HWH welding systems

Commissioning

Quick instructions

36045-01en

Imprint

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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.

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

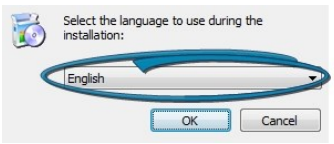
- Close all programs.
- Insert installation CD.
- Installation starts automatically.

Note

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

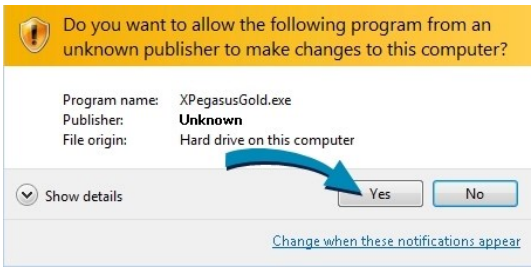
If you prefer installation from your hard disk, copy the *XPegasusGold.exe* and *XPegasus.key* files to the same directory on your PC. Then start installation by double-clicking onto *XPegasusGold.exe*.

1



- Select the set-up language.

2

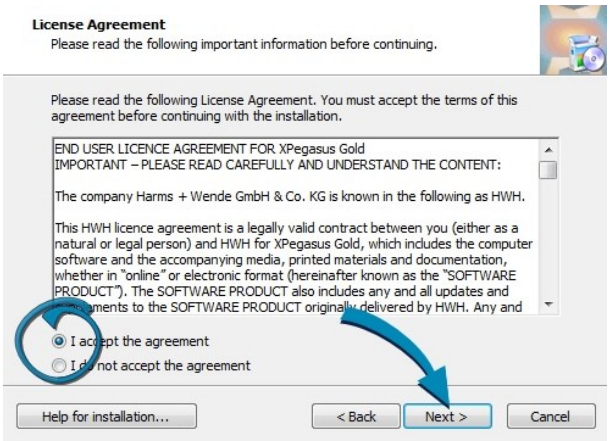


- Confirm the Windows confirmation prompt with **Yes**.

3

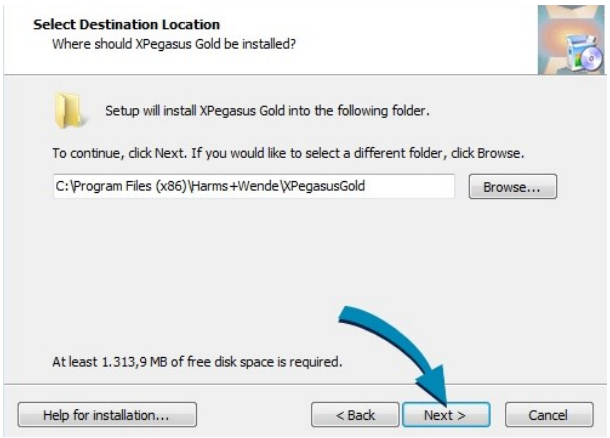
- Installation wizard appears.

4



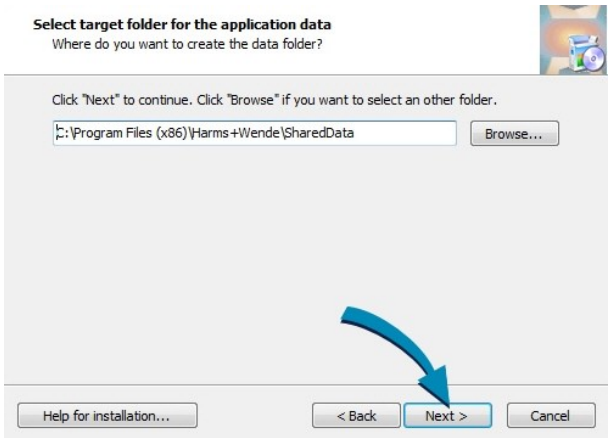
- Read and accept the licence agreement (installation is cancelled on rejection).

5



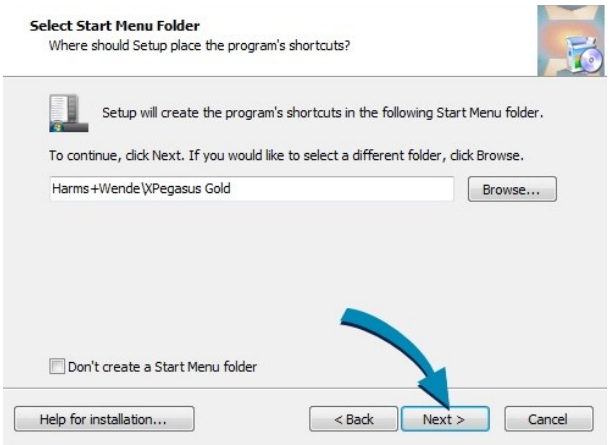
- Confirm installation path.

6



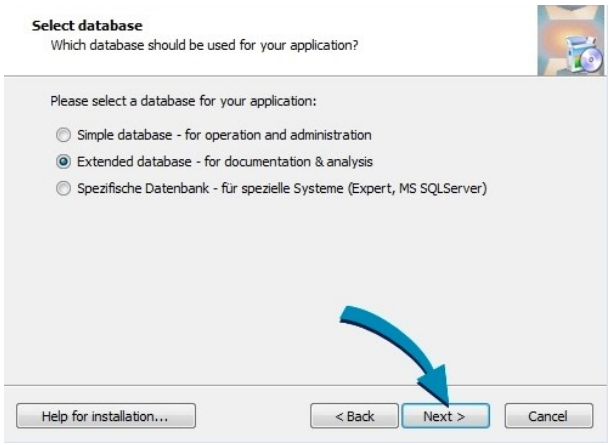
- Confirm path for application data, e.g. logbook, process data archive.

