TRM

Instruction Manual

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1. INTRODUCTION

The GDD TRM is used to control the output signal of GDD IP Transmitters (or other transmitters) from an external signal generator. It is sturdy and can operate in extreme climatic conditions (-40 °C to 65 °C).

The GDD TRM can be powered directly from a 220-240 VAC / 50-60 Hz power source, such as a portable regulated generator. The TRM can send up to 20A and 2400V with a power peak up to 10 000W.

2. TRM DESCRIPTION

2.1 Equipment List

When receiving a GDD TRM ensure that it contains the following elements:

- One (1) TRM built in transportation box from Pelican
- One (1) TRM 20A power cable
- One (1) 0.34 meter 20/30A cable adaptor
- One (1) TRM Y 20A power splitter (generator / TRM / transmitter)
- One (1) blue carrying case
- Instruction manual.

Optional

- TRM yellow synchronization cable (TRM – TX Master-Slave configuration)

Do not hesitate to get in contact with Instrumentation GDD inc. if needed.

2.2 TRM Components

In this section, the TRM components from the control panel are shown, named and explained (see figure 1 on the next page).

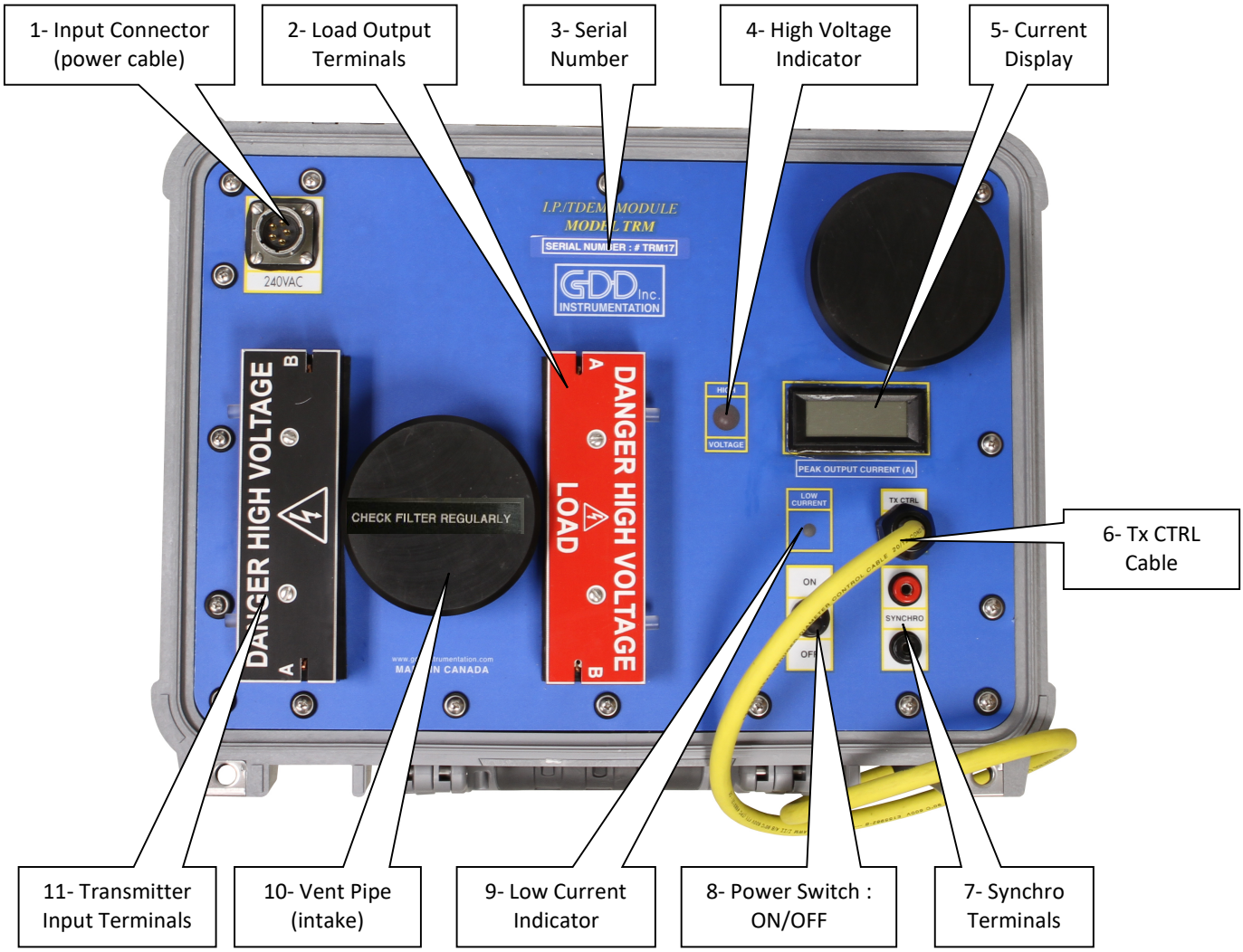


Figure 1: Control panel

2.2.1 Input Connector (power cable)

This is where you connect the TRM 20A power cable that comes with the GDD TRM. The cable should be connected to any 220-240 VAC / 50-60 Hz voltage source.

2.2.2 Load Output Terminals

This is where the load is connected. Press the button over each terminal to insert wires. Be careful, the terminals can reach 2400V.

2.2.3 Serial Number

Each instrument has its own serial number to identify it.

2.2.4 High Voltage Indicator

