

# HWH welding systems

## Commissioning

**Quick instructions** 

36045-01en

HWH



#### Imprint

Harms & Wende GmbH & Co. KG

Grossmoorkehre 9

21079 Hamburg

Tel.: +49 40 766 904-0

Fax: +49 40 766 904-88

E-mail: info@harms-wende.de

www.harms-wende.de

Representative managing director:

Ralf Bothfeld

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## 1 Commissioning a Genius module

These quick instructions guide you through the basic steps of commissioning your system. They are described here using the example of a Genius module with the **XPegasus Gold** operating software and the following PC configuration. Not all of the selection options in this example are available with certain products of the **XSoftware package**, e.g. selection of the database.

### PC configuration used

- Windows 7
- MS Excel 2010 for editing the CSV templates
- Installation CD XPegasus Gold

Further information on the system requirements can be found in the software documentation for your **XOperating software**.

#### **Prepare module**

- Wire as per technical data for module, if available; link to network
- Select/define IP address (V4) for the module. The system owner specifies the network address range. Default IP address of the Genius modules on delivery: 192.6.10.48
- After wiring, assign the IP address using a laptop with cross-over connection or via the network see Link module with PC (TCP/IP), p. 8

### Note

When commissioning modules, the system's network may not yet be available. Commissioning without linking to a network is therefore also possible. However, it is **always** necessary to assign an IP address to the module.

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## 1.1 Overview

The following graphic provides an overview of the steps required for commissioning.



## **1.2 Installation of the XOperating software**

The installation routine is described here using the example of **XPegasus** Gold with the following PC configuration. Not all of the selection options in this example are available with certain products of the **XSoftware package**, e.g. selection of the database.

## PC configuration used

- Windows 7
- MS Excel 2010 for editing the CSV templates
- Installation CD XPegasus Gold

Further information on the system requirements can be found in the software documentation for your **XOperating software**.



#### Step-by-step installation sequence

- Close all programs.
- Insert installation CD.
- Installation starts automatically.

#### Note

If automatic starting of CDs is not permitted in your system, start installation manually from the CD.

If you prefer installation from your hard disk, copy the *XPegasusGold.exe* and *XPegasus.key* files to the same directory on your PC. Then start installation by double-clicking onto *XPegasusGold.exe*.



 Read and accept the licence agreement (installation is cancelled on rejection).







## 1 Commissioning a Genius module

Select Additional Tasks Which additional tasks should	be performed	?		-1
Select the additional tasks you Gold, then click Next.	ı would like Se	tup to perform v	while installing XP	egasus
icons:				
Create autostart icon				

 Select Create desktop icon and/or Create autostart icon.

Setup is now ready to begin installing XPegasus Gold on your computer.						
Click Install to continue change any settings.	with the installation, or click Back if you	want to review or				
Target folder: Program: C:\Prog Data: C:\Program	ram Files (x86)\Harms+Wende\XPegasu Files (x86)\Harms+Wende\SharedData	sGold				
Start Menu folder: Harms+Wende\X	Pegasus Gold	E				
Additional tasks: Additional icons: Create desktop	icon					
Database:						

- Check summary of your selections. The selection can be adapted with **Back**.
- To start, click onto Install.

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gasus	Completing the XPegasus Gold Setup Wizard To complete the installation of XPegasus Gold, Setup must restart your computer. Would you like to restart now? Yes, restart the computer now No, I will restart the computer later
Gold Help for installation	Finish

- Select Start application now.
- To end, click onto **Finish**.

### Start the XOperating software

Help for installation...

- Starts automatically after installation, if selected.
- Starts manually by double-clicking onto desktop icon or via Start > Programs > Harms+Wende > XPegasusGold

Cancel



## Note

If you receive an error message, please check whether the **XPegasus** key file (XPegasus.key) is stored on your PC in the program directory (depending on operating system) under Harms+Wende\. If not, copy the file from the installation CD to this folder. Then restart the application.

