TDK·Lambda

# Quick Start Guide – Z+ CD-ROM

NOTE: Move Labview Driver directory to Program Files>>National Instruments>>LabVIEW 20xx>>instr.lib.

## A. Labview Runtime Engine and Z+ Applications Installation

1. Insert CD-ROM.

2. Select "**Run-Time & Application"**. Refer to Fig 1.


Fig 1

3. Installation process will start. Refer to Fig 2.

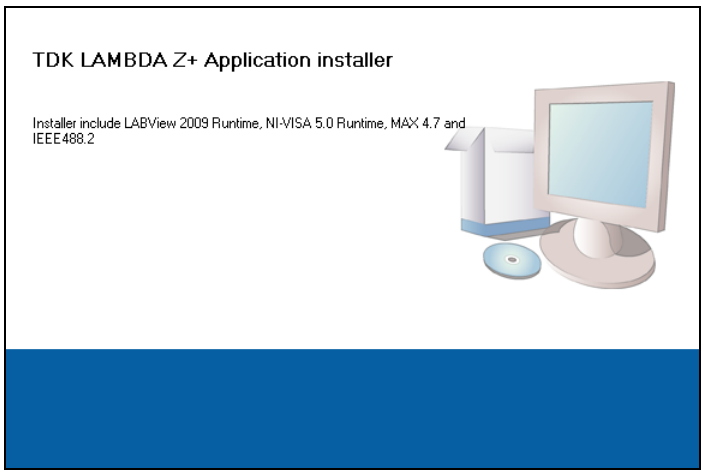


Fig 2

4. Select installation directory. Refer to Fig 3.

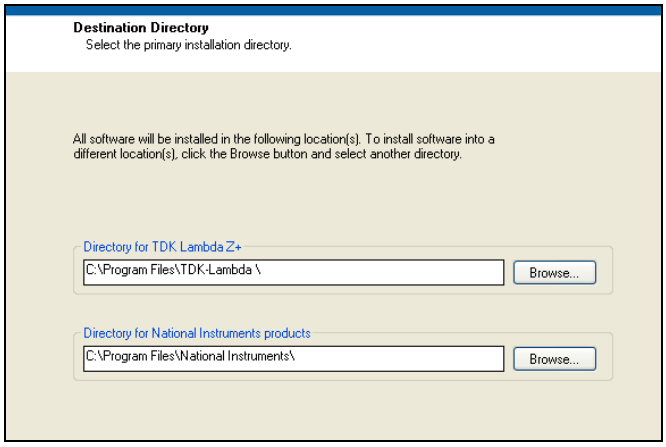


Fig 3

Note: If the following message appears. Refer to Fig 3a.

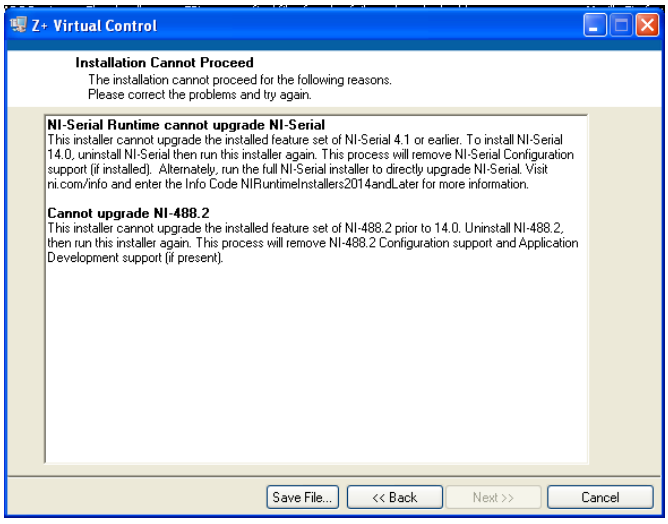


Fig 3a

Remove selected commponents. Refer to Fig 3b. After removal, reinstall "**Run-Time & Application"**.

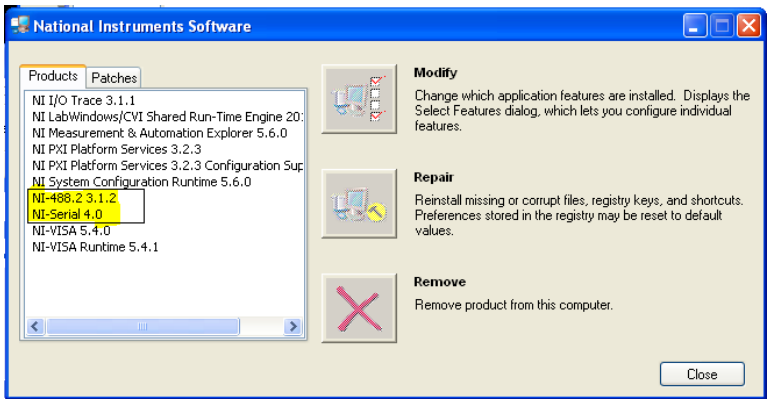


Fig 3b

5. After installation is complete, an icon is created in “All Programs” Directory.

   Select an application from “TDK Lambda Z+” folder. Refer to Fig 4.

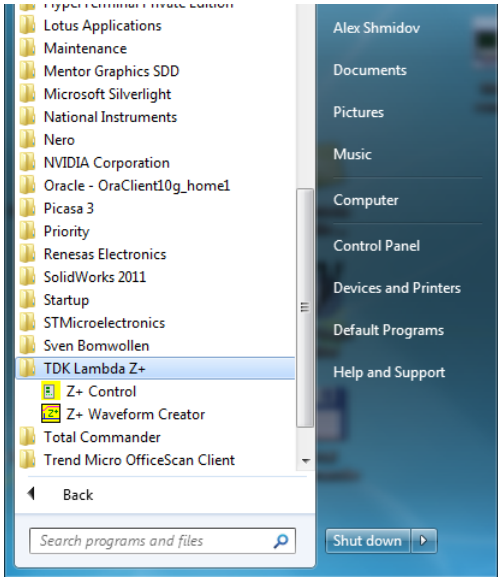


Fig 4

Application is ready for Serial (RS232/RS485) and GPIB communication.