This LED turns ON and OFF to indicate the presence of high voltage on the TRM load output terminals, allowing the operator to follow the transmission cycle.

2.2.5 Current Display

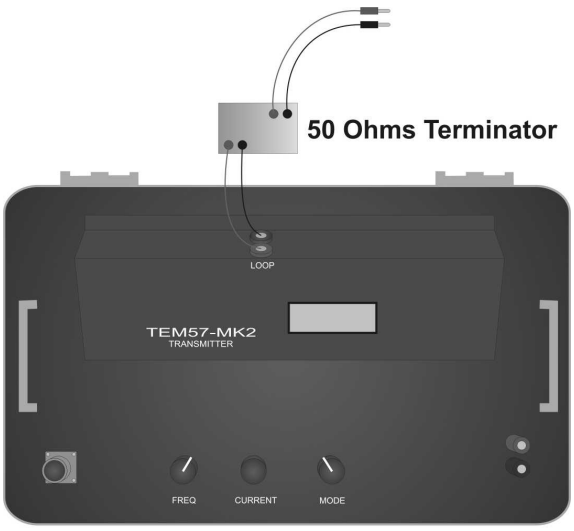
Displays the peak current transmitted into the load. The value is refreshed when the TRM is transmitting. The current to be noted is the one displayed on the TRM because the transmitter display may not be refreshed correctly at high frequency or when using specific duty cycles.

2.2.6 Tx CTRL Cable

The Tx CTRL Cable must be connected to the Master-Slave connector on the control panel of the GDD IP Transmitter.

2.2.7 Synchro Terminals

This is where the external signal generator must be connected. The input voltage signal should be between 4V to 60V.
Note: The use of the Geonics TEM57-MK2 transmitter as a signal generator needs a 50 Ohms Terminator at the output terminal to provide the signal to the TRM.



Geonics Transmitter

2.2.8 Power Switch: ON / OFF

This switch is used to power ON the TRM.

2.2.9 Low Current Indicator

This LED indicates that the load is opened or that the current is less than 0.1 A. Check the Open Loop warning LED on the GDD IP Transmitter.

2.2.10 Vent Pipes

There are two vent pipes (intake / exhaust) on the control panel. Make sure that the airflow is not being obstructed by any object (e.g.: leaves, snow, etc.).

IMPORTANT: Check the filter inside the vent pipe (intake) regularly and clean it if necessary.

2.2.11 Transmitter Input Terminals

This is where the input voltage wires from the GDD IP Transmitter are connected. Press the button over each terminal to insert wires. Be careful, the terminals can reach 2400V.

3. TRM OPERATION

3.1 Steps to follow

Here are the basic steps for a field operation with the TRM and GDD IP Transmitters.