Further information on installation can be found in the software documentation for your **XOperating software**.

The next step is Link module with PC (TCP/IP), p. 8.

## 1.3 Link module with PC (TCP/IP)

## Important

Every module may only be connected with one installed **XOperating software**. The parametrisation of a module from different installations leads to data loss in the documentation.

In a client server solution (**XPegasus Platinum**) modules are accessed through the server. Thereby it is possible to parametrise modules on different clients connected to one server. Every committed change in a client server setup is documented on the server.

## Open System > Configuration....

En	d of range	Entre Hetwork	E	xtended	Start search	
м	odules found	1				
	Module group	Module name	Connection	Connection configuration	Module type	Mod
4						

- Select TCP/IP search.
- Click onto Start search.

## Note

If no modules are found using the search via the crossover connection, check your PC's connection settings and network range. Use a defined IP address for your PC and set the network range to the module's default address.

If a network range has already been assigned for the system use this network range for your PC.

Start the search again.

## 2

The status of the search is indicated by the status bar.

Star End	Start of range End of range	ge Entire network Extended Start search					
M	odules found	1					
	Module group	Module name	Connection	Connection configuration	Module type	Module	
60		1120M2	TCP/IP	192, 168, 178, 233	RATIA	43 IO1 F	
600		HWI221H	TCP/IP	192.168.178.221	HWI2000EVA	IOR 64	
6		R231 R73u	TCP/IP	192.168.178.231	RATIA	73 EVA	
63		R230 Schw	TCP/IP	192.168.178.230	RATIA	73 IQ1 E	
2		HWI_IQ64	TCP/IP	192.168.178.223	HWI2000EVA	IQ 64	
-		HWI222 H	TCP/IP	192.168.178.222	HWI2000EVA	IQ 64	
						,	

 On completion of the search, the TCP/IP settings must be configured.







## Configure TCP/IP settings.

rch	Start of range End of range	Entire network	E	xtended	Start search	
	Modules found	1				
1	Modul group	Module name	Connection	Connection configuration	Module type	Module v
		1120M2	TCP/IP	192.168.178.233	RATIA	43 IQ1 P
١		HWI221 H	TCP/IP	192.168.178.221	HWI2000EVA	IQR 64
		R231 R73u	TCP/IP	192.168.178.231	RATIA	73 EVA
	4%)	R230 Schw	TCP/IP	192.168.178.230	RATIA	73 IQ1 E
	<b>*</b>	HWI_IQ64	TCP/IP	192.168.178.223	HWI2000EVA	IQ 64
	*	HWI222 H	TCP/IP	192.168.178.222	HWI2000EVA	IQ 64

- On completion of the search, select a module.
- Click onto Configuring....

## 5

Once the modules have been switched on again, search for modules again.

End of range	Entire network	E	xtended	Start search	
Modules fo	und				
Module gr	Module name	Connection	Connection configuration	Module type	Module v
•					,

- Select TCP/IP search.
- Click onto Start search.

4



- Carry out settings (IP address, subnet mask, gateway, DHCP).
- Click onto Start configuration.
- Close dialogue.
- Restart the module.

## 6

The status of the search is indicated by the status bar.

earch y earch	Start End o	ofrange frange	Entire network	E	xtended	Start search				
System Mode	lules found	l								
Г		Module group	Module name	Connection	Connection configuration	Module type	Module v			
1	20		1120M2	TCP/IP	192, 168, 178, 233	RATIA	43 IO1 F			
1	2		HWI221H	TCP/IP	192.168.178.221	HWI2000EVA	IQR 64			
1	-		R231 R73u	TCP/IP	192.168.178.231	RATIA	73 EVA			
1	8		R230 Schw	TCP/IP	192.168.178.230	RATIA	73 IQ1 8			
1	2		HWI_IQ64	TCP/IP	192.168.178.223	HWI2000EVA	IQ 64			
ľ			HWI222 H	TCP/IP	192.168.178.222	HWI2000EVA	IQ 64			

 On completion of the search, a list of the modules found is displayed.