Note: USB driver must be installed prior USB cable connection. For USB driver installation, refer to chapter B.

## B. USB Driver Installation

1. Connect Power supply to a PC using USB cable.

2. Select “***USB”*** communication interface from power supply Front Panel communication menu.

3. Select from “Z+ Drivers Utility”, ***“USB driver x32” or “USB driver x64”*** according to your Operating System type.

4. Select “Next >”, refer to Fig 5. Select “Install”, refer to Fig 6. Driver installation will start.

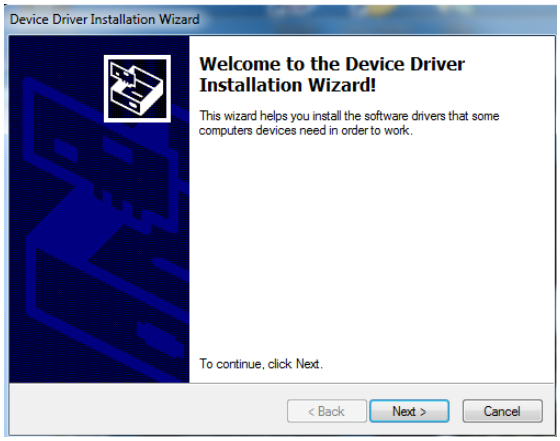


Fig 5

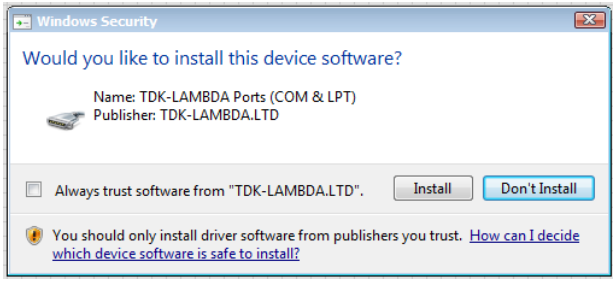


Fig 6

5. USB driver will be installed as an additional serial port {i.e.: seen as Z+ serial port (COM11)}. Refer to Figs 7 and 7a.

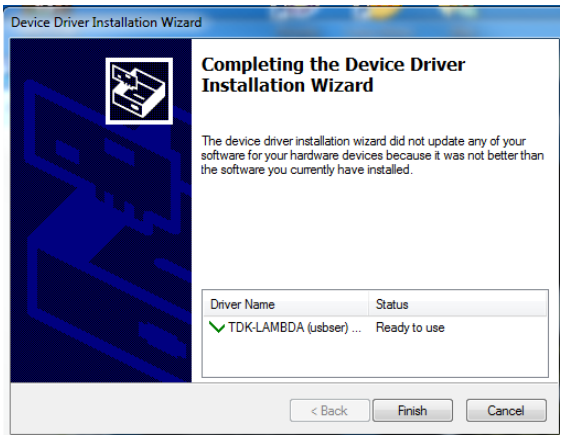


Fig 7

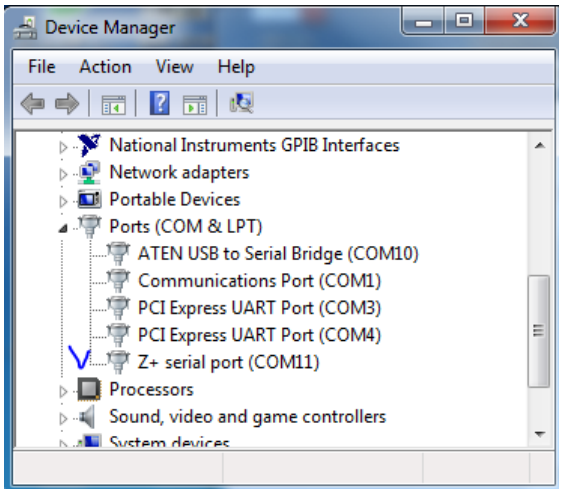


Fig 7a

## C. "Z+ Control" Application

1. Select START -> All Programs -> TDK-Lambda Z+ -> Z+ Control.

2. Press ***RUN*** button (1) to run application. Refer to Fig 8.

3. Set application settings according to power supply settings.

    a. Unit Address (2)
    b. Port (VISA session - COM port for RS232/RS485 and USB), GPIB::x::INSTR for GPIB (3) and TCPIP::x::INSTR for LAN (Refer to chapter E). Select "Refresh" to update connection.
    c. Baud Rate for RS232/485 and USB (4)
    d. Communication Language (5)

