KSch, 2014-01-28
E861T0010, valid for E-861.1S1

E-861.1S1 NEXACT® Controller for Stages with SGS Sensors

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Product Description

The E-861.1S1 NEXACT® controller is based on the E-861.1A1 NEXACT® controller as it is described in the PZ205E user manual (included in delivery). The PZ205E user manual is also valid for E-861.1S1 except for the information superseded by this Technical Note.

E-861.1S1 supports strain gauge sensors instead of incremental sensors. Important notes:

- No GEMAC interpolation board is present, and the E-861.1S1 does not support any GEMAC parameters.
- Referencing is not necessary with strain gauge sensors since they provide absolute position information. Hence E-861.1S1 does not support the commands and parameters required for referencing.
- Prior to delivery, PI adjusts the controller parameters of E-861.1S1 to the stage which is to be used with the controller.
  - Respect this assignment when connecting the stage to the controller (see labels on controller).
  - Change the controller parameters of E-861.1S1 only when necessary and only after you have created a backup file of the initial parameter values (see p. 5).
  - Do not use the ***Select connected stages*** step of PIMikroMove, i.e. do not load parameter values from stage databases.
- A LEMO connector is present for connection of the strain gauge sensors. The Sub-D 15m sensor panel plug has no function.

Getting Started

NOTICE

Incorrect wiring!

Connecting the USB and RS-232 interfaces of the controller to the PC at the same time can damage the PC or the controller.

➢ Connect either the USB or the RS-232 interface to the PC.

The aim of the steps listed below is to start in the PIMikroMove PC software initial test motions of a stage that is connected to a non-networked E-861.1S1.

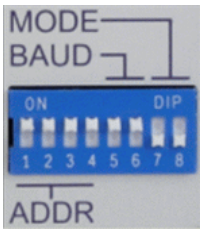
1. Connect a suitable protective earth conductor (cable cross-section ≥0.75 mm^2, contact resistance < 0.1 ohm at 25 A at all connection points) to the protective earth connector on the rear of the E-861.1S1 (threaded bolt marked with ⏚).

2. Connect the motor connector of the NEXACT® stage to the "Motor" socket on the rear of the E-861.1S1.

3. Connect the sensor connector of the NEXACT® stage to the "Sensor" LEMO socket on the rear of the of the E-861.1S1.

4. Starting operation for the first time, you should use the default DIP switch settings of the E-861.1S1 which are as shown in the figure below:

   Controller address = 1
   Baudrate = 9600 baud
   Mode = Normal operation

   If you want to change the default settings, see "DIP Switch Settings" in the PZ205E user manual for details.

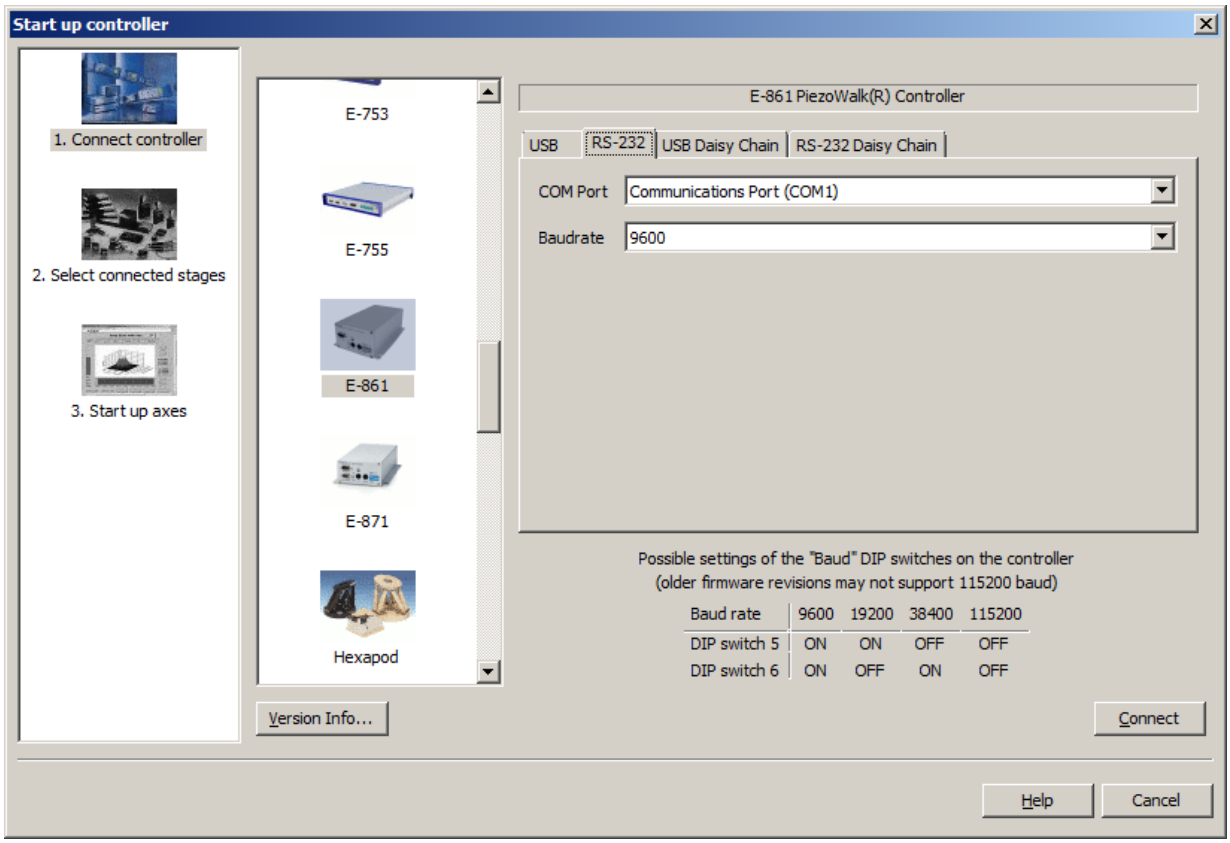
5. Connect the E-861.1S1 to the host PC.
   Use either the RS-232 interface (via the "RS-232 In" socket on the controller) or the USB interface and the corresponding cable which is included in delivery. Never connect both interfaces at the same time.