## 7

N	on-configure	d modules					
	Module group	Modele name	Connection	Connection configurati	on	Modu	I.
٩.		1120M2	TCP/IP	192.168.178.233		RATI	ł.
h.		WI221 H	TCP/IP	192.168.178.221		HWI2	5
		R231R73u	TCP/IP	192.168.178.231		RATI	:
С	onfigured ma	dules					
	Module group	Module name	Connection	Connection configuration	Module type	Modul	e
	1200L	1140M4	TCP/IP	127.0.0.1			1
	1200R	1180M7	TCP/IP	127.0.0.1			1
	1200R	1180M6	TCP/IP	127.0.0.1			
	1200L	1120M3	TCP/IP	127.0.0.1			
-	1200R	1160M5	TCP/IP	127.0.0.1			
	KA	Genius_225	TCP/IP	192.168.178.225	GENIUS		ì
	KA	Genius_240	TCP/IP	192.168.178.240	GENIUS		
-	1200L	1190M5	TCP/IP	192.168.178.150	GENIUS		
2		1100140	TODAD	100 100 100 000			

- Select System.
- Select module in list.
- Click onto Linking....
- 9
  - Commission/configure fieldbus on PLC. Refer to the fieldbus operating instructions for the procedure.

The next step is Check system connections, p. 12.

Further information on system configuration can be found in the software documentation for your **XOperating software**.



- Via **New group...**, create a module group with a unique name in the system.
- Specify a unique module name within the system.
- Confirm your inputs with **OK**.



## 1.4 Check system connections



Open Module > Diagnostics....

1/0	Input states		Output states	
	Description	I/O module	Description	I/O module p
	Start	E 1 / I/O mo	End of sequence contact	O 1 / I/O mod
	Electrode status	E 2 / I/O mo	Prewarning	0 2 / I/O mod
	Counter reset	E 3 / I/O mo	Electrode C	0 3 / I/O mod
	Error reset	E 4 / I/O mo	Ready	O 4 / I/O mod
- 1	Error reset with FK	E 5 / I/O mo	Curr. en or	O 5 / I/O mod
	Error reset with PWH	E 6 / I/O mo	With current	0 6 / I/O mod
	Without current	E 7 / I/O mo		
	۰ [	•	< [	•

The output state Ready must be green (without message).

The next step is Welding gun configuration, p. 13.

Further information on diagnostics or editing the welding parameters can be found in the software documentation for your **XOperating software**.

## 2

- The module's output state must correspond to the PLC's input state.
- The fieldbus on the PLC must be ready (1). Refer to the PLC operating instructions for the procedure.

## Note

If the module and fieldbus are not ready, check the wiring and configuration and test the connection again.



## 1.5 Welding gun configuration

Assign welding programs to the desired welding guns.



Open Module >	Welding gun	configuration
---------------	-------------	---------------

name	Gun			,	Module name	1190M8	
-	Edit transform	ner parameter					łV
trode	ansformer linked to	gun(s) 0-127	>	Number of tran	sformers		
nonitor M	ax. measurable curre	ent 10.00	kA	Diodes per tran	sformer		
л inks	ax. TX output voltag	e 6.300000		Diode type			
<u>ا 1</u>	Transformer	I-Max. (kA)		U-Max. (V)	Transform	ners parallel	
enance	0	10.00		6.300000	2		
	/ 1	10.00		6.300000	2		
	/ 2	10.00		6.300000	2		
18 I I I	/ 3	10.00		6.300000	2		
	/ 4	10.00		6.300000	2		
	/ 5	10.00		6.300000	2		
	6	10.00		6.300000	2		
sformer	7	10.00		6.300000	2		
	/ 8	10.00		6.300000	2		
	/ 9	10.00		6.300000	2		
	1 10	10.00		6.300000	2		
	10			6.300000	2		
illing	10	10.00					
iling	10	10.00		C 000000	-		