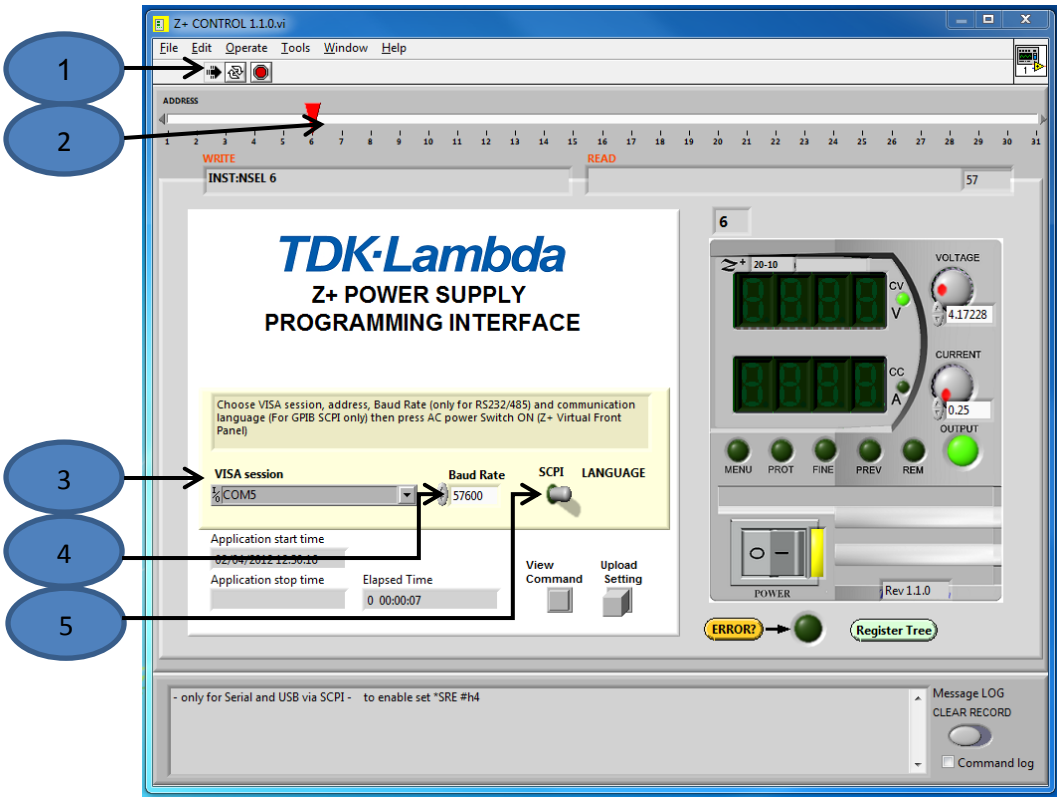


Fig 8

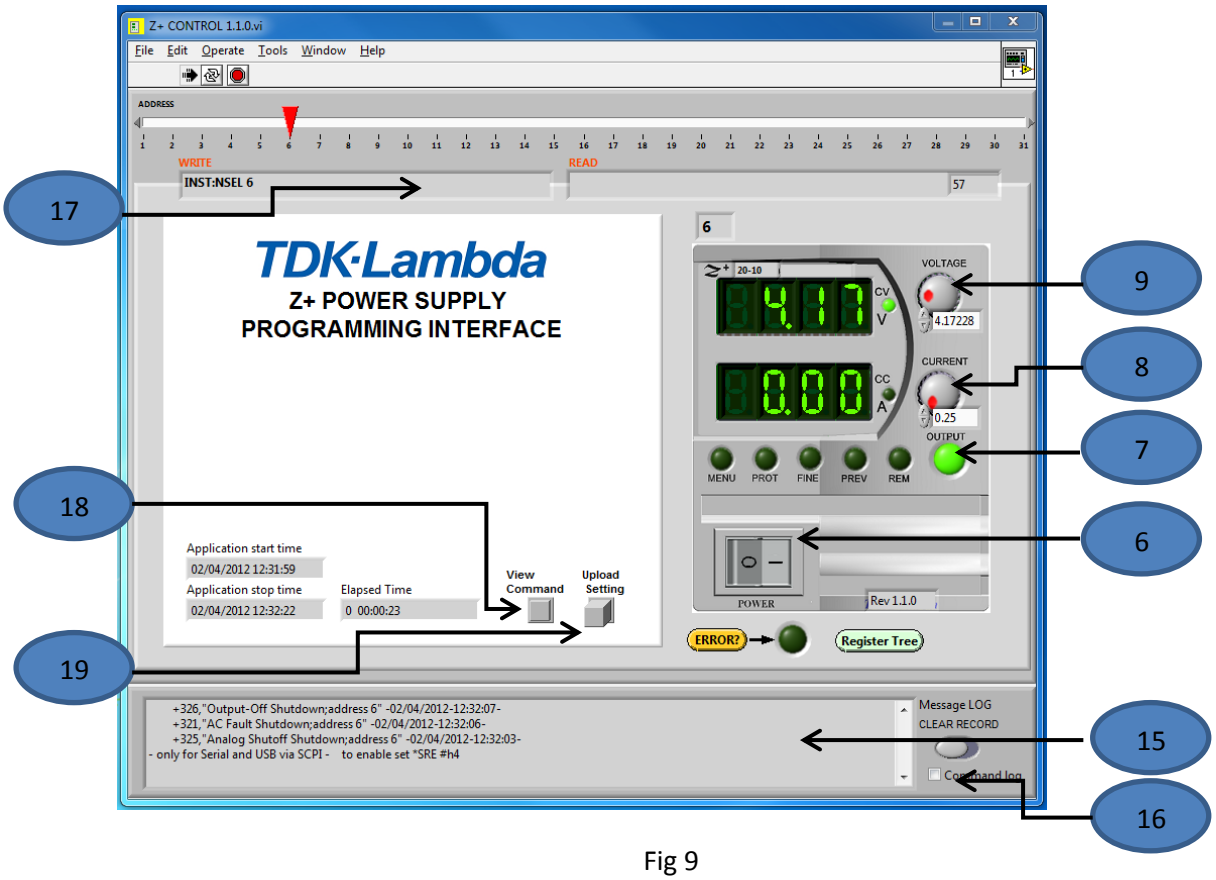


Fig 9

4. Switch ON Power switch (6). Refer to Fig 9.

5. Press OUTPUT button (7) to enable / disable power supply output.

6. Change Voltage and Current settings by voltage (9) and current (8) encoders.

7. Press PROT LED/Button (10) for protection setting. To return - press button again. Refer to Fig 10.

8. Message Log (15). Shows all faults, errors and warnings (command if (16) selected) occurred during operation. This section is only applicable for SCPI via serial and USB interfaces.

