SL POWER
TF Series GUI Manual

Communication Protocol

AN-0028

TF series power supplies support digital communication interface with a Host PC based on RS 232 communication protocol. The UART control interface RXD and TXD are TTL signals. These signals must be transformed to communicate with host PC by CT-2XX Communication Board. This can be acquired from SL Power Electronics. Then, the functions below can be operated:

1. ON / OFF control and ON / OFF Status query.

2. Output voltage / current limit setting and query.

3. Actual output voltage, output current and internal temperature query.

4. Status of the unit query.

5. Manufacturing related data query (Include model name, serial number, MFG date etc …).

REQUIRED HARDWARE

- Host PC
- CT-XXX communication board with 24-wire cable mating to C2 connector on TF power supply
- USB to RS 232 adapter (with cable)
- TF series power supply
- Load (recommended, optional)

SW INSTALLATION

1. Run setup.exe file from SL-TF Installer and follow the recommended steps in SW installer tool. (Hint: The SW installer adds NI LabVIEW run-time 2011 and SL-TF_Demo Project to the system.)

2. If USB to RS232 adapter is used for first time, install drivers according to instructions provided with the hardware. (Hint: most likely Windows OS will recognize and install default USB drivers which are suitable for required use.)`

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CONNECTION SETUP

Follow the steps listed below to connect CT-XXX communication board to TF series power supply:

1. Remove supplied jumper from C2 connector.

2. Connect first end of 24-wire cable to C2 connector on TF power supply.

3. Connect second end of 24-wire cable to CN1 port on CT-XXX communication board.

4. Connect USB to RS 232 Adapter to host PC.

5. Connect USB to RS 232 to CT-XXX communication board (9 pin RS 232).

6. Make sure the address potentiometer is selected correctly. This is important for parallel operation of PS where two PS are not allowed to have same address.
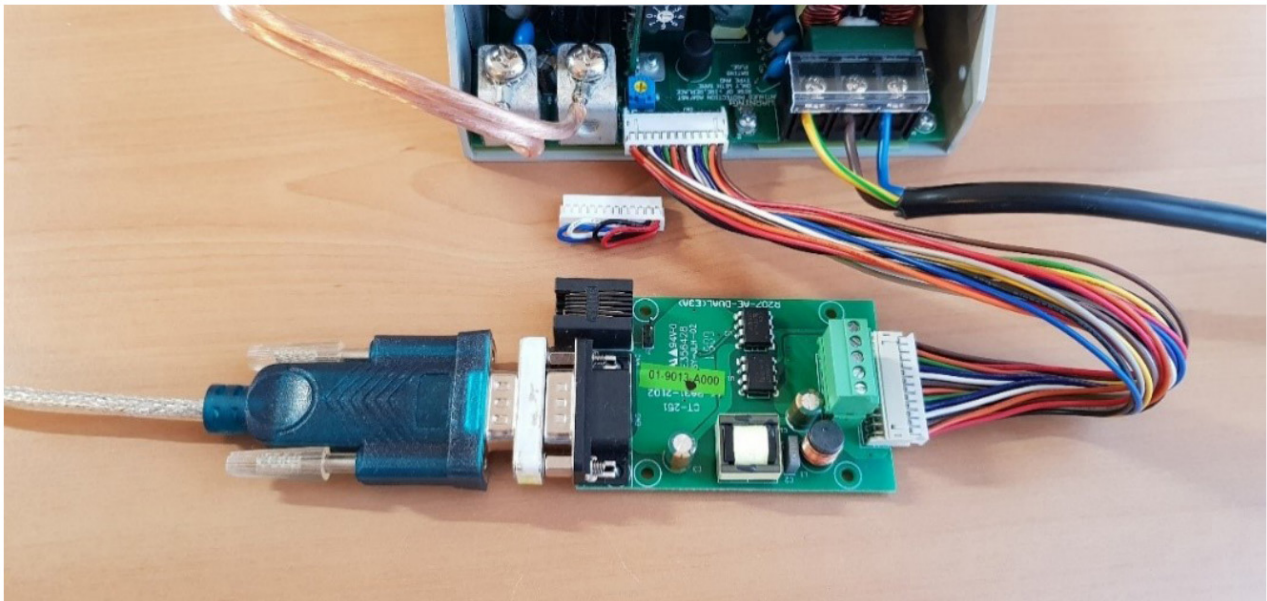
7. Connect AC power cord to TF power supply.

Figure 1: Connection example TF800 power supply to CT-251 communication board to RS 232 - USB adapter

8. Connect load to TF power supply (recommended, optional). Apply AC Power to TF power supply.
   - Power supply remains in stand-by mode.
   - Green LED is blinking slowly indicating power stand-by mode.