- Select Transformer.
- **Transf. select.**, select transformer.
- Transformer linked to gun(s), specify gun.
- Specify transformer data corresponding to the welding gun type plate.

selection name	Gun	1		Module group Module name	1200R 1190M8
	Edit	gun link			HV
ctrode	Gun	Name	Type of transformer	Linked to weld program	
	1	C-K	-	1,10-11,131-255	
🎽 🚺	2	X-16	2	3,5,7-9,15-16,21-29	
	4			30-130	
4					
n links					
20					
tenance					
+					
ibrate					
ur III					
IIL					
sformer					
8					
filling	_				
	<		III		

- Select Gun link.
- Select gun.

 $\overline{\mathbf{\Omega}}$ 

Click onto Change gun link....



3

Selected gu	In		
inked prog	grams	3,5,7-9,15-16,21-29	
Program	Linked	Currently used gun	
0		0	E
1		1	
2		0	
3	Y		
4		0	
5			
6		0	
7			
8			
9			
10		1	
11		1	
12		0	
13		0	
14		0	
15			
16	×		
17	Ц	0	
18		0	
19		0	
20		0	*

- Selected gun: check gun selection.
- Linked programs: directly enter welding programs and/or entire program ranges, or

Selected gur	n in the second s	2	
inked progr	ams	0,3,5,7-9,15-16,21-29	
Program (	Linked	Currently used gun	
0		0	E
1		1	
2		0	
3	Image: A start and a start		
4		0	
5	Image: A start and a start		
6		0	
7			
8	×		
9	Image: A start of the start		
10		1	
11		1	
12		0	
13		0	
14		0	
15	×		
16	× .		
17		0	
18		0	
19		0	
20		0	-

- Mark check box of the desired welding program.
- Click onto Apply.
- Click onto OK.

Λ				
Gun	Name	Type of transformer	Linked to weld program	
1 2 4	C-10 X-16	2	0,3,5,7-9,15-16,21-29	

Check gun link.

The next step is *Welding gun force calibration (optional)*, p. 14 or *Initial welding operation with scale divisions (Skt)*, p. 22. Further information on welding gun configuration can be found in the software documentation for your **XOperating software**.

## 1.6 Welding gun force calibration (optional)

## Important

Damage to the measuring devices

Before starting load calibration, it is vital to select without current . Otherwise, the measuring devices are destroyed.

## Note

Welding gun force calibration is guided by a wizard. You reach the next step by clicking onto the return key or the arrow button. If you do not enter a value or enter an invalid one, you do not move to the next entry and are provided with a note.



15

19

The force corresponding to the nominal value specifications is transferred **digitally** via the fieldbus. If you have not connected a fieldbus, you must measure the force in **analogue** form with a load cell on the welding gun and enter the data accordingly.

- 1.6.1 Digital force calibration
- 1.6.2 Analogue force calibration

## 1.6.1 Digital force calibration

## Important

Damage to the measuring devices

Before starting load calibration, it is vital to select without current. Otherwise, the measuring devices are destroyed.



### Open Module > Welding gun configuration....



- Select Calibrate.
- Click onto Force calibration.

2

Safety warning appears.



- Click onto Yes.
- Force calibration wizard appears.



	í.
- X	l
	1

ssistant	-		Current values		
Current gun	1	$\supset$	Current nom. press.	20.0	%
Set spot for 1st meas.	50	%			
Close gun and measure for	rce				
1st measured force	0	daN			
Set spot for 2nd meas,	60	%	New values		
Close gun and measure for	rce		New calculated offset	0	daN
2nd measured force	0	daN	New calculated slope	0	daN/%
Maximum gun force	0	daN	Maximum possible force	0	daN
	-2				

- Check whether the welding gun to be calibrated has been selected.
- Enter Set spot for 1st meas..
- Press the return key or click onto the arrow button.

