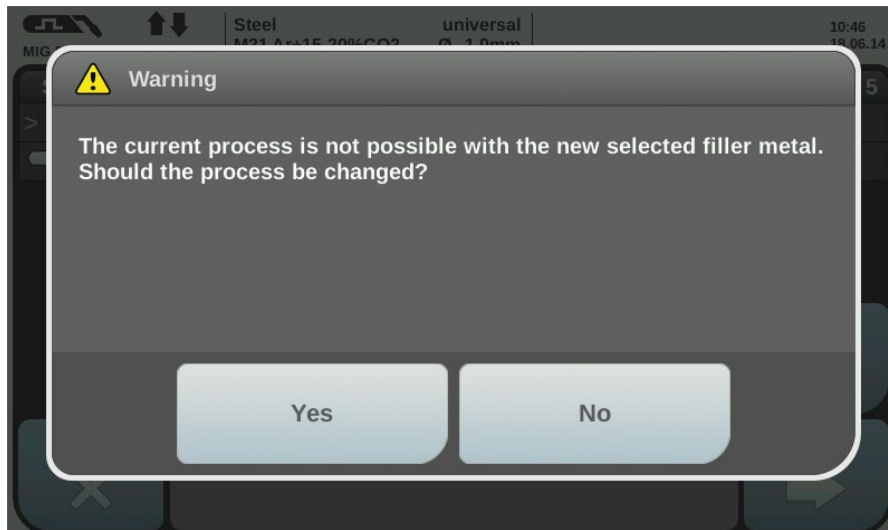
The new synergic lines allow an adjustment of the arc pressure by using the dynamic correction



29.3 Fixed bugs

Process selection after synergic line change

If after a synergic line change the previous selected process is not available anymore, a warning window will appear.



EasyJob

The check mark will disappear if welding parameters are changed on a selected EasyJob. The check mark will be shown again if the EasyJob is reselected.



R/L alignment

The R/L alignment cannot be started any more during welding.

30 CHANGES FROM V1.3.1 TO V1.3.2

Date: April 15th 2014

30.1 Software version of system components

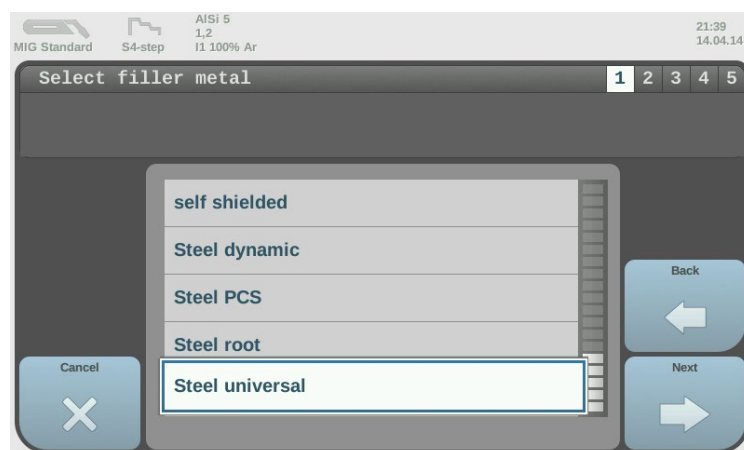
MCU	1.0.288
Spider	2.4.17
SR63	1.173.4
iJob	1.3.4
iUpDo	1.0.4
FKS	1.0.15
PullMig	0.43.0