7



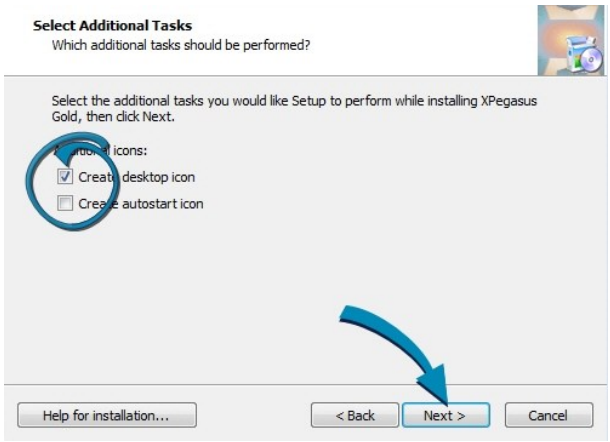
- Create start menu folder.

8



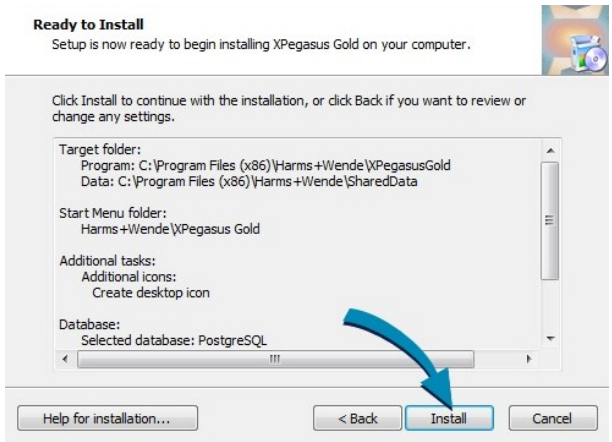
- Confirm database selection, *Simple database - for operation and administration* or *Extended database - for documentation & analysis*.

9



- Select *Create desktop icon* and/or *Create autostart icon*.

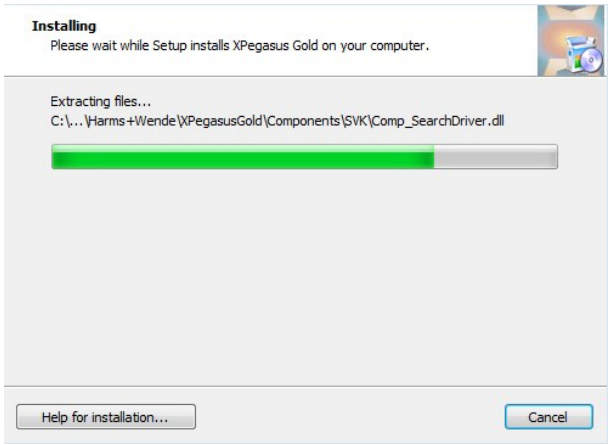
10



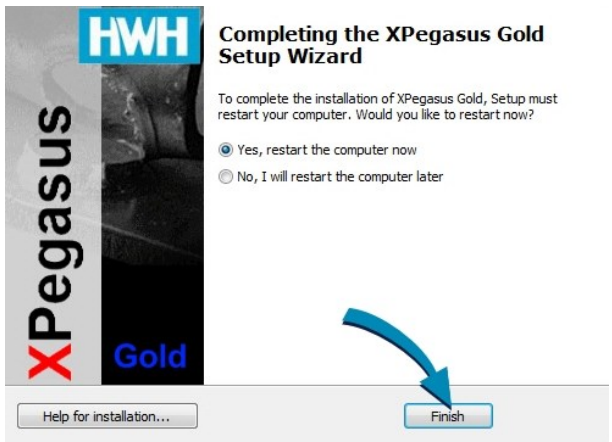
- Check summary of your selections. The selection can be adapted with **Back**.
- To start, click onto **Install**.

11

The status of the installation process is displayed.



12



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

Start the XOperating software

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

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)

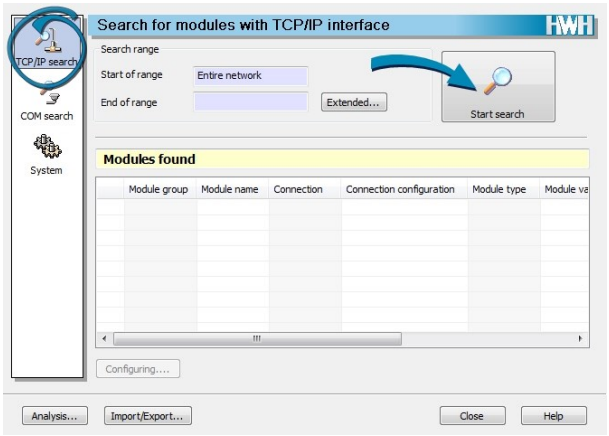
Important

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.

1

Open *System > Configuration...*.



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

Note

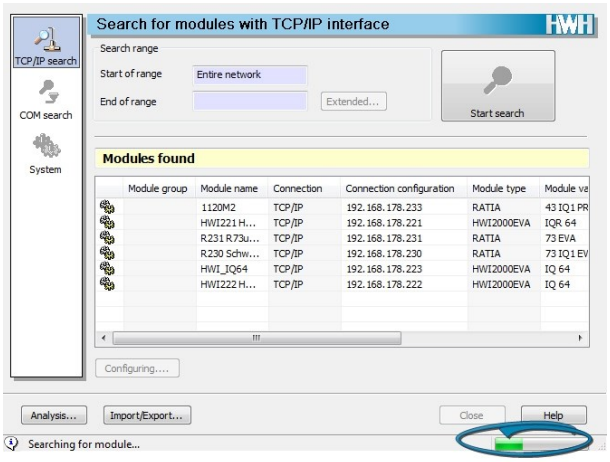
If no modules are found using the search via the cross-over connection, check your PC's connection settings and network range. Use a defined IP address for your PC and set the network range to the module's default address.

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

Start the search again.