6. Connect E-861.1S1 to the included 24 VC wide-range power supply (use the "24 V" socket on the E-861.1S1 rear panel).

7. Connect the power supply of the E-861.1S1 to the line power (100-240 VAC). The controller is powered on and immediately ready for operation (STA LED lights up permanently).

8. Start PIMikroMove on the host PC.
   See "Installing the Software on the Host PC" in the PZ205E user manual for installation.

   The ***Start up controller*** window opens with the ***Connect controller*** step.



9. Select ***E-861*** in the field for controller selection.

10. Select the ***USB*** tab or ***RS-232*** tab on the right side of the window (depending on the interface to which you have connected the E-861.1S1 in step 5 via cable).

11. Establish communication:

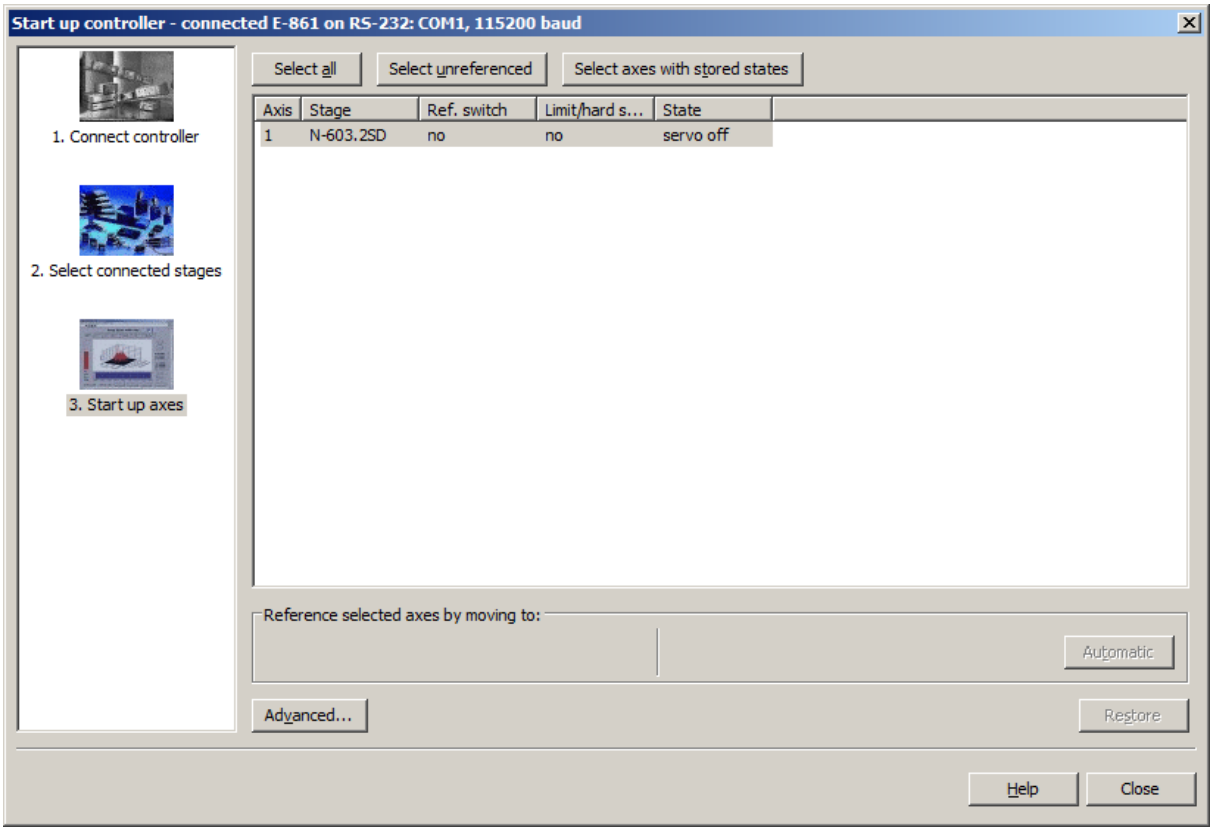
    If you use the RS-232 interface (shown in the figure above):

    a) In the ***COM Port*** field, select the COM port of the PC to which you have connected the E-861.1S1.
    b) In the ***Baud rate*** field, , set the value that is set with DIP switches 5 and 6 of the E-861.1S1. This adapts the baud rate of the PC to the baud rate of the E-861.1S1.
    c) Click ***Connect*** to establish communication.