### Conversion tables for gun force adaptation

8-bit: 0...255 (0...100%)

Assistant			Current values		
Current gun	1		Current nom. press.	50.0	%
Set spot for 1st meas.	50	%			
Close gun and measure f	force				
1st measured force	1269	daN			
Set spot for 2nd meas.	60	%	New values		
Close gun and measure f	orce		New calculated offset	0	daN
2nd measured force	0	daN	New calculated slope	0	daN/%
Maximum gun force	0	daN	Maximum possible force	0	daN
1					

- Enter the **1st measured force** value according to the welding gun's technical data.
- Press the return key or click onto the arrow button.

Valency of a bit	Nominal value of 1st measurement [%]	1st measured force [daN]	Nominal value of 2nd measurement [%]	2nd measured force [daN]
20 N	50%	253	100%	508
50 N	50%	634	100%	1270
100 N	50%	1269	100%	2540

4

#### 16-bit: 0...65,535 (0...100%)

Valency of a bit	Nominal value	1st measured	Nominal value	2nd measured
	of 1st measurement [%]	force [daN]	of 2nd measurement [%]	force [daN]
1 N	50%	3274	100%	6553

## 6

HWH

50.0

Assistant			Current values		
Current gun	1		Current nom. press.	100.0	%
Set spot for 1st meas.	50	%			
Close gun and measure fe	orce				
1st measured force	1269	daN			
Set spot for 2nd meas.	100	%	New values		
Close gun and measure fi	orce		New calculated offset	0	daN
2nd measured force	2540	daN	New calculated slope	0	daN/%
Maximum gun force	0	daN	Maximum possible force	0	daN

- Enter the **2nd measured force** value according to the welding gun's technical data.
- Press the return key or click onto the arrow button.

## 8

Assistant			Current values		
Current gun	1		Current nom. press.	100.0	%
Set spot for 1st meas.	50	%			
Close gun and measure f	orce				
1st measured force	1269	daN			
Set spot for 2nd meas.	100	%	New values		
Close gun and measure f	orce		New calculated offset	-2.0	daN
2nd measured force	2540	daN	New calculated slope	25.4	daN/9
	600	daN	New calculated slope	25.1	udity /
Maximum gun force	000	uan	Maximum possible force	2540.0	daN
¢					
For safety reasons,	input data	is only acc	epted by pressing return	Close	Help

- Check the values, see maximum gun force and calculated values for gun force adaptation tables.
- Then click onto OK (tick).



Current values

Current nom. press.

Force calibration wizard

Current gun

1

50

Assistant

Assistant			Current values		
Current gun	1		Current nom. press.	100.0	%
Set spot for 1st meas.	50	%			
Close gun and measure fo	orce				
1st measured force	1269	daN			
Set spot for 2nd meas.	100	%	New values		
Close gun and measure fo	orce		New calculated offset	-2.0	daN
2nd measured force	2540	daN	New calculated slope	25.4	daN/%
Maximum gun force	600	daN	Maximum possible force	2540.0	daN
(1) - C					

- Enter the **Maximum gun force** from the gun's technical data.
- Press the return key or click onto the arrow button.



### Maximum gun force and calculated values for checking

8-bit: 0...254 (0...100%)

Valency of a bit	Maximum gun force [daN]	New calculated offset [N]	New calculated slope [daN/%]
20 N	500	-2.0	5.1
50 N	600	-2.0	12.7
100 N	600	-2.0	25.4

#### 16-bit: 0...65,535 (0...100%)

Valency of a bit	Maximum gun force [daN]	New calculated offset [N]	New calculated slope [daN/%]
1 N	600	-5	65.6



Confirmation prompt appears.



- Click onto OK.
- Force calibration is performed.

The next step is Initial welding operation with scale divisions (Skt), p. 22.

Further information on force calibration is available in your module's operating instructions.



## 1.6.2 Analogue force calibration

## Important

Damage to the measuring devices

Before starting load calibration, it is vital to select without current . Otherwise, the measuring devices are destroyed.