2

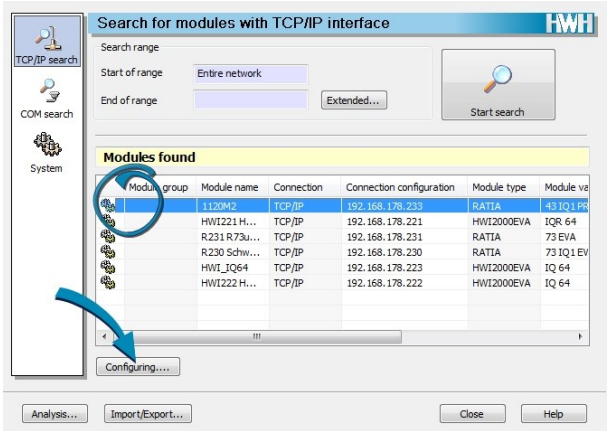
The status of the search is indicated by the status bar.



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

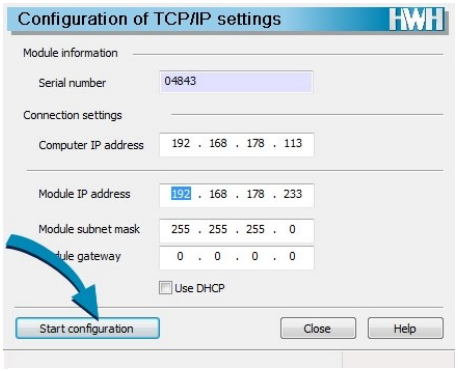
3

Configure TCP/IP settings.



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

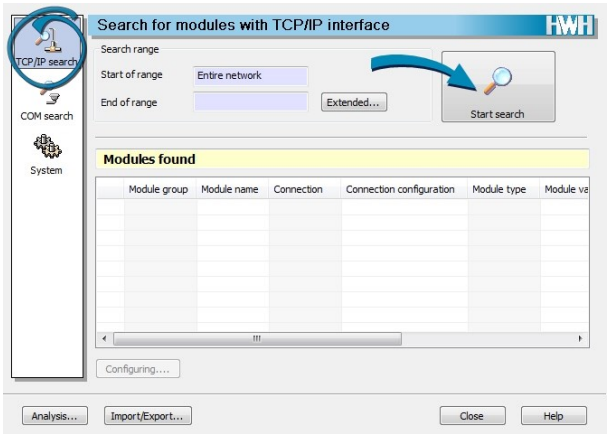
4



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

5

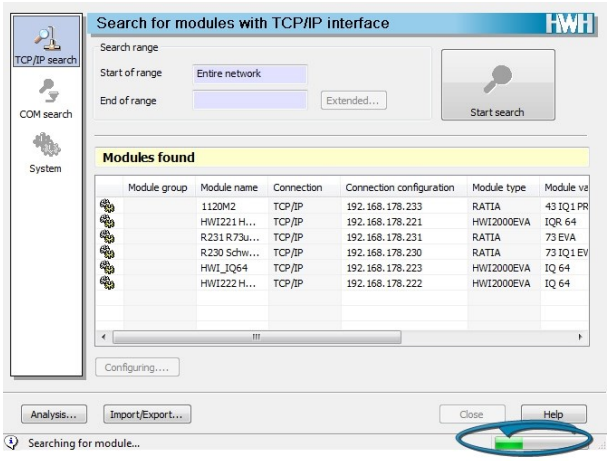
Once the modules have been switched on again, search for modules again.



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

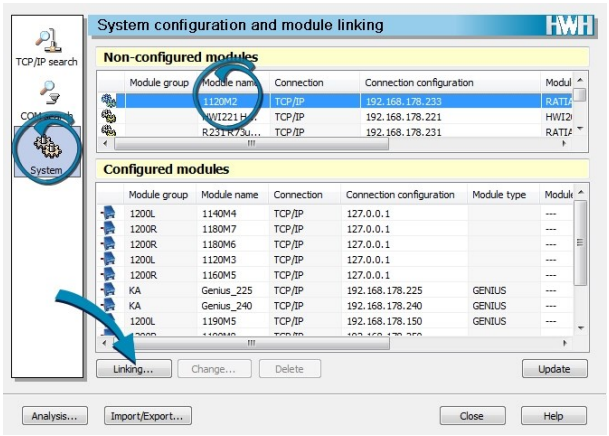
6

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



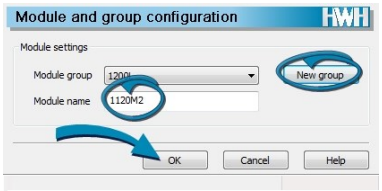
- On completion of the search, a list of the modules found is displayed.

7



- Select **System**.
- Select module in list.
- Click onto **Linking...**.

8



- 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**.

9

- Commission/configure fieldbus on PLC. Refer to the fieldbus operating instructions for the procedure.

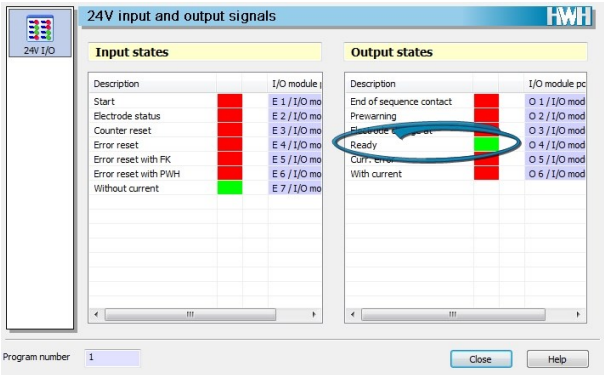
The next step is *Check system connections*, p. 12.

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

1.4 Check system connections

1

Open *Module > Diagnostics*....



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

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.