30.2 New functions

Filler material selection

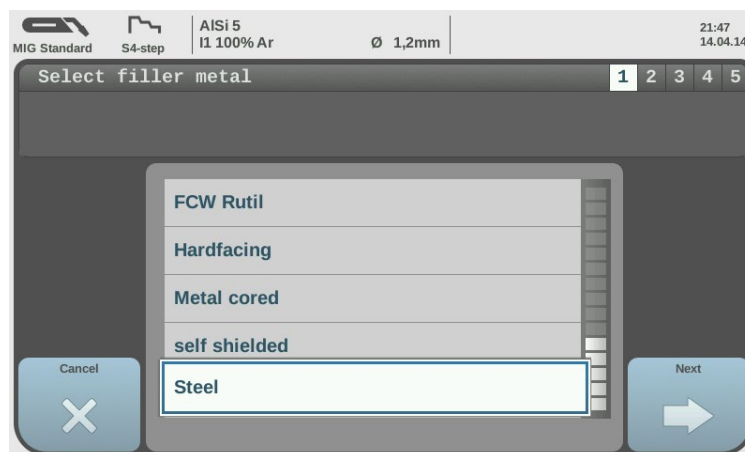
The structure of the material wizard was changed to multiple choice selections per welding process.

Previous display



Changes

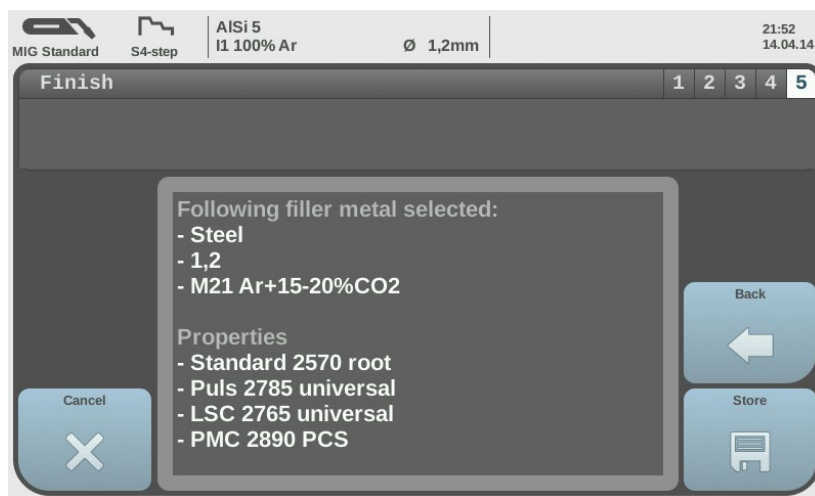
Step 1: Filler metal selection – only the filler metal is displayed



Step4: selection of the available synergic line per process



Multiple synergic lines can be available per process. Select them via the rotary push potentiometer.



Contrast

The contrast of the status line and in the tab process selection was adjusted



Previous

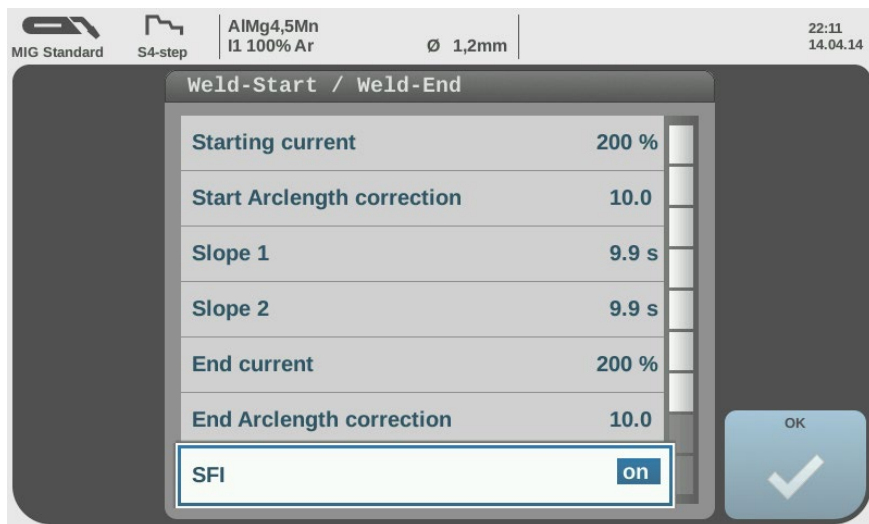
V1.3.2

SFI

Setting range: Off/On (default setting Off)

The SFI function is available for all PMC synergic lines, can be turned OFF or ON and works with **all Fronius TPS/i Push or PushPull** welding torches.