Open Module > Welding gun configuration....



- Select Calibrate.
- Click onto Force calibration.

2

#### Safety warning appears.



- Click onto Yes.
- Force calibration wizard appears.





Assistant	Current values		
Current gun	Current nom. press.	20.0	%
Set spot for 1st meas. 50 9			
Close gun and measure force			
1st measured force 0 d	aN		
Set spot for 2nd meas. 60 %	New values		
Close gun and measure force	New calculated offset	0	daN
2nd measured force	aN New calculated slope	0	daN/%
Maximum gun force 0 d	aN Maximum possible force	0	daN

- Check whether the welding gun to be calibrated has been selected.
- Enter Set spot for 1st meas..
- Press the return key or click onto the arrow button.

Assistant			Current values		
Current gun	1		Current nom. press.	50.0	%
Set spot for 1st meas.	50	%			
Close gun and measure	force				
1st measured force	1269	daN			
Set spot for 2nd meas.	60	%	New values		
Close gun and measure I	force		New calculated offset	0	daN
2nd measured force	0	daN	New calculated slope	0	daN/%
Maximum gun force	0	daN	Maximum possible force	0	daN
1					

- Close gun and measure force with load cell.
- Enter 1st measured force.
- Press the return key or click onto the arrow button.

Assistant	Current values		
Current gun 1	Current nom. press.	50.0	%
Set spot for 1st meas. 50 %			
Close gun and measure force			
1st measured force 1269 date			
Set spot for 2nd meas.	New values		
Close gun and measure force	New calculated offset	0	daN
2nd measured force 0 date	New calculated slope	0	daN/9
Maximum gun force 0 daN	Maximum possible force	0	daN

- Enter Set spot for 2nd meas..
- Press the return key or click onto the arrow button.

6

4

Assistant			Current values		
Current gun	1		Current nom. press.	100.0	%
Set spot for 1st meas.	50	%			
Close gun and measure I	force				
1st measured force	1269	daN			
Set spot for 2nd meas.	100	%	New values		
Close gun and measure	force		New calculated offset	0	daN
2nd measured force	2540	daN	New calculated slope	0	daN/9
Maximum gun force	0	daN	Maximum possible force	0	daN

- Close gun and measure force with load cell.
- Enter 2nd measured force.
- Press the return key or click onto the arrow button.

Current values

Current nom. press.

HWH1

daN/9

100.0 %

Assistant

HWH

daN

daN

daN/%

100.0 %

-2.0

25.4

2540.0

Force calibration wizard

Current gun

Set spot for 1st meas.	50	%		
Close gun and measure I	force			
1st measured force	1269	daN		
Set spot for 2nd meas.	100	%	New values	
Close gun and measure I	force		New calculated offset	-2.0
2nd measured force	2540	daN	New calculated slope	25.4
Maximum gun force	600	daN	Maximum possible force	2540.0
<b>▲</b>				

Then click onto OK (tick).

1

 Enter the maximum gun force from the gun's technical data.

For safety reasons, input data is only accepted by pressing return Close Help

Current values

Current nom. press.

New values

New calculated offset

New calculated slope

mum possible force

Press the return key or click onto the arrow button.



Confirmation prompt appears.

Force calibration wizard

1

50

1269

2540

600

Current gun

1st measured force

Set spot for 2nd meas. 100

×

Close gun and measure force

2nd measured force

Maximum gun force

 $\mathbf{i}$ 

Assistant



- Click onto OK. .
- Force calibration is performed. .

The next step is Initial welding operation with scale divisions (Skt), p. 22.

Further information on force calibration is available in your module's operating instructions.



## 1.7 Initial welding operation with scale divisions (Skt)

The initial test welding operation with scale divisions is used to check the measurement inputs required for controlled welding.



Open Module > Editing welding parameters....