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

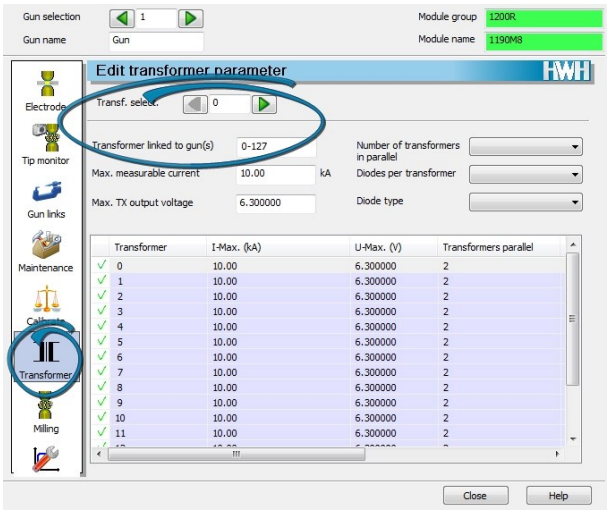
Further information on diagnostics or editing the welding parameters can be found in the software documentation for your **XOperating software**.

1.5 Welding gun configuration

Assign welding programs to the desired welding guns.

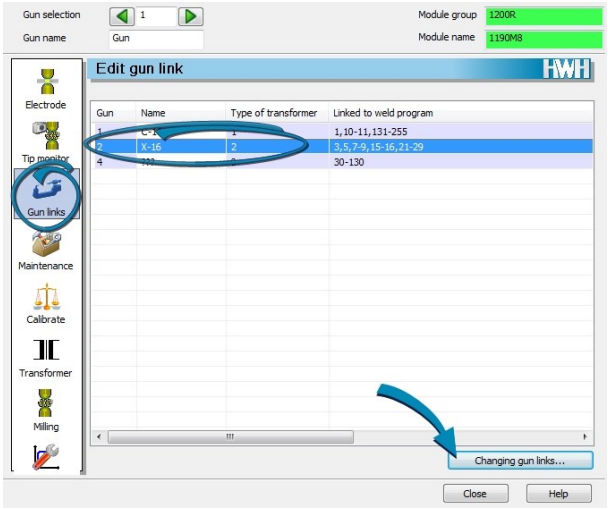
1

Open *Module > Welding gun configuration...*.



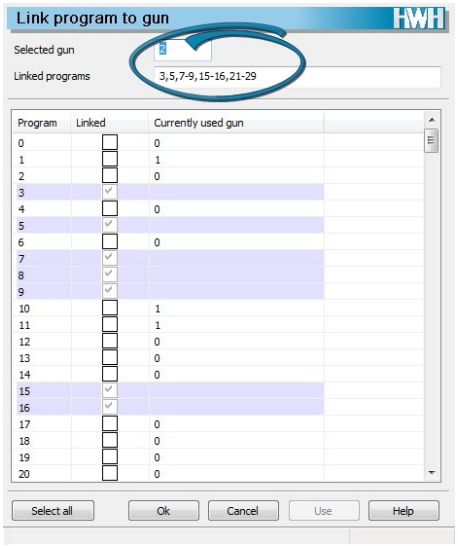
- Select **Transformer**.
- **Transf. select.**, select transformer.
- **Transformer linked to gun(s)**, specify gun.
- Specify transformer data corresponding to the welding gun type plate.

2

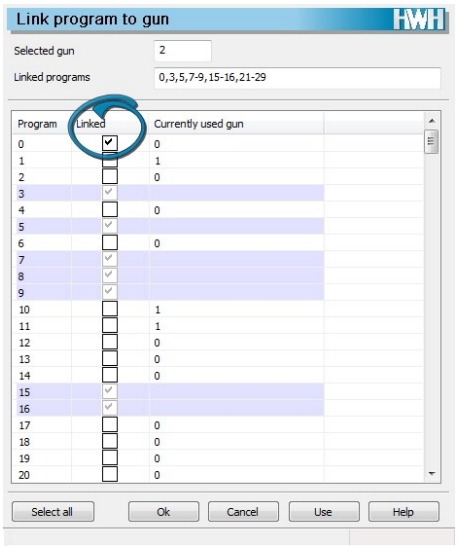


- Select **Gun link**.
- Select gun.
- Click onto **Change gun link...**.

3

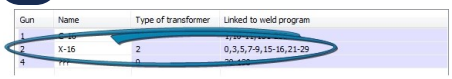


- **Selected gun:** check gun selection.
- **Linked programs:** directly enter welding programs and/or entire program ranges, or



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

4



- 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.

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

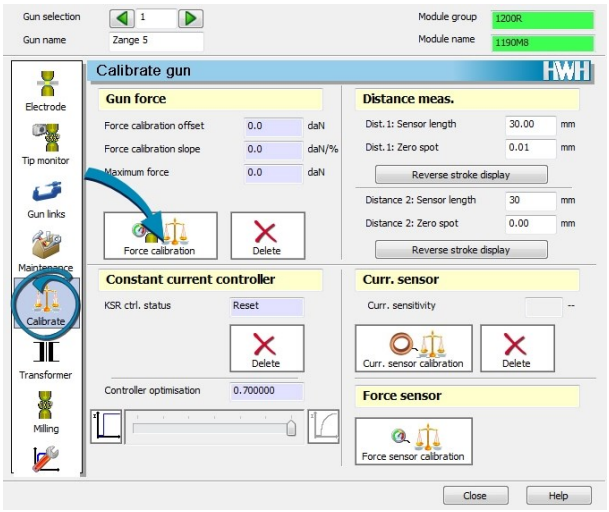
Important

Damage to the measuring devices

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

1

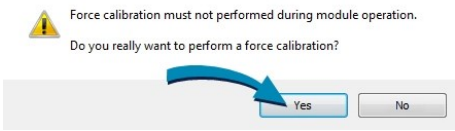
Open *Module > Welding gun configuration…*.



- Select **Calibrate**.
- Click onto **Force calibration**.