FIRST RUN

1. Perform connection setup described in section 4.

2. Run SL-TF Prog_RT.exe on host PC.

3. Select applicable communication port before setting the program (COM7 in this example).

4. After selecting the applicable COM port, press SEARCH button.

5. ADDS0 will show power supply model voltage, output signals status and the information including DC output voltage, current and temperature).
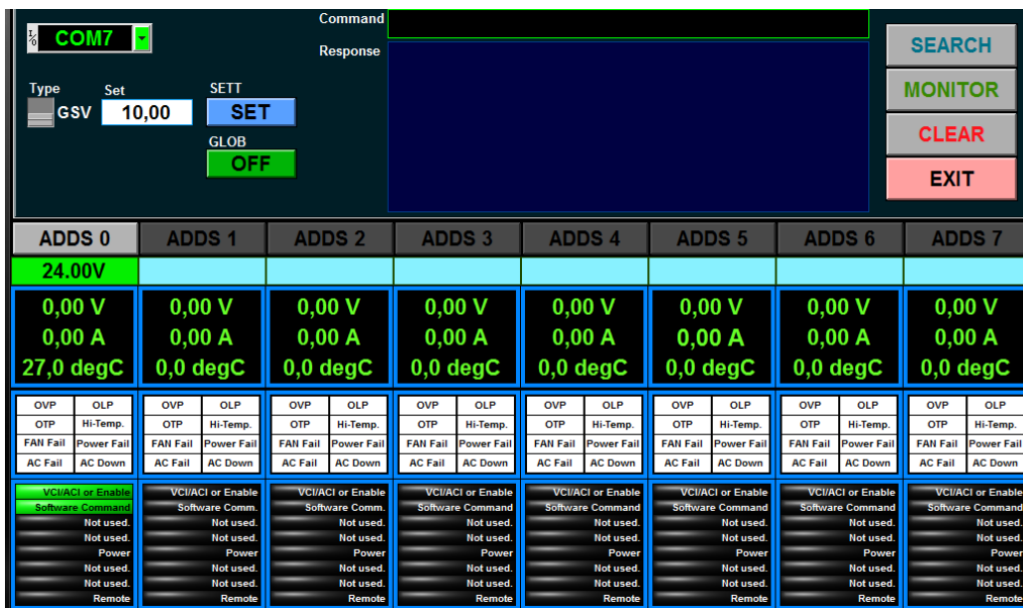   • ADDS0-ADDS7 are monitored in respect to potentiometer selection on TF power supply.

Figure 3: GUI, 24 V TF Series power supply connected to ADDS 0 at COM7 in local mode (green)

6. Change the power supply mode from Power Standby to remote mode by pressing the GLOB button from OFF to ON.
   • Orange solid LED on TF power supply is indicating power remote mode.
   • Switching GLOB function off will return TF power supply to remote stand-by mode, blinking orange LED.

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FIRST RUN

7. Click SEARCH to read and update GUI information from TF power supply.
   - Voltage indication in GUI will change its color from green to orange.
   - This indicates successful communication setup with GUI.
   - Output voltage is 0 V and output current is 0 A.

Figure 3: : GUI, 24 V TF Series power supply connected to ADDS 0 at COM7 in remote mode (orange)

8. Set desired output voltage by entering command line: SV XX (XX for voltage value according to datasheet).
9. Set desired output current limit by entering command line SI YY (YY for current value according to datasheet).
10. Click MONITOR button for status query in continuous loop or SEARCH button for single query to readout values from TF power supply.
11. Get exact output voltage or current by entering command line RV? Or RI?

EXAMPLE USING A 24 VOLT MODEL

1. Perform connection setup described in section 4.

2. Run SL-TF Prog_RT.exe on host PC.

3. Select applicable communication port before setting the program (COM7 in this example).

4. After selecting the applicable COM port, press SEARCH button.

5. ADDS0 will show power supply model voltage, output signals status and the information including DC output voltage, current and temperature).
   · ADDS0-ADDS7 are monitored in respect to potentiometer selection on TF power supply.

Figure 4: GUI, response to executed command "SV 22.23"

Figure 5: GUI, response to executed command "SI 2.73"

6. Click MONITOR or SEARCH to get updated data from TF power supply

7. Get more exact voltage query by entering command lines RV? and RI?

Figure 6: GUI, response to executed command "RI?"

Figure 7: GUI, response to executed command "RV?"

Contact your local application support or use Communication Protocol User's Manual for more details to additional commands.

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

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