For 1,6mm / 1/16" aluminum PMC synergic lines SFI is turned On as default to ensure a good ignition.

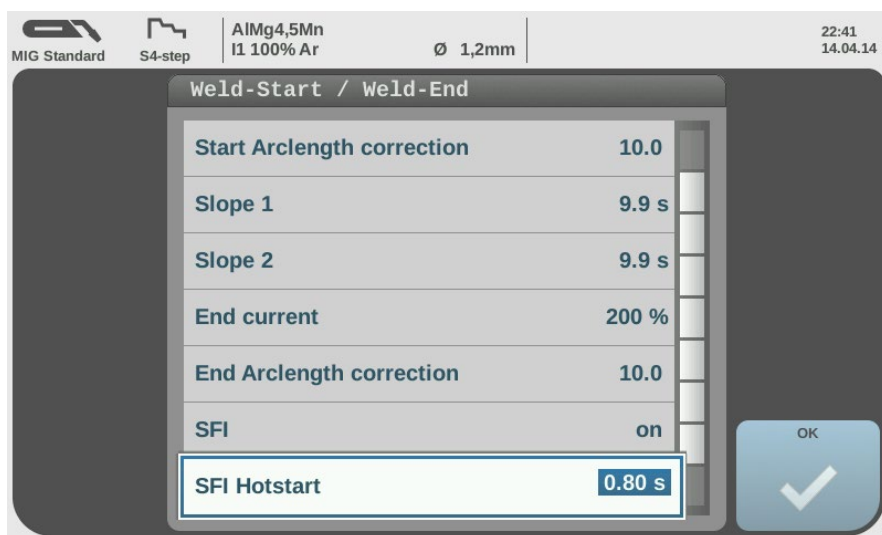


SFI Hotstart

Setting range: Off/0,01 – 2 sec. (default setting Off)

This parameter works only in combination with SFI ignition on PMC aluminum synergic lines.

A spray arc is set for the Hotstart duration during the SFI ignition. This ensures a higher heat input (independent of the trigger mode 2T/4T/S4T) and therefore a deeper penetration right from the welding start.



PushPull conversion kits

The conversion kits 4,100,803,CK (TPS 320i C) and 4,100,829,CK (WF 15i/25i/30i) are now supported from the software and can be installed at any time.

New language

Croatian was implemented and is selectable

30.3 Fixed bugs

Adaption of languages

Minor corrections were implemented on few languages.