	Overview of the	program	paramet	er		HWH
	First prol. lead time	1	ms	Nominal press.	20.0	%
rview	Lead time	20	ms	Increased set pressure		
è l	Preheat. current	1	Skt	Delay of MV2		
ameter	Preheat. time	75	ms	On time 1 of MV2		
<b>.</b>	Heat compensation time	20	ms	Off time 1 of MV2		
ssure	Curr. upslope time	50	ms	On time 2 of MV2		<b>-</b> -
MAR.	Main current	1	Skt	Program status		-
8	Curr. time	200	ms	Operating mode	Filee	-
ttings	Pause time	1	ms	Control mode	Skt	-
<u> </u>	Number of pulses	1	_	Stepper function		-
epper	Curr.dwnslope time	100	ms			_
88	Chill time	20	ms	Spot counter weighting		
enner	Post-heating current	1	Skt	No. of auto. spot repeats	1	
pper	Post-heating time	50	ms	Material thickness 1	1.50	mm
	Dwell time	50	ms	Material thickness 2	1.00	mm
	Hold-open time	1	ms	Material thickness 3	1.50	mm
		1				

- Select Overview.
- Select Program selection 0.
- Select Program status Free.
- Select Control mode SKT.
- Perform initial welding operation.

2

Open Module > Analysis....

ogram selection		Spot na	me	42-3	780			Mod	tule group	DOR		
ogram name	HWH_Test	Spot nu	mber	0				Mod	dule name	90M8		
elding gra	aph analy	sis									HW	1
r=									Tools	+		
									Designation	1	alue	
1									Granhs			
									Position		5.005	
			-	_	_	-	_		Curr.	Y 4	.94 kA	-
									E-voltage	<b>7</b>	.42 V	_
									Resistance		ч. 38 µ0	
									Power	✓ 2	.06 kW	
									Ctrl. value	V 3	67 Skt	
									Electr. travel 1	Y 2	. 55 mm	
4			_	_		_	_	_	Electr. travel 2	M 2	.55 mm	
									Force	V 5	67.3 daN	
									Force 2	✓ 3	61.1 daN	
									Measurand 1	<b>۲</b>		
1	1 1		1	1		1	1	1	General			
20	40 60	U 80	100	120	140	160	180	200	Cabanush		074	

- Select Programme selection 0.
- Current must correspond to an appropriate value.
- Voltage must be > 0.1 V.

### Note

If you do not obtain plausible values, check the wiring and repeat the initial welding operation.

The next step is Adapt constant current controller (KSR), p. 22.

Further information on diagnostics or editing the welding parameters can be found in the software documentation for your **XOperating software**.

## 1.8 Adapt constant current controller (KSR)

To adapt the constant current controller, you must edit certain welding parameters and perform five KSR set-up welding operations.

1.8.1	Edit welding parameter	23
1.8.2	KSR set-up welding operations	24



## 1.8.1 Edit welding parameter

To be able to perform the KSR set-up welding operations, you must set the welding parameters under step 1. Further settings, as described under step 2, are not vitally necessary for commissioning.

2



Open Module > Editing welding parameters....

	Overview of the	program p	paramete	r		<b>FW</b>
	First prol. lead time	1	ms	Nominal press.	20.0	%
rview	Lead time	20	ms	Increased set pressure		
<u>r</u>	Preheat. current	0.00	kA	Delay of MV2		
ameter	Preheat. time	0	ms	On time 1 of MV2		
	Heat compensation time	0	ms	Off time 1 of MV2		
essure	Curr. upslope time	1	ms	On time 2 of MV2		-
200	Main current	8.00	kA	Program status	Free	
1	Curr. time	200	ms	Operating mode	Single spot	, ,
ettings	Pause time	0	ms	Control mode	KSR	3
~	Number of pulses	1	-	Stepper function	off	-i
tepper	Curr.dwnslope time	0	ms			-
233	Chill time	0	ms	Spot counter weighting		
stepper	Post-heating current	0.00	kA	No. of auto. spot repeats	1	
10.0	Post-heating time	0	ms	Material thickness 1	0.00	mm
	Dwell time	200	ms	Material thickness 2	0.00	mm
	Hold-open time	1	ms	Material thickness 3	0.00	mm

- Select Overview.
- Select Program 0.
- Select Program status Free.