Examples of configuration:

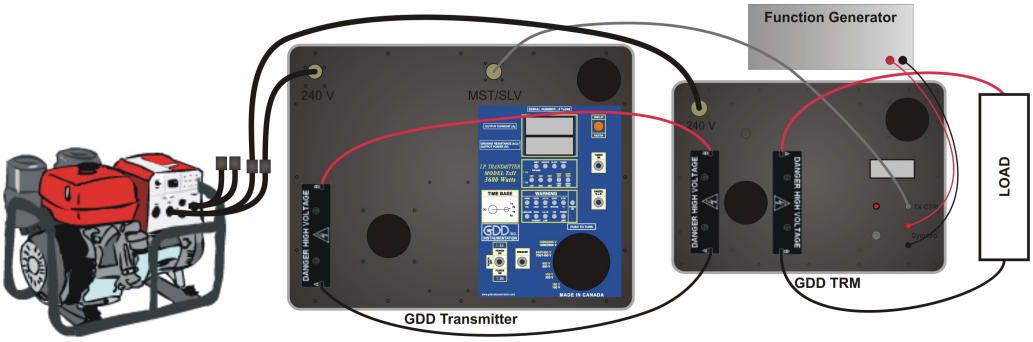


Figure 2 - Wiring diagram for 1x GDD 5000W IP Transmitter and 1x GDD TRM configuration (up to 2400V / 5000W / 10A)

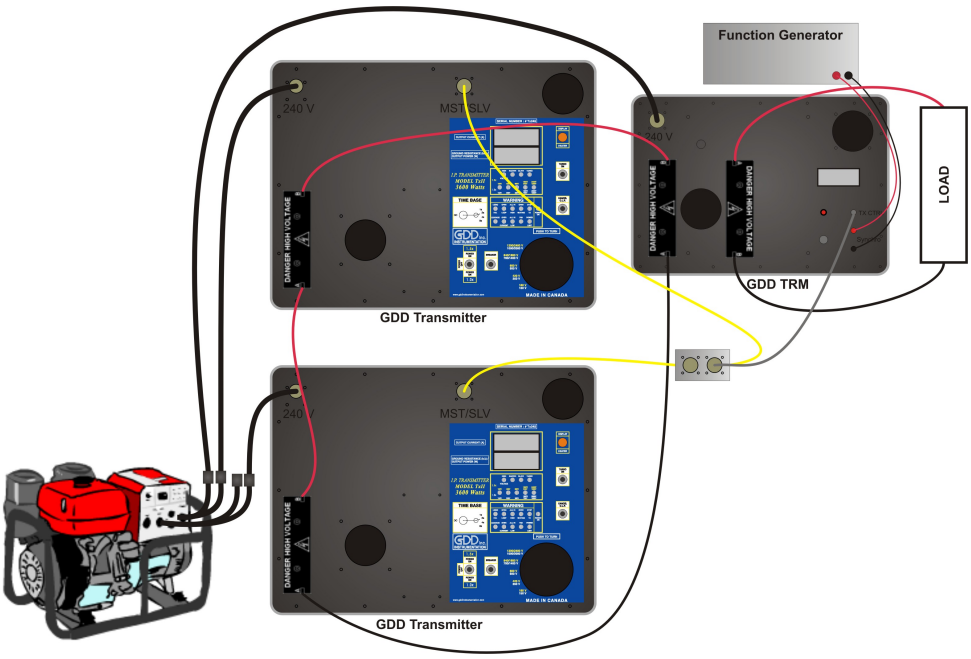


Figure 3 - Wiring diagram for 2x GDD 5000W IP Transmitters and 1x GDD TRM configuration (up to 2400 V / 10000W / 10A)