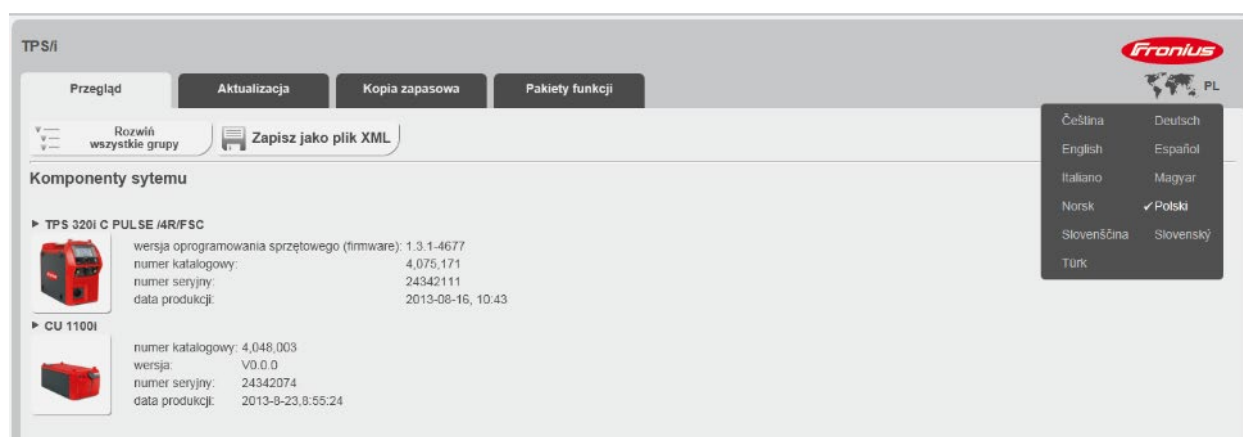
31 CHANGES FROM V1.3.0 TO V1.3.1

Date: March 10th 2014

31.1 New functions

New language on WebBrowser

Polish is now available in the WebBrowser



31.2 Fixed bugs

Internal software bug has been fixed

An error which impeded the internal test procedure was fixed.

Adaption of languages

Minor corrections where implemented on a few languages.

32 CHANGES FROM V1.2.5 TO V1.3.0

Date: February 17th 2014

32.1 Software version of system components

MCU	1.0.260
Spider	2.2.93
SR63	1.142.14
iJob	1.3.4
iUpDo	1.0.4
FKS	1.0.15
PullMig	0.39.1

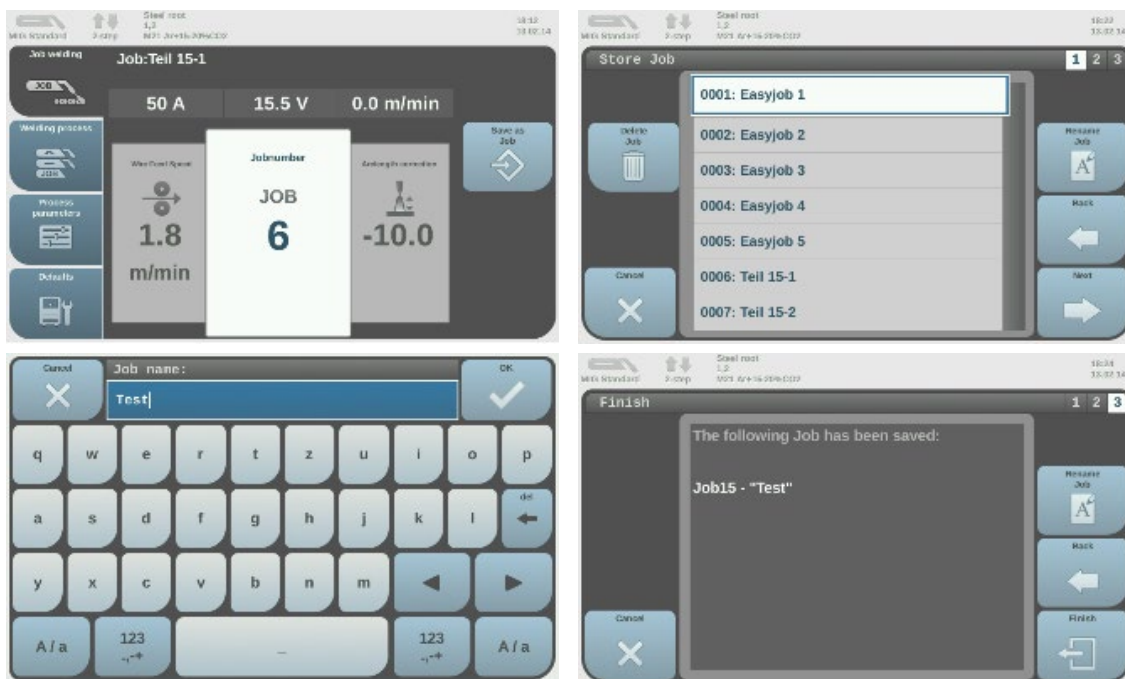
32.2 New functions

Following languages are now selectable:

Chinese	Czech	German	Estonian	English
Spanish	Finnish	French	Hungarian	Italian
Latvian	Dutch	Norwegian	Polish	Portuguese
Russian	Slovak	Slovenian	Swedish	Turkish
Lithuanian	Romanian			

Job mode

Up to 1000 Jobs can now be saved and selected.