9. View command button (18) to show/hide command row (17).

10. Update setting (19) functions refresh all application controls and indicator settings according to PSU state.

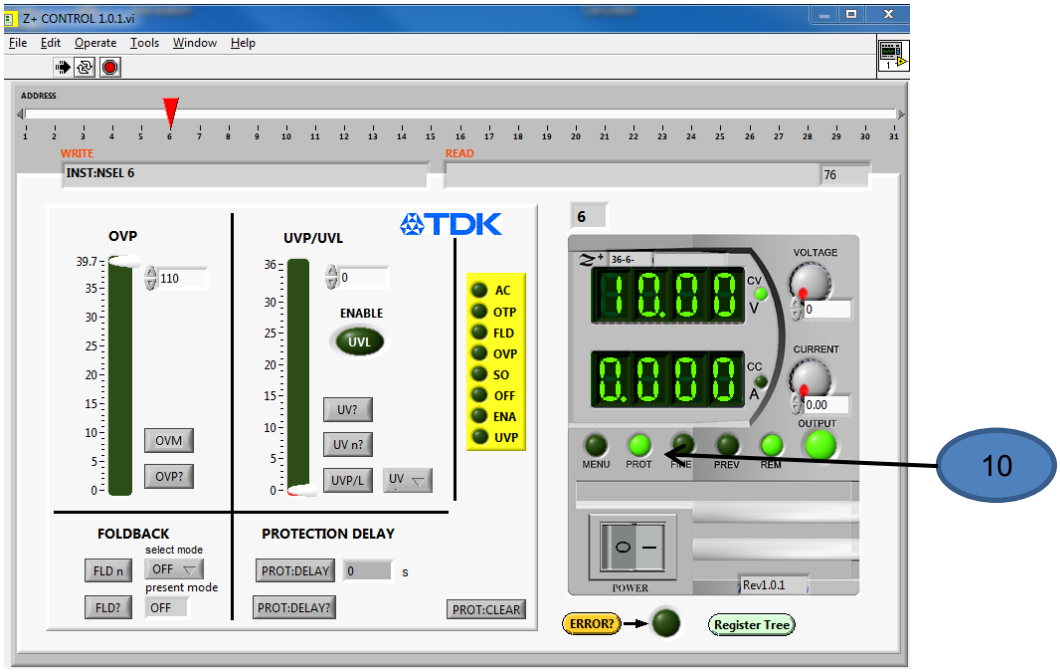


Fig 10

11. Press FINE LED/Button (11) for auxiliary commands and queries.
To return - press the button again. Refer to Fig 11

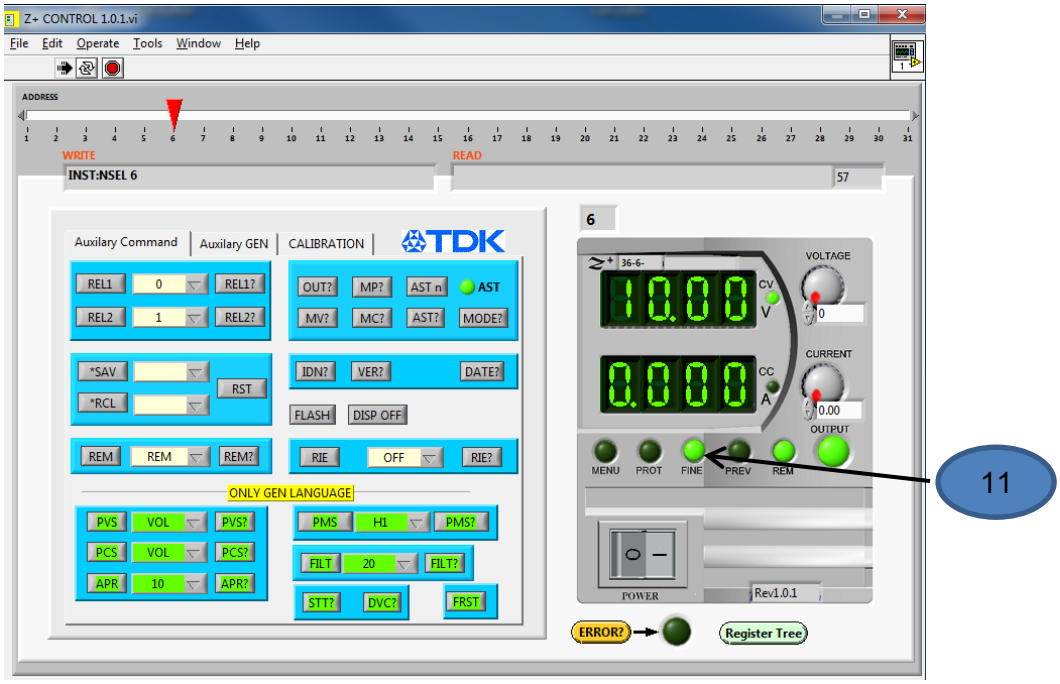


Fig 11

12. Press MENU LED/Button (12) for advance waveform setting.
To return - press button again. Refer to Fig 12.

NOTE: For WAVE and LIST parameters, (.) must be used for decimal numbers and (,) must be used for separation between numbers.