Program selection Spot name 42-3780 . HWH\_Test Program name Spot number 0 HWH Welding parameter First prol. lead ti Lead time Preheat. curr Preheat. time ms Average ignition Heat comp ms Pressu ding ser Q Setting 7. Pause time M 6-Number of pulses I-Stepp Curr.dwnslope time 5 Chill time 54 Post-heating curren I-Step 3-Post-heating time ms 2-Dwell time ms 1-Hold-open time ms 07 200 400 Hide secondary times ОК Неір

- Select Parameter.
- Specify the Main current according to the welding task.
- Select Control mode KSR.
- Set the parameters according to the welding task.
- End welding parameter editing with Close.

The next step is the KSR set-up welding operations, p. 24.

Further information on editing the welding parameters can be found in the software documentation for your XOperating software.



## 1.8.2 KSR set-up welding operations

You must perform five KSR set-up welding operations for each gun. You should perform these without material in the shortcircuit.

2

Once you have performed five KSR set-up welding operations without faults, the KSR controller is adapted to this gun.

#### Analyse set-up welding operations



- Perform a total of five welding operations.
- Open Module > Analysis....



- Select Program number.
- Welding graphs are displayed.
- Stop current analysis and analyse welding graphs.



The sliding controller can be used to specifically analyse all welding operations; first welding operation shown here.



### Check KSR controller status



Open Module > Welding gun configuration....

un name	Gun 5			Module name	1110M1	
	Calibrate gun					HW
Bectrode	Gun force			Distance meas.		
	Force calibration offset	0.0	daN	Dist. 1: Sensor length	30.00	mm
8	Force calibration slope	0.0	daN/%	Dist. 1: Zero spot	0.01	mm
p monitor	Maximum force	0.0	daN	Reverse stroke di	splay	]
0				Distance 2: Sensor length	30	mm
Gun links	2 m		ור	Distance 2: Zero spot	0.00	mm
۵	Force calibration	Delete		Reverse stroke di	splay	]
intenance	Constant current o	ontroller		Curr. sensor		
1	KSR ctrl. status	In adjustment		Curr. sensitivity		
I		Delete		Curr. sensor calibration	X Delete	]
ansformer	Controller optimisation	0.700000		Force sensor		_
Miling		i i i		OL LIL		

- Select Calibrate.
- KSR ctrl. status = In adjustment: KSR set-up welding operation not yet completed.

Commissioning is hereby completed successfully.

2 1 Module group 1200L Gun selectio Module name Gun name Gun 5 Calibrate gun HWH H Gun force Distance meas. Electrode Dist. 1: Sensor length Force calibration offset 0.0 daN 30.00 **e** Force calibration slope 0.0 Dist. 1: Zero spot 0.01 daN/9 Tip m 0.0 Maximum force daN Reverse stroke dis 5 ce 2: Sensor ler Gun links Distance 2: Zero spot 0.00 o<mark>r</mark> ji 1 Reverse stroke display Force Constant curre Curr. sensor control KSR ctrl. status Curr. sensitivity × I X Curr nsfo Controller optimisation 0.700000 Milling Force sensor Ľ ń Q. 👖 1 Force sensor Close Help

 KSR ctrl. status = Adjusted: all five KSR set-up welding operations performed without faults.




# HARMS WENDE GROUP



## Harms & Wende GmbH & Co. KG

Grossmoorkehre 9 21079 Hamburg

Germany

Tel.: +49 40 766 904-0 Service: +49 40 766 904-84 Fax: +49 40 766 904-88



E-Mail: hwh@harms-wende.de Internet: www.harms-wende.de

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