The Job selection is via U/D or Job Master torch possible.

Date & time / adjustable units

In the default tab are now Date & Time and the shown Units adjustable



Arc length stabilizer

The parameter “Arc length stabilizer” is available if the process PMC is enabled on the power source.

Setting range: 0 (= off); 0,1 – 2

Default setting: 0 (= off)

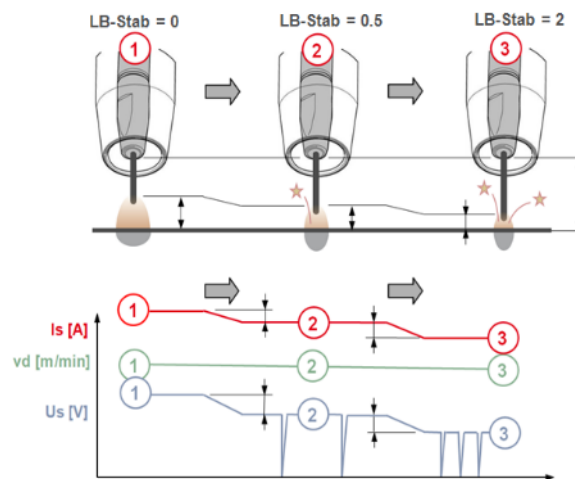
Recommendation for Manual welding is a setting of 0,1 to 0,5

By activating the “Arc length stabilizer”, the arc length is reduced until short circuits appear.

The number of short circuits that appear during welding is regulated and kept stable.

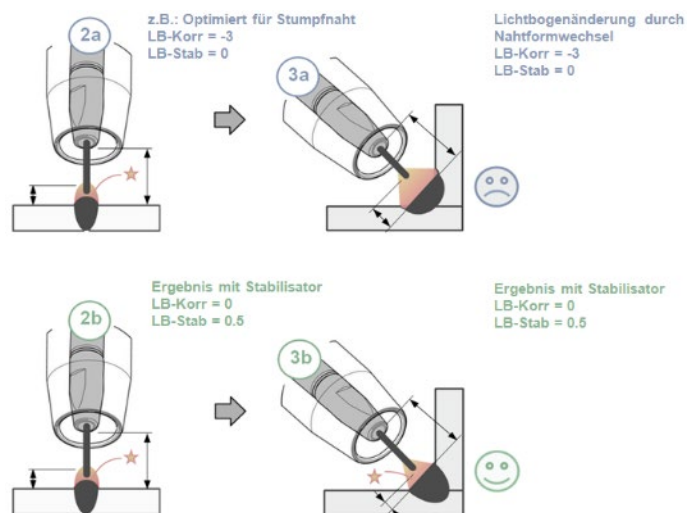
An increase of the “Arc length stabilizer” value causes again a shorter arc length.

The benefits of a short and stable regulated arc can now be better used.



Effect of the “Arc length stabilizer”

Independent of the welding position, the seam geometry or other influences, the welding characteristic of the short circuit regulated arc remain the same.



Same welding characteristic when using the “Arc length stabilizer”