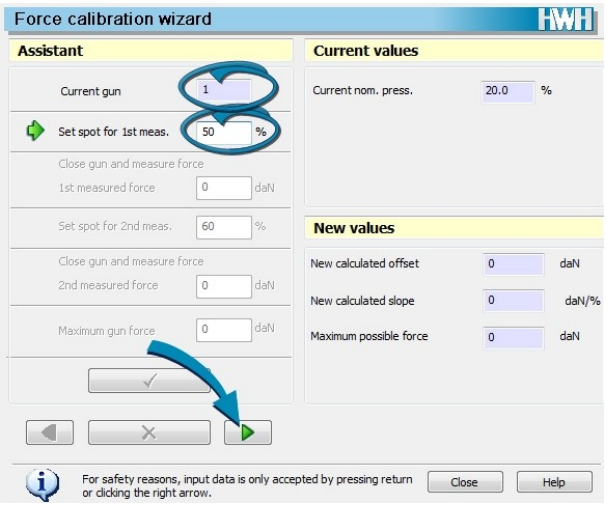
2

Safety warning appears.



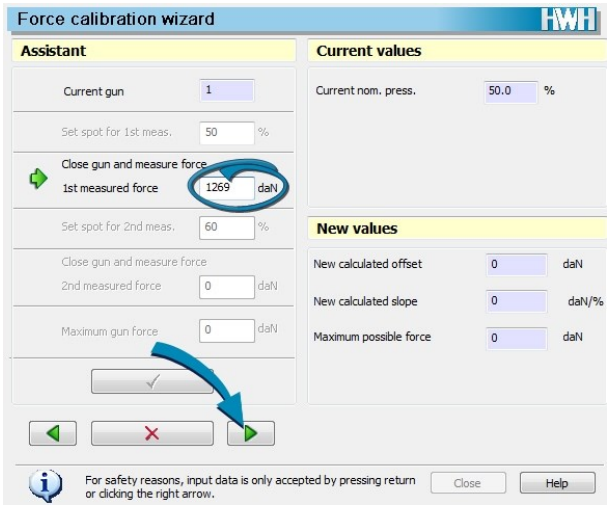
- Click onto **Yes**.
- *Force calibration wizard* appears.

3



- 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.

4



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

Conversion tables for gun force adaptation

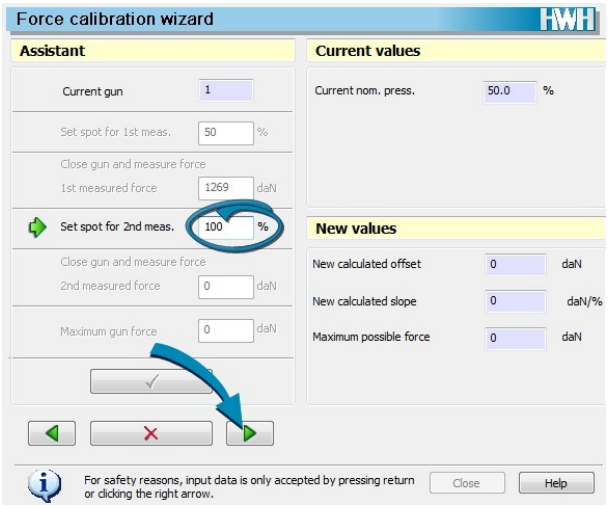
8-bit: 0...255 (0...100%)

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

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

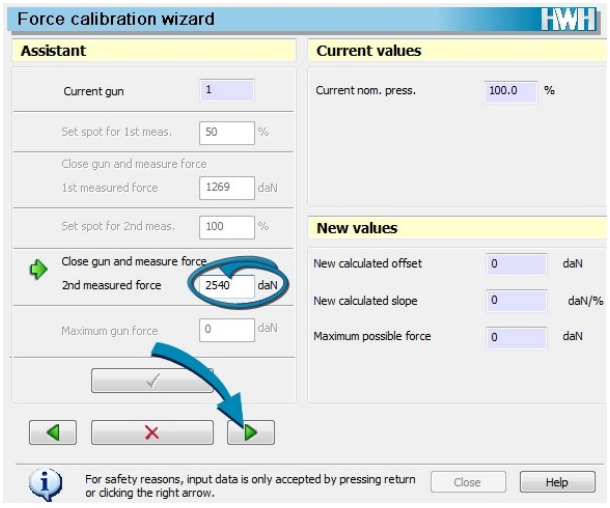
Valency of a bit	Nominal value of 1st measurement [%]	1st measured force [daN]	Nominal value of 2nd measurement [%]	2nd measured force [daN]
1 N	50%	3274	100%	6553

5



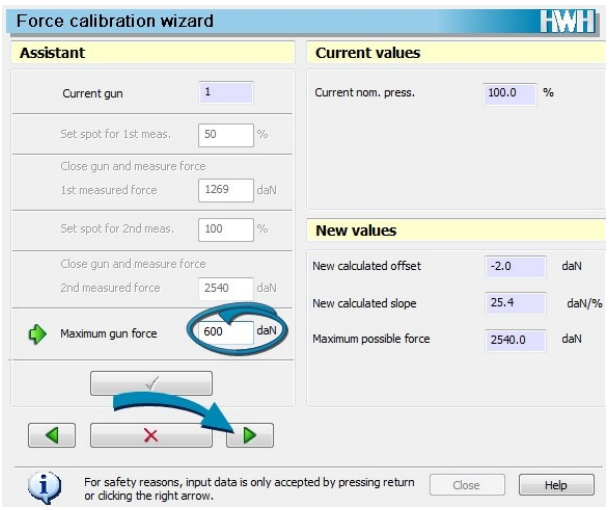
- Enter **Set spot for 2nd meas.**.
- Press the return key or click onto the arrow button.