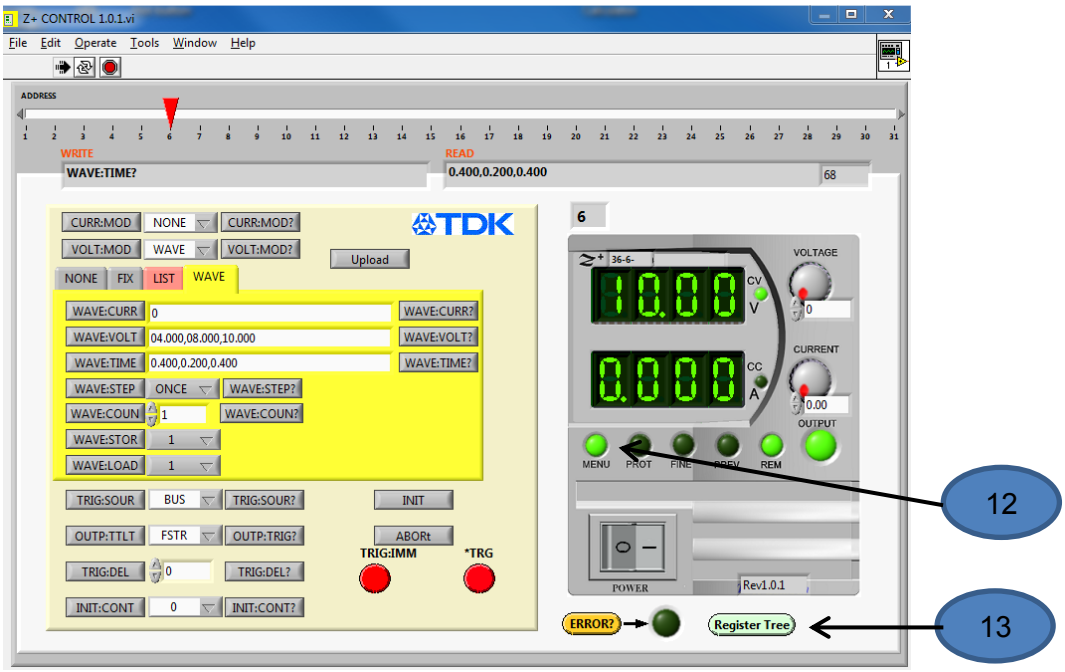


Fig 12

13. Press "Register Tree" Button (13) for setting and viewing Register tree.

Refer to Fig 13. Press button (14) to return to front panel.