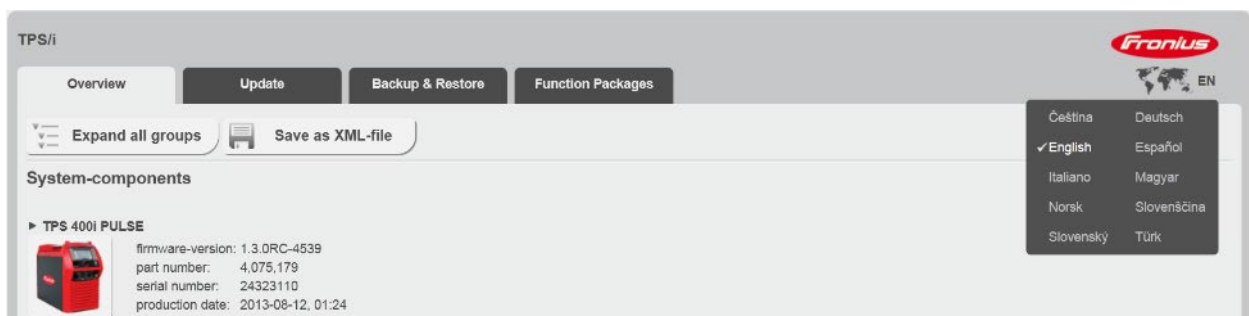
SFI with Aluminium PMC synergic lines

To ensure a perfect ignition on Aluminum, SFI is now standard with the process PMC on all Aluminum synergic lines. SFI works with PushPull torches as well as with standard Push torches. This requires a correct setup of the welding torch (inner liner, contact tip,).

New languages on WebBrowser

For the WebBrowser are following languages available:

Czech	German	English	Spanish	Hungarian
Italian	Norwegian	Slovak	Slovenian	Turkish



32.3 Fixed bugs

Error on process controller

The root cause of the error message „Error on process controller: Primary Current.PrimCurr_A.Error“ was fixed.

Special 4 step

It was possible that in welding mode Special 4-Step the gas valve opened again for a short time after the welding end. Bug was fixed.

When changing from Special 4-Step to another welding mode the end parameter setting from Special 4-Step was copied to the new welding mode. Bug was fixed.

33 CHANGES FROM V1.2.4 TO V1.2.5

Date: November 11th 2013

33.1 New functions

New languages implemented

Following languages are now included and selectable: SE (Swedish), FI (Finnish), EE (Estonian).

33.2 Fixed bugs

Adaption of languages

Corrections were made in Italian and Slovak.

34 CHANGES FROM V1.2.3 TO V1.2.4

Date: November 4th 2013

34.1 Fixed bugs

All WP Standard synergic lines were limited to 12m/min (470 inch/min) Vd with software version V1.2.3

Bug was fixed and all synergic lines are available throughout the complete power range.