6



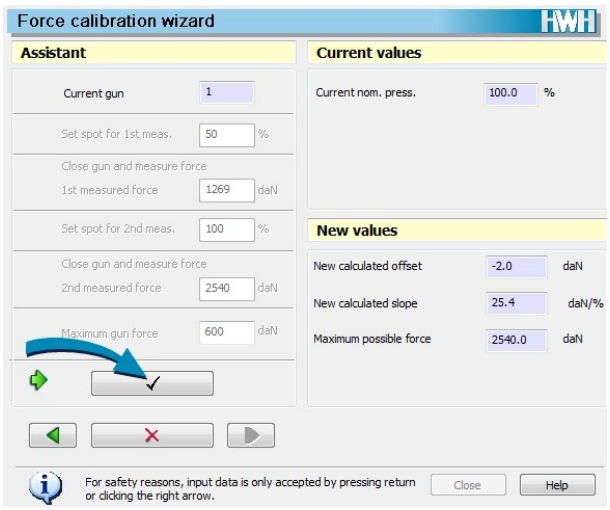
- Enter the **2nd measured force** value according to the welding gun's technical data.
- Press the return key or click onto the arrow button.

7



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

8



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

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

9

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

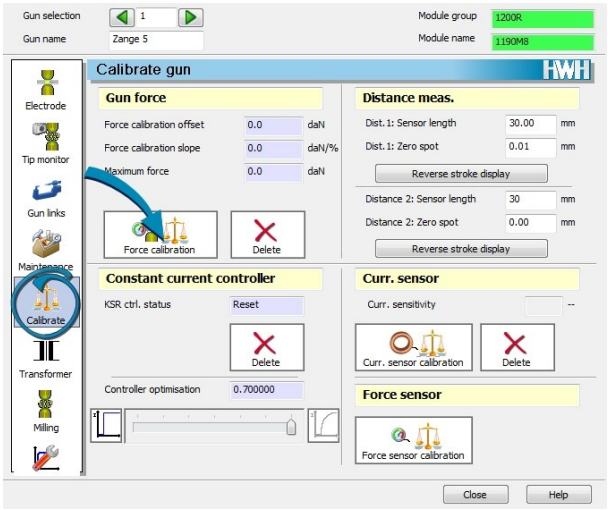
Important

Damage to the measuring devices

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

1

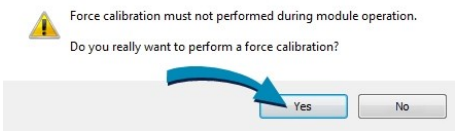
Open *Module > Welding gun configuration…*.



- Select **Calibrate**.
- Click onto **Force calibration**.

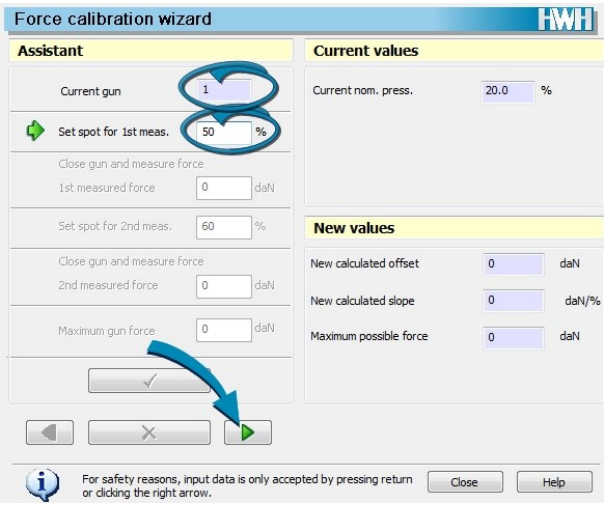
2

Safety warning appears.



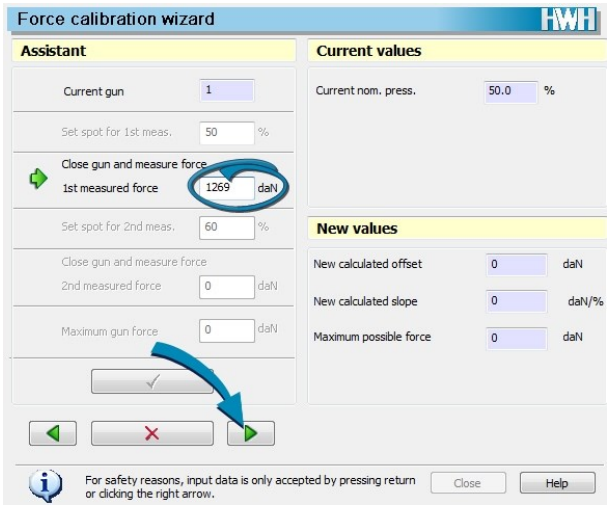
- Click onto **Yes**.
- *Force calibration wizard* appears.

3



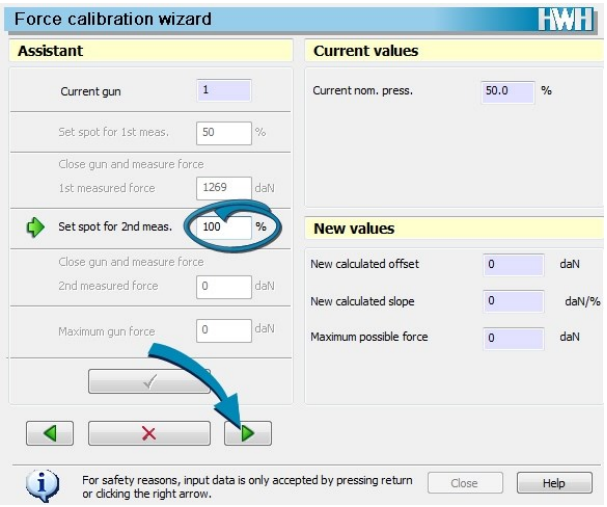
- Check whether the welding gun to be calibrated has been selected.
- Enter **Set spot for 1st meas.**.
- Press the return key or click onto the arrow button.