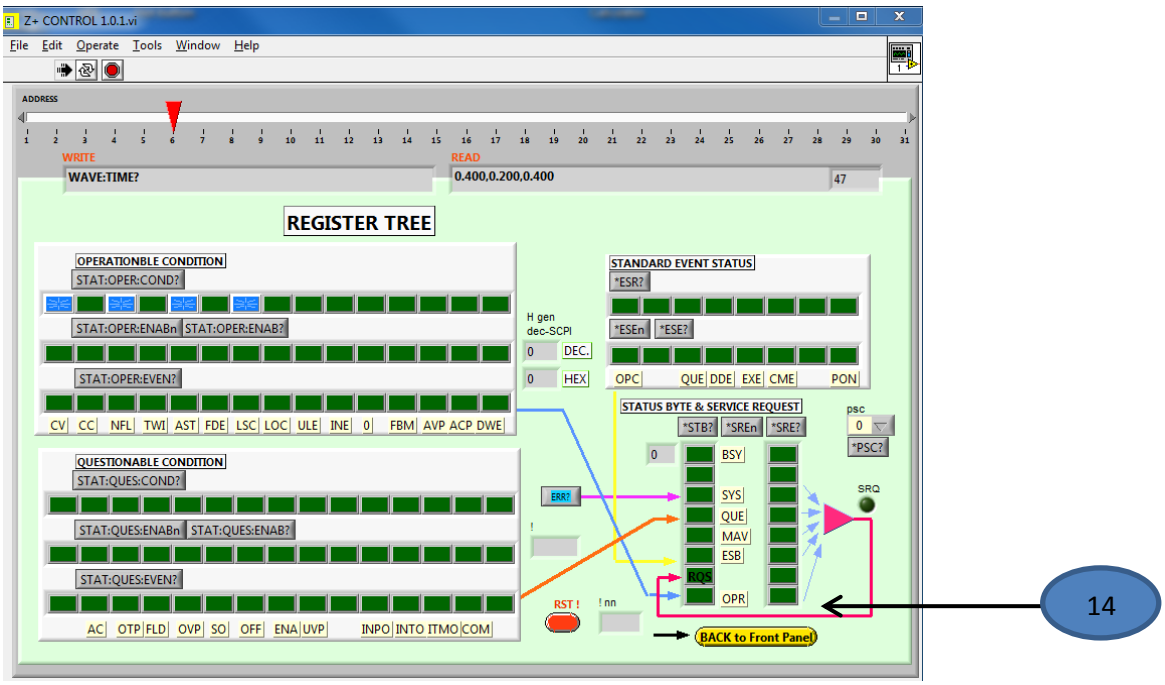


Fig 13

14. To STOP the application, set power switch (6) to the OFF position. Refer to Fig 9

## D. Z+ Waveform Creator

### Application for arbitrary waveform creates. FIX, LIST, WAVE mode

1. Select START->All Programs -> TDK Lambda Z+ -> Z+ Waveform Creator.

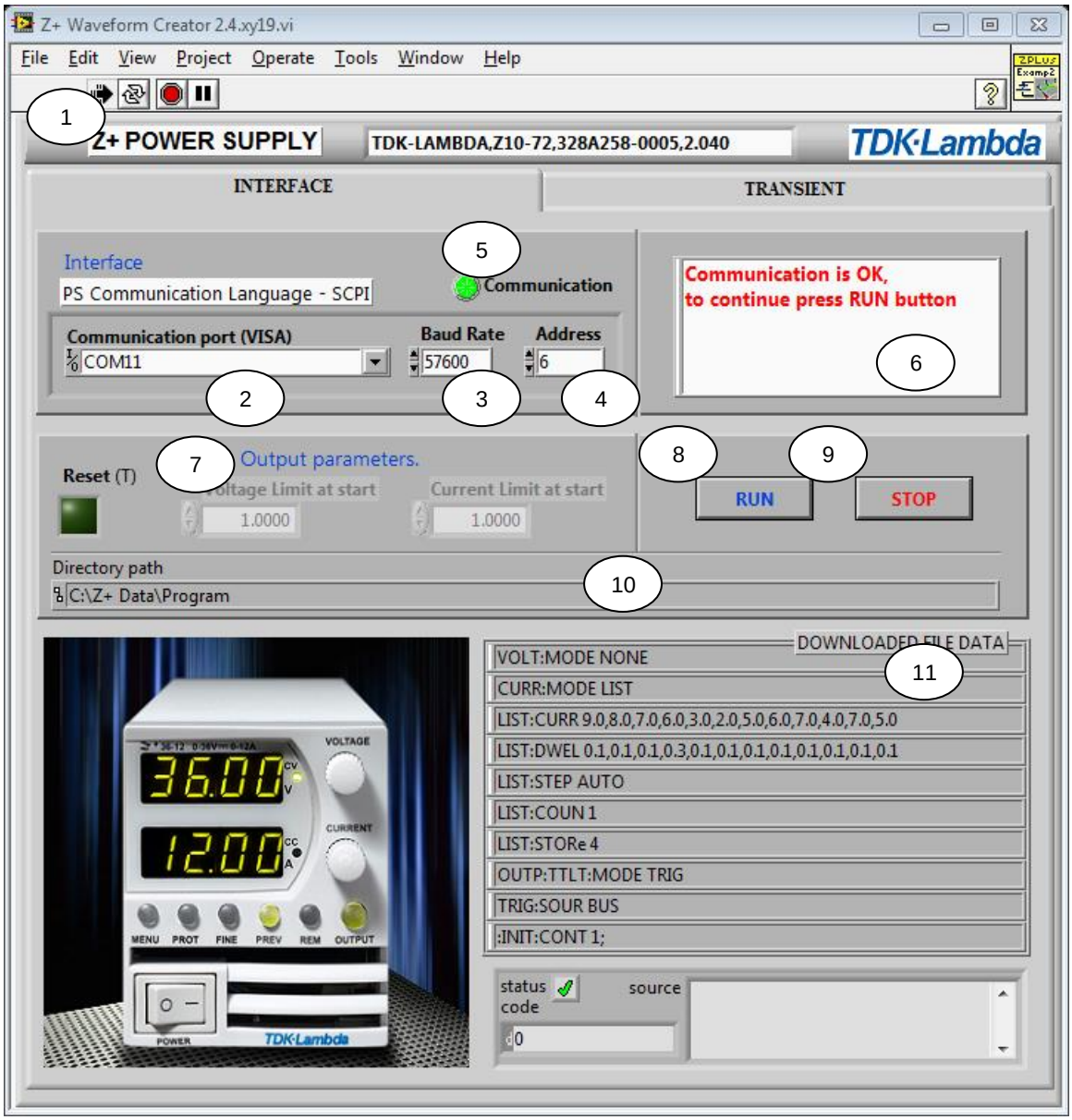


Fig 14

2. Press ***RUN*** button (1) to run application. Refer to Fig 14

3. Set communication parameters according to parameters set in power supply.

   a. Port (VISA - COM port for RS232/485 and USB), GPIB::x::INSTR for GPIB (2) and TCPIP::x::INSTR for LAN (Refer to chapter E). Select “Refresh” to update connection.
   b. Baud Rate for RS232/485 and USB (3)
   c. Communication Language is SCPI only.
   d. Unit Address (4)

4. When communication is OK, LED (5) will illuminate with Green color.
   If Communication LED stays RED, communication has not been established.
5. Communication status message is displayed in (6).
6. Light Green button (7) selects power supply reset and allows setting of initial value for voltage and current.
7. Press “RUN” (8) button to run the main procedure in the application. The INTERFACE page will immediately switch to TRANSIENT page (15).
8. To stop application on this stage, press “STOP” button (9)
9. Directory path (10) to directory where profile script .txt file is stored.
10. Data (11) received by PSU from .txt file

NOTE: (12…14) are not available.