35 CHANGES FROM V1.2.1 TO V1.2.3

Dat: October 16th 2013

35.1 Software version of system components

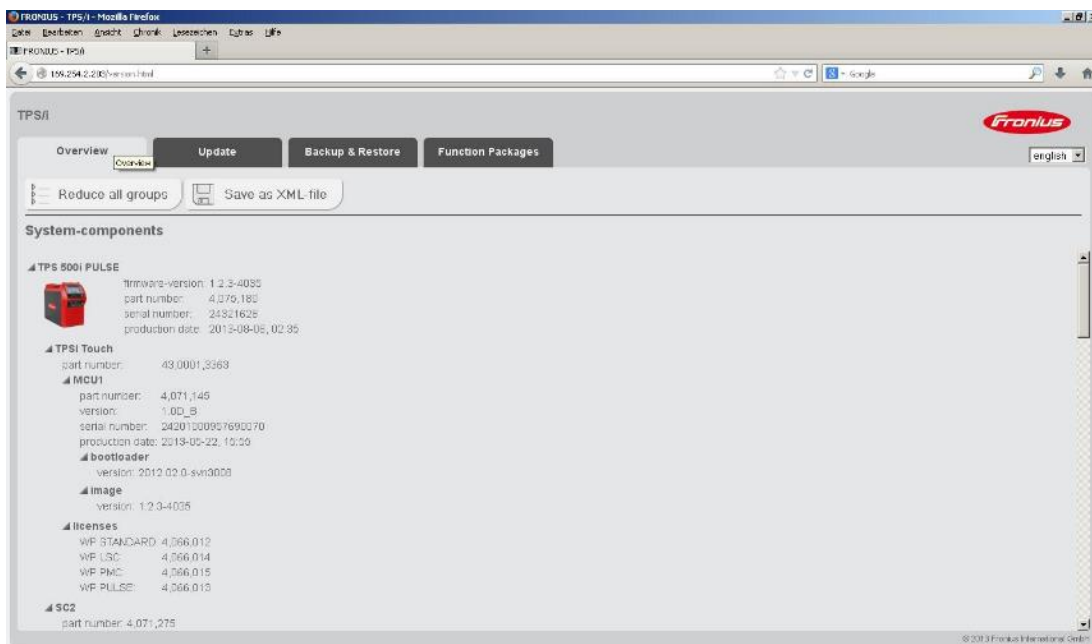
MCU 1.0.188

Spider 2.2.48

SR63 1.101.8

iUpDo 1.0.4

FKS 0.0.206



View versions of system components: Browser overview --> expand all groups

35.2 New functions

New languages implemented

Following languages are now included and selectable: IT, SK, CS, Pb, PL, NO, TR, RU, HU

Function „Torch LED Light“ implemented

Pressing the first step of the torch trigger activates LED light. The LED remains on until the ignition.



Penetration stabilizer

For setting the max. permitted change in the wire feed speed to keep the fusion penetration stable and constant with variable stick-out

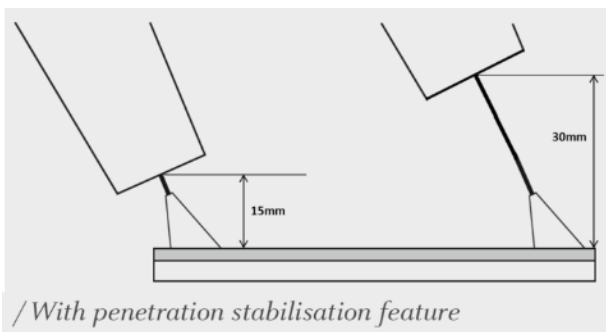
The parameter penetration stabilizer is as of right now only for LSC – Synergic Lines available.

In case of a stick-out change changes the wire feed speed in a defined window to reduce the current change.

This reduces the deviation of the penetration in case of a stick-out (contact tip to work distance) change.

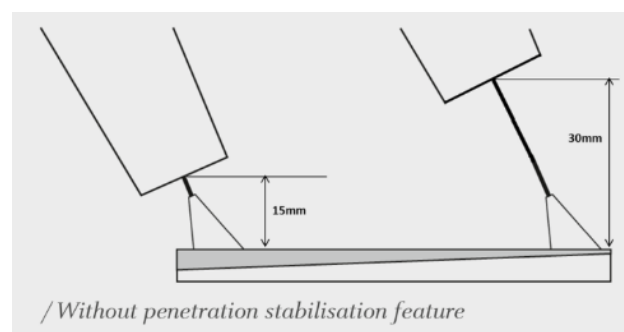
Note: the actual maximum range of wire feed speed change is defined within the welding synergic line and can be less than the set value. Especially in the lower power ranges is the wire feed speed change limited to small values for process stability reasons.

While welding, the real value for wire feed speed is visible on the MCU screen



Reduced current change

Dynamic regulation of wire feed speed within the defined window



Constant wire feed speed

Dynamic regulation of welding current

Support of Jobmaster function on torch

Support of Jobmaster torch with OLED-Display.

All parameters from the carousel on the MCU are adjustable via the Jobmaster Torch.

35.3 Fixed bugs

Improved ignition for AlMg5/AlSi5 1,2mm Pulse synergic lines (Pulse 2800/2802)

Ignition energy was adapted for the TPS 320i

36 CHANGES FROM V1.1.1 TO V1.2.1

Date: September 02nd 2013

36.1 New functions

Usability improvements on Website

Optimization of visibility and usability. An improved utilization of the Website is now possible.