If you use the USB interface:

a) On the USB tab, select the connected E-861.
b) Click Connect to establish communication.

When communication has been successfully established, the ***Start up controller*** window switches to the ***Start up axes*** step, see figure below.

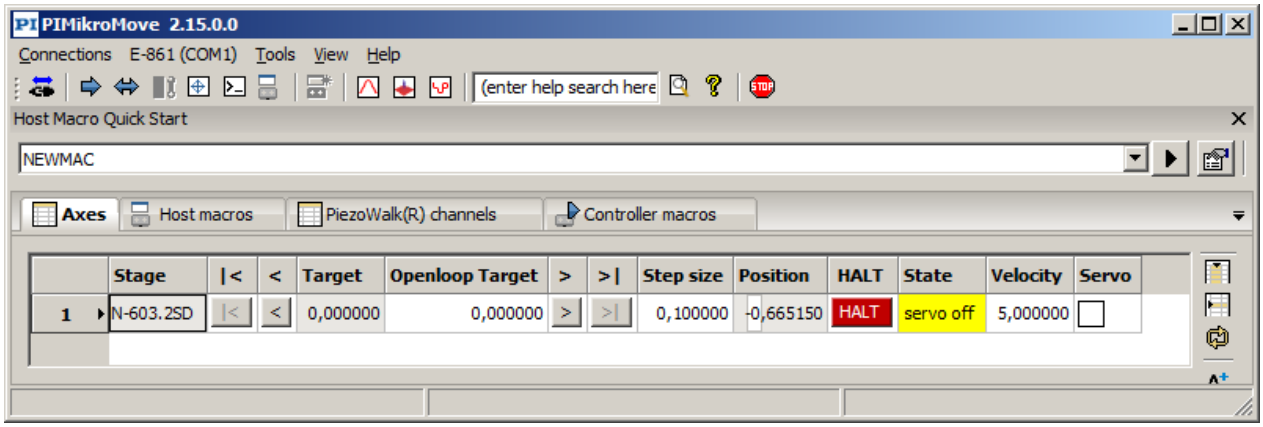


12. In the ***Start up axes*** step, click ***Close***.

    The main window of PIMikroMove opens.

13. In the PIMikroMove main window, start some test moves of the axis:

    a) Select the Axes tab.
    b) Select the servo mode via the ***Servo*** check box (open-loop operation = box is not checked; closed-loop operation = box is checked).
    c) Start a motion of a predefined size (given by the ***Step size*** column) by clicking an corresponding arrow button for the axis.



Saving Parameter Values in a Text File

INFORMATION

The E-861.1S1 is configured via parameters, e. g. for adaptation to the connected stage. Changing parameter values can cause undesirable results.

- Create a backup copy on the PC before changing the parameter settings of the E-861.1S1. You can then restore the original settings at any time.
- Create an additional backup copy with a new filename each time after you optimize the parameter values.

1. Establish communication between the E-861.1S1 and the PC with PIMikroMove or PITerminal via the RS-232 interface or the USB interface.
2. If you use PIMikroMove, open the window for sending commands:
   – In the main window select the ***Tools > Command entry*** menu item or press the F4 key on the keyboard.

   In PITerminal the main window from which commands can be sent is opened automatically after establishing communication.
3. Get the parameter values from which you want to create a backup copy.
   – If you want to save the parameter values from the volatile memory of the E-861.1S1: Send the `SPA?` command.

– If you want to save the parameter values from the nonvolatile memory of the E-861.1S1: Send the `SEP?` command.

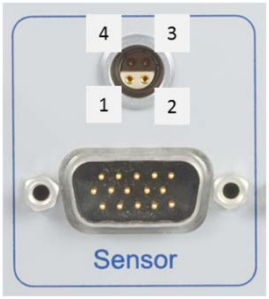
4. Click on the ***Save...*** button.

   The ***Save content of terminal as textfile*** window opens.

5. In the ***Save content of terminal as textfile*** window, save the queried parameter values in a text file on your PC.

“Sensor” Pin Assignment

Connector type: LEMO FFA.0S.304.CLA32Y



Pin	Signal
1	V_{ref}
2	Sensor 1 (-)
3	Sensor 2 (+)
4	GND

The Sub-D 15m sensor panel plug has no function.
All other connections and pin assignments can be found in the PZ205E user manual.