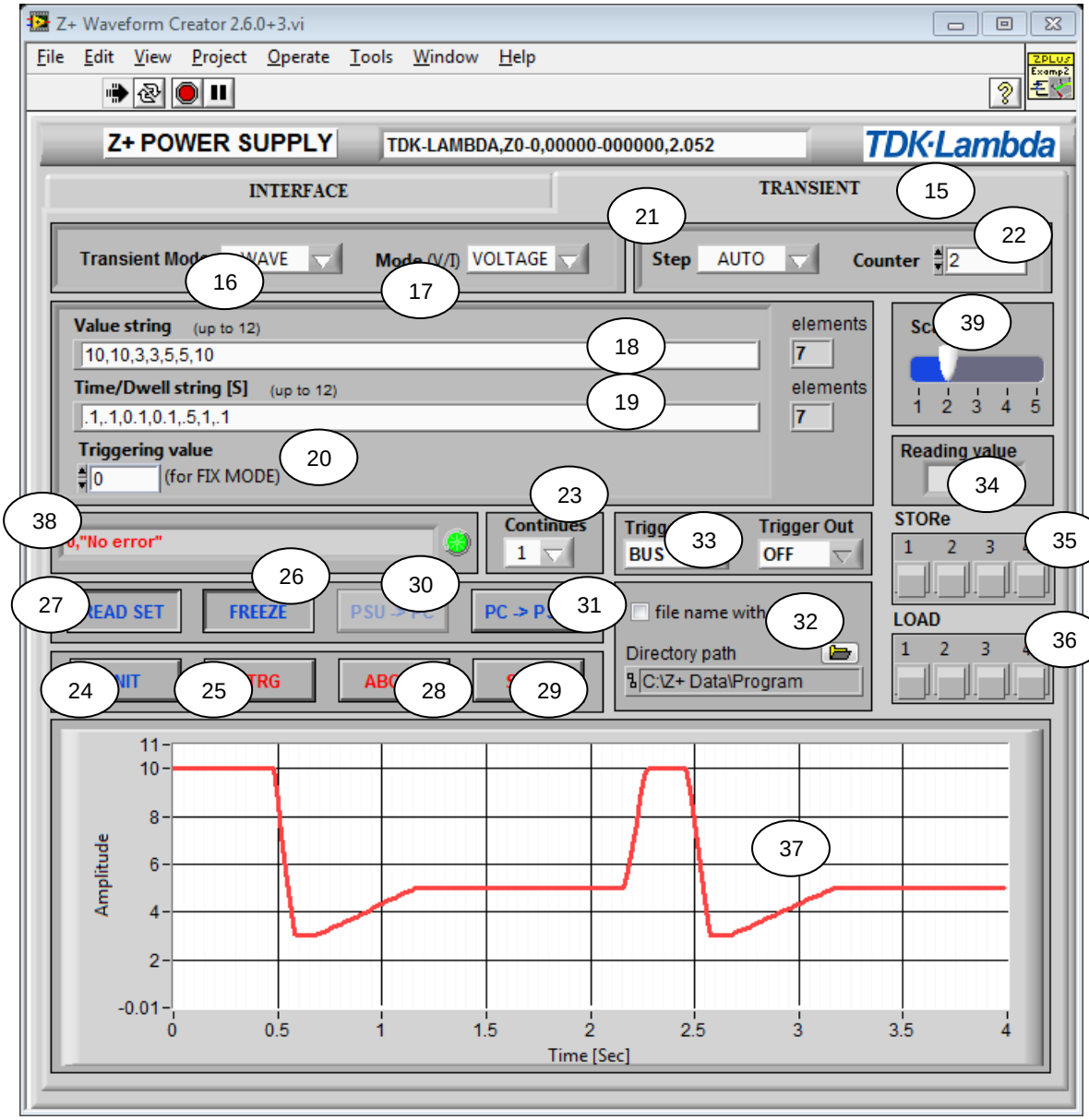


Fig 15

11. The following controls are shown in Fig 15:

- Select Transient Mode (16) Types – WAVE, NONE, FIX, LIST. Example shown – WAVE.

- Mode (17) Types – Voltage, Current, Example shown – VOLTAGE Possible Commands: VOLT (CURR) MODE WAVE/FIX/LIST/NONE. Example shown VOLT:MODE WAVE

- Value String (18) Insert up to 12 values. Elements counter located at the right of the row. Possible Commands WAVE (LIST):VOLT (CURR) x,x,x,x,…… Example shown WAVE:VOLT 10,10,3,3,5,5,10 as WAVE is selected in Transient MODE and VOLT is selected in MODE

- Time/Dwell String (19) Insert up to 12 values. Elements counter located at the right of the row. Possible Commands: WAVE:TIME x,x,x,x,…….. LIST:DWEL x,x,x,x,…… Example shown: WAVE:TIME 0.1,0.1,0.01,0.1,0.5,1.0,0.1 as WAVE is selected in Transient MODE

  NOTE: For WAVE and LIST parameters, (.) must be used for decimal numbers and (,) must be used for separation between numbers.

- Triggering Value (20) VOLT:TRIG 0 (If FIX Mode is selected in Transient Mode (16))

- Step (21) Commands Possible: LIST (WAVE):STEP AUTO/ONCE. Example Shown: WAVE:STEP AUTO.

- Counter (22) To select number of repetitions of the cycle. Commands Possible LIST (WAVE):COUN X where X = 1-9999, inf. Example Shown: WAVE:COUN 2.

- Continuous (23) To initiate the trigger system. Defines if Trigger state is initialized or not. Commands Possible: INIT:CONT ON/OFF or INIT:CONT 1/0. Example Shown INIT:CONT 0.

12. INIT button (24) For Initializing the Trigger (enable *TRG button).

13. *TRG button (25) When it is enabled, press it. See GRAPH (36)

14. Running/Freeze Button (26) Allows to freeze the graph (37) but doesn't stop the program from running.

15. Read SET/Measured value selector (27) and indicator (34).

16. Abort (28) The application will abort if some parameter was changed or ABORT button was pressed. To run program again repeat steps 11, 12.

17. Trigger IN source EXTernal or BUS. Trigger OUT mode (33)

18. Graph scale (39).

19. Error (38) Reports error when data cannot be accepted.

20. STOP switch (29) Press switch to stop the application.

21. Sample resolution for: Serial and USB-20ms, GPIB-25ms, LAN-50ms if the program less than 10min. Else the sample resolution is 100ms for all interfaces.

**STORe**

Any values, as Transient mode (16) (WAVE and LIST only), Voltage or Current mode (17), values (18), Time/Dwell (19), Step (21), Counter (22) can be stored in memory. Press any button in STORe array (35). Memory retains data after AC power OFF also.

**LOAD**

To load stored data press required button in load array (36). Same operation can be done via front panel also. To start sequence, refer to steps 11, 12. Stored data can be loaded after AC recycling.

Note: Continuous data (23), Triggers IN and OUT cannot be stored in the memory

**PSU -> PC**

Application upload follow LOAD x data, continues state, Trigger IN source and Trigger OUT mode and store it in script .txt file

a) Select LOAD (36) ,Set Continues mode (23) and triggers I/O parameters -- (33)

b) To save date in file name select “file name with date”. Path to file location directory -- (32).

c) To upload data from Power Supply to file press PSU->PC button (30).

Note: The button become enabled when any LOAD button selected.

**PC -> PSU**

Download script data file .txt to power supply

a) Run application with other Power Supply.

b) To download file to Power Supply press PC->PS button (31).

c) Program ready to run (INIT and *TRG).