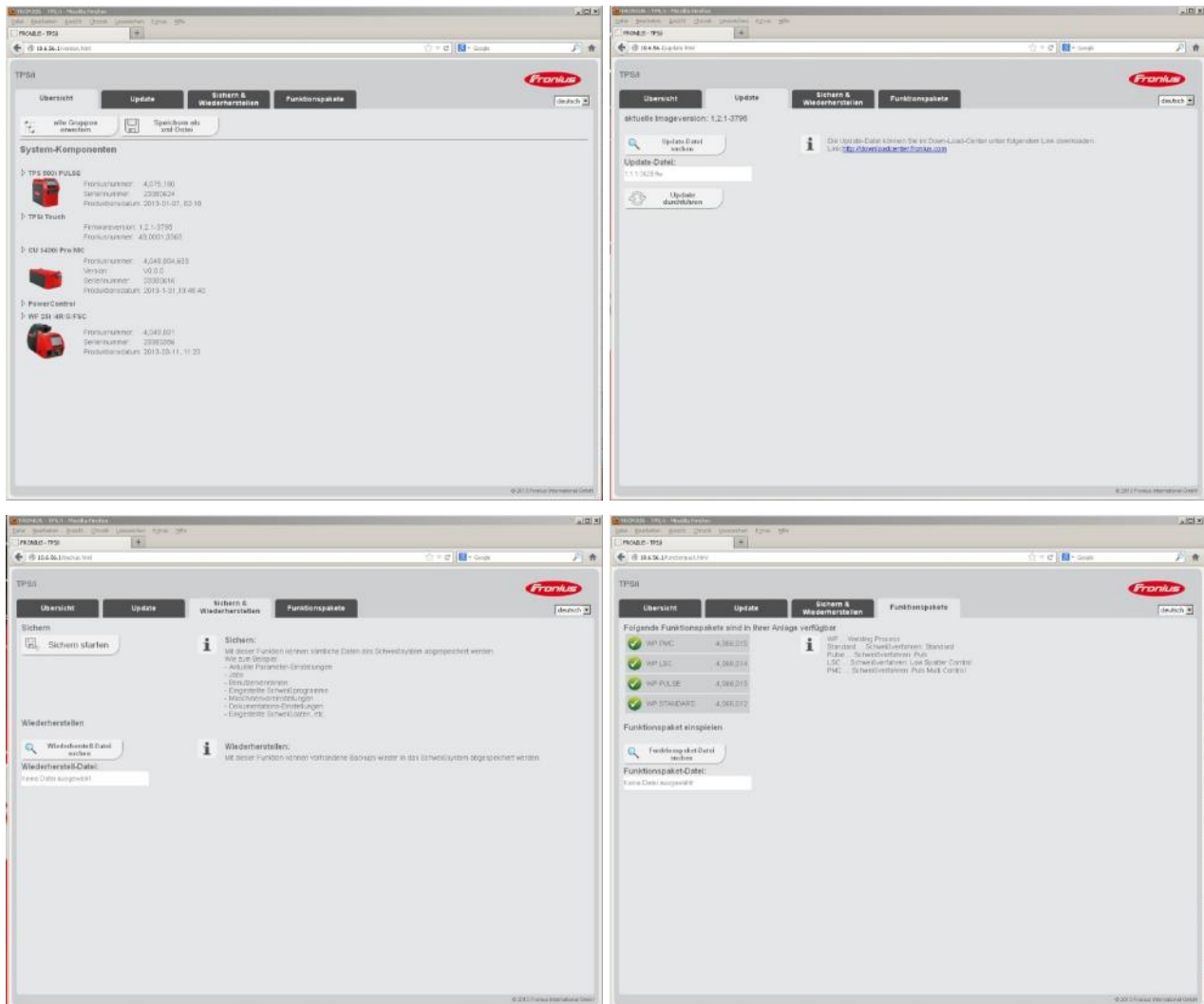


Abb. 1: Screenshots Website

Pairing for Service

Implementation of graphical user guidance for pairing function for service applications. Graphical instructions necessary for the service application are now shown on the screen.



New languages available

French and Spanish have been added to the existing languages and are now selectable on screen.

36.2 Fixed bugs

EasyJobs are stored even when switching off and on of the power source

EasyJobs remain permanently stored even in the case of turning off the power source or removing it from the grid.