4



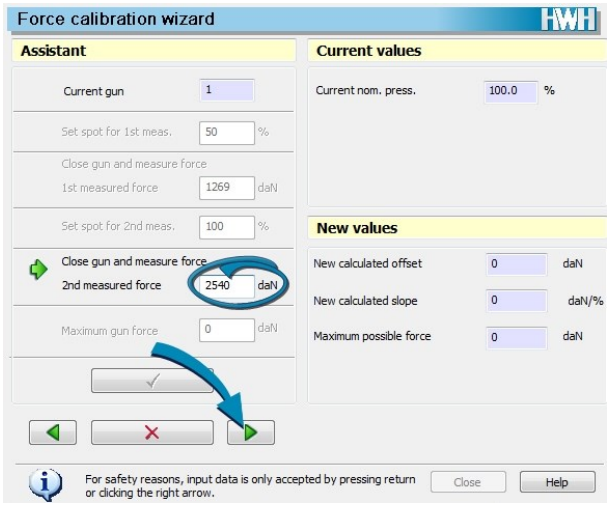
- Close gun and measure force with load cell.
- Enter **1st measured force**.
- Press the return key or click onto the arrow button.

5



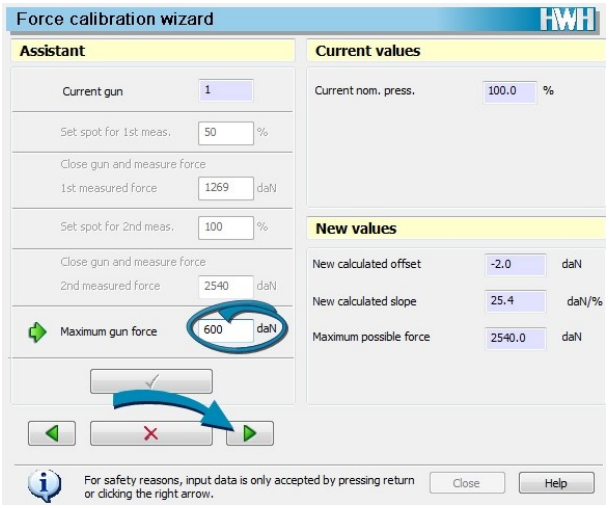
- Enter **Set spot for 2nd meas.**.
- Press the return key or click onto the arrow button.

6



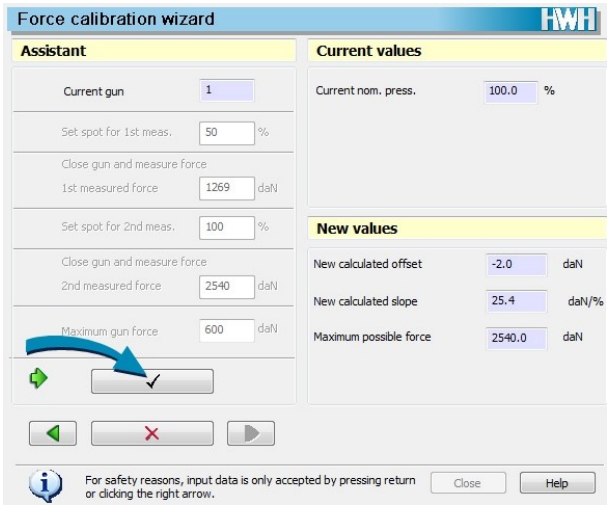
- Close gun and measure force with load cell.
- Enter **2nd measured force**.
- Press the return key or click onto the arrow button.

7



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

8



- Then click onto **OK (tick)**.

9

Confirmation prompt appears.

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

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

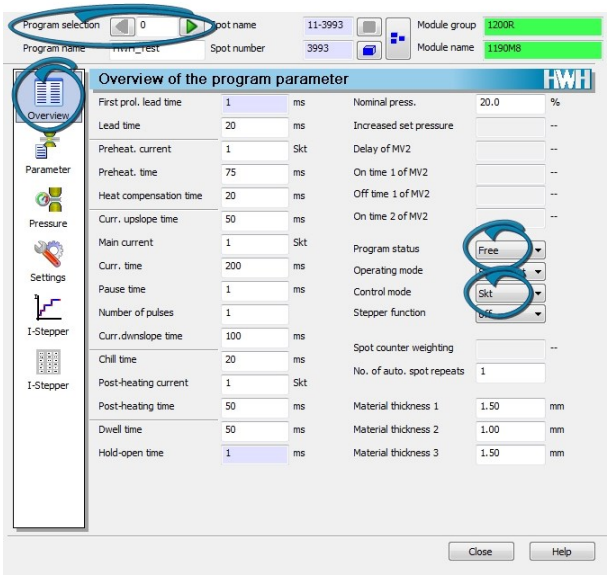
Further information on force calibration is available in your module's operating instructions.

1.7 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.

1

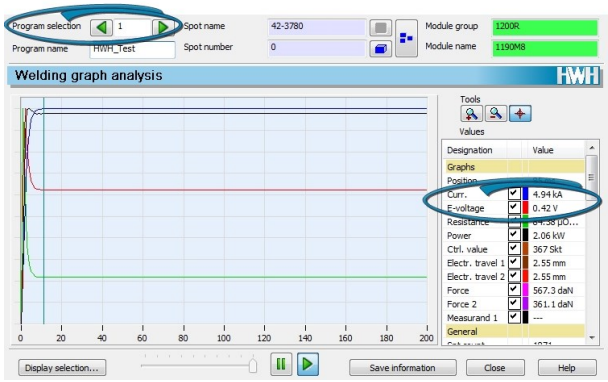
Open *Module > Editing welding parameters…*.



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

2

Open *Module > Analysis…*.