## E. Add new LAN device

1. Open NI MAX program from desktop. Refer to Fig 16.

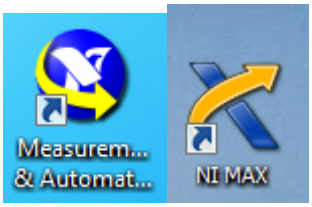


Fig 16

2. Select **Devices and Interfaces**>>**Select Network Devices** (1). Refer to Fig 17.

3. Select **Add Network Device** (2) -> **VISA TCP/IP Resource**…

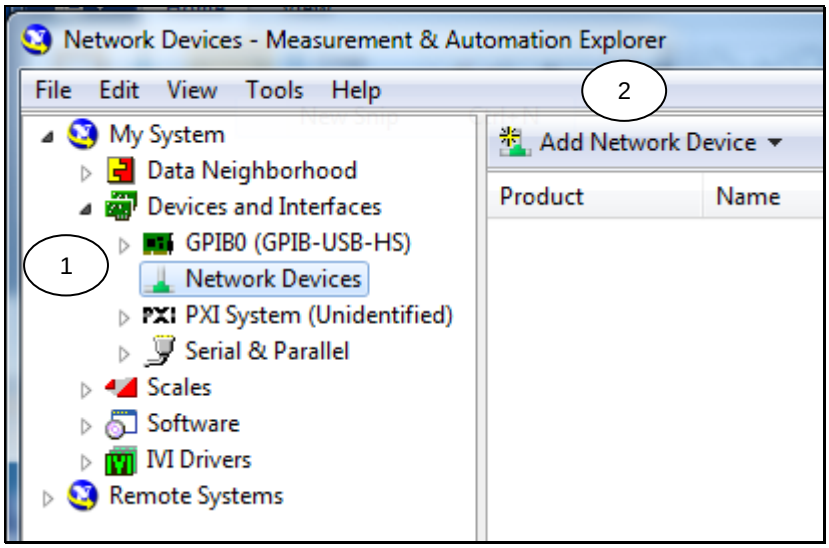


Fig 17

4. Select **Auto-detect of LAN Instrument**. Press **Next**. Refer to Fig 18

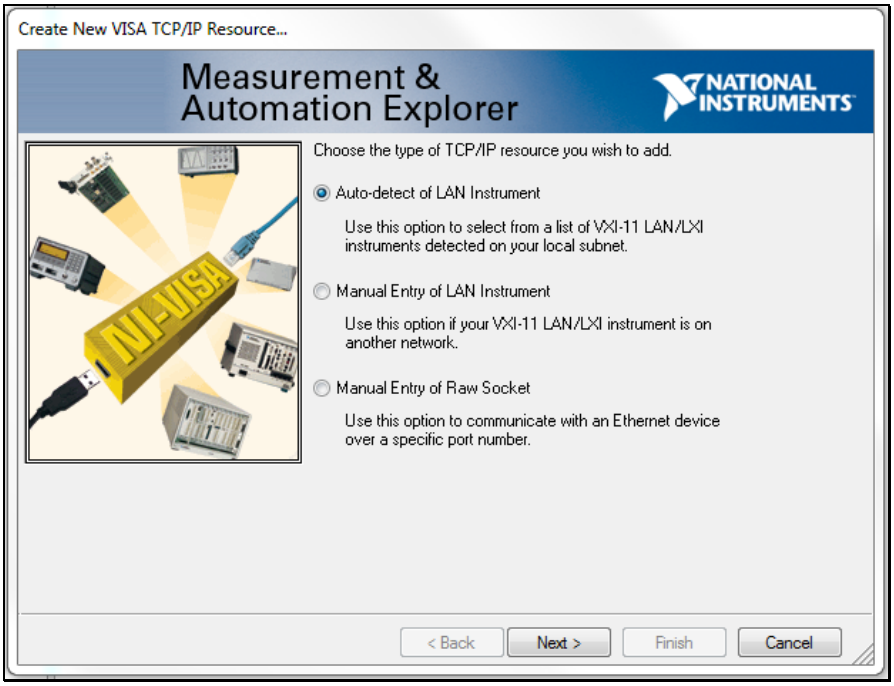


Fig 18

5. The system should automatically find connected LAN devices. Refer to Fig 19.

6. Press **Finish** button.

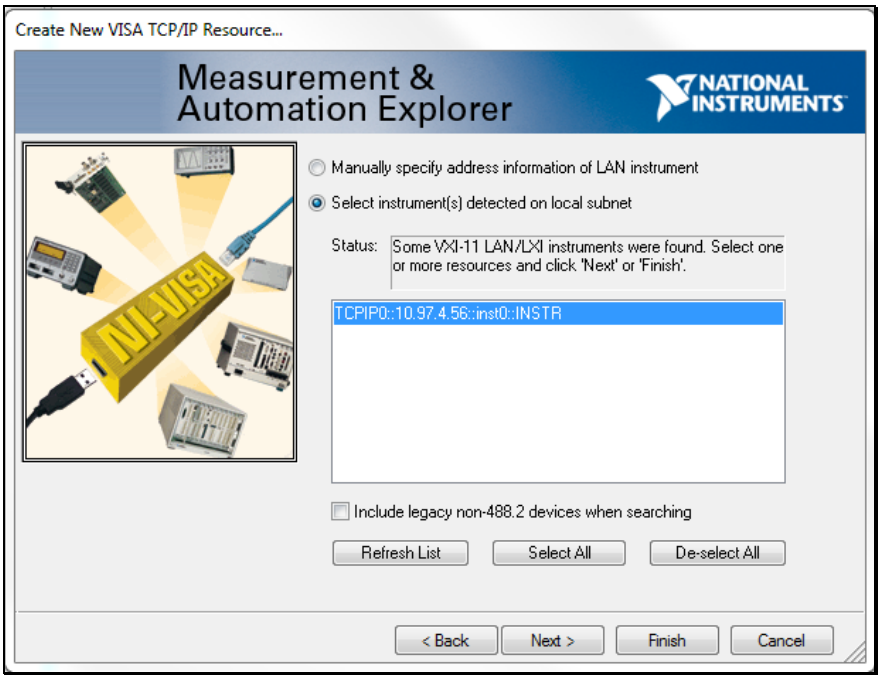


Fig 19

7. Close NI MAX.