- 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)

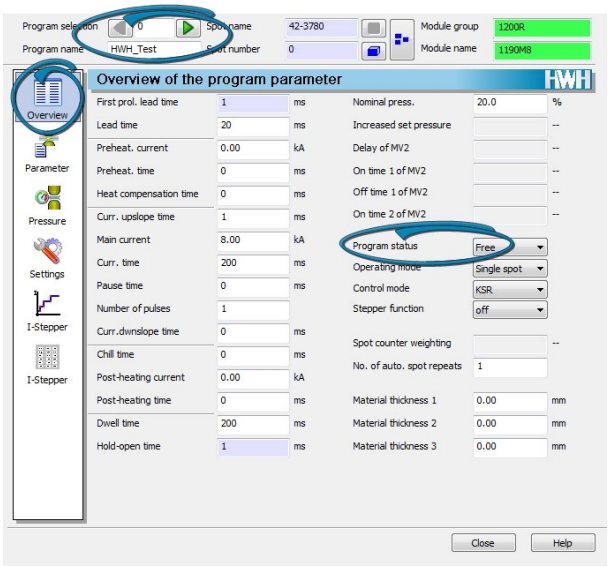
To adapt the constant current controller, you must edit certain welding parameters and perform five KSR set-up welding operations.

1.8.1 Edit welding parameter

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.

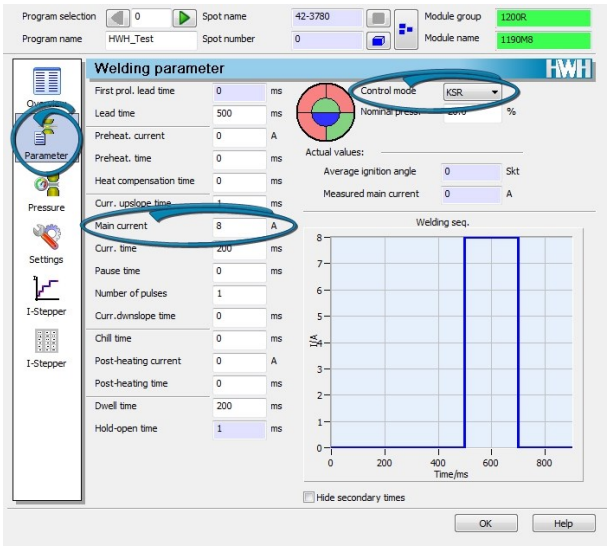
1

Open *Module > Editing welding parameters…*.



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

2



- 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

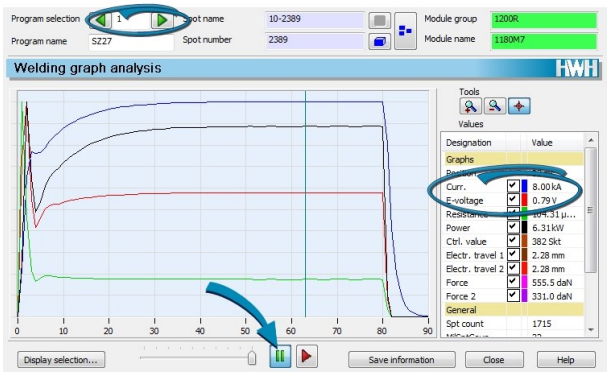
You must perform five KSR set-up welding operations for each gun. You should perform these without material in the short-circuit.

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

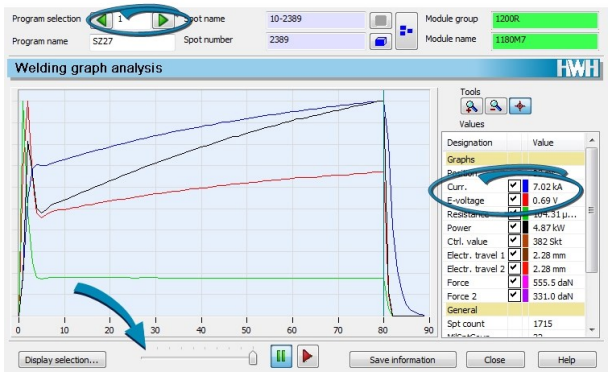
1

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



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

2

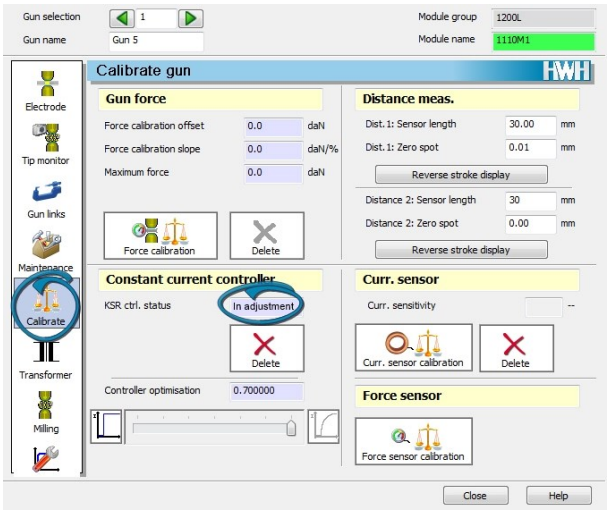


- The sliding controller can be used to specifically analyse all welding operations; first welding operation shown here.

Check KSR controller status

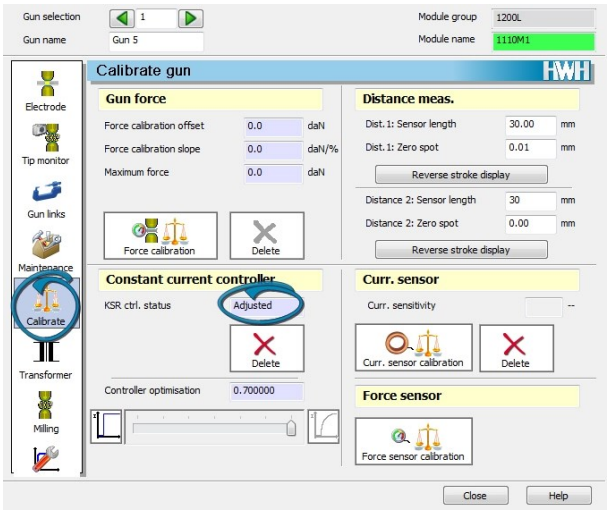
1

Open *Module > Welding gun configuration...*.



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

2



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

Commissioning is hereby completed successfully.

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HWH

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