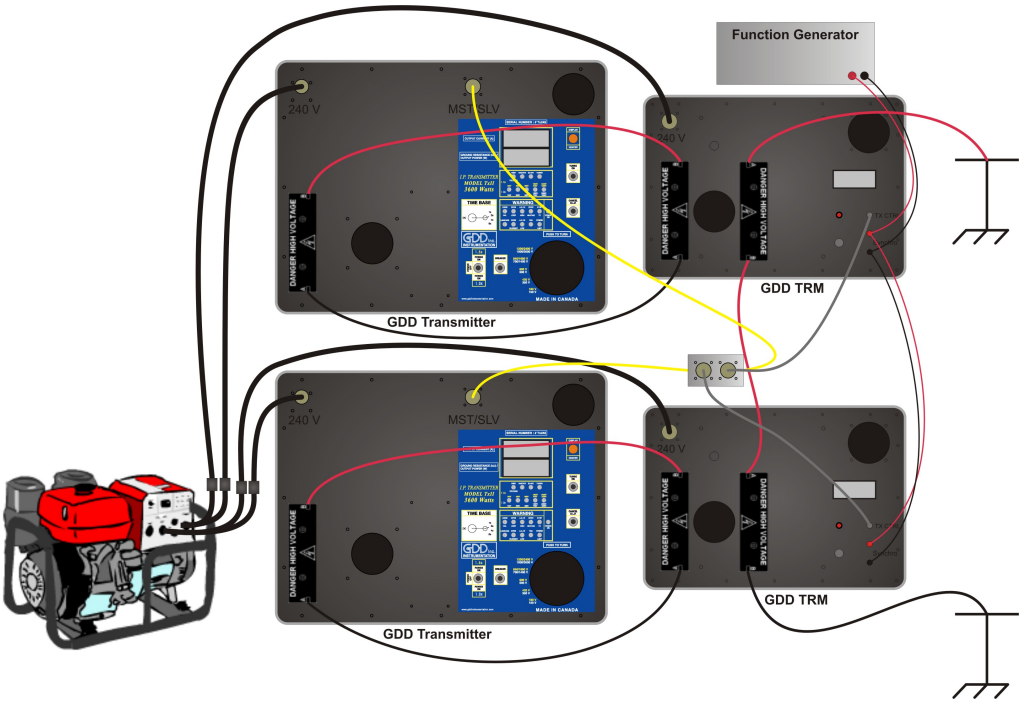


Figure 4 - Wiring diagram for 2x GDD 5000W IP Transmitters and 2 x GDD TRM configurations (up to 4800V / 10000W / 10A)

Power ON sequence:

1. Connect the load (wires / electrodes) to the Load Output Terminals (see proper wiring diagram).

2. Connect the output terminals of the GDD IP Transmitter(s) to the input terminals of the TRM(s). Respect the right polarity (see proper wiring diagram).

3. Connect the GDD IP Transmitter(s) and the TRM(s) to the power source (generator).

4. Connect the external signal generator to the Synchro terminals of the TRM. If two TRMs are used, the external signal generator must be connected to both units.

   Note: With the use of a Geonics Transmitter as a signal generator, do not forget to connect the 50 Ohms Terminator. (See **2.2.7- Synchro Terminals** in section 2.2)

5. Connect the Tx CTRL cable from the TRM(s) to the Master/Slave connector on the control panel of the GDD IP Transmitter(s). Use the optional GDD TRM yellow synchronization cable for the 2 TX and 1 / 2 TRM configuration (see figures 3 and 4).

6. Put the voltage selector of the GDD IP Transmitter(s), model TxII, to the lowest voltage scale (150V). Do not worry about the selected time base of the transmitter. The TRM overrides the Tx timing.

7. Start the power generator.

8. Put the 1.0X / 1.5X switch of the GDD IP Transmitter(s) to the 1.0x mode and power the transmitter ON. The GDD IP Transmitter(s) should work in Slave mode.

9. Power ON the TRM(s).

10. Start the external signal generator.

11. If an Open Loop warning LED appears on the GDD IP Transmitter(s), power off the GDD IP Transmitter(s), press and hold the Cancel Open Loop button and power on the GDD IP Transmitter(s).

12. To increase the output power, turn the voltage selector of the transmitter to the next voltage tap. Repeat until the appropriate power output is obtained. The 1.5x mode allows reaching an intermediate output power. When two GDD IP Transmitters are used, their voltage tap should not be more than one step different.

    To go in Turbo Mode, turn on the Turbo Switch on the GDD IP Transmitter(s), and turn off and then turn on the TRM(s). The turbo mode is deactivated for two (2) GDD IP Transmitters and one (1) TRM configuration.

Note: The GDD IP Transmitters(s) will automatically stop if you exceed its maximum rated output power. In such a case, select the previous lower output voltage.

Power OFF sequence:

1. Stop the signal generator (TRM clock input).

2. **Power OFF the transmitter.**

3. Power OFF the TRM.

4. TECHNICAL HELP

If you encounter a problem that can't be fixed or for any particular information, do not hesitate to get in contact with **Instrumentation GDD Inc.**

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Fax: +1 (418) 877-4054
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Emergency (out of business hours):

Pierre Gaucher:

Home tel.: +1 (418) 657-5870
Mobile phone: +1 (418) 261-5552

Any GDD TRM that breaks down while under warranty or service will be replaced free of charge upon request for the duration of repairs, subject to instruments availability, except for shipping charges. Although this service is subject to instrument availability, we have been able to honour this commitment until now.

5. SPECIFICATIONS

Size:	18 x 33 x 41 cm (without the blue carrying case)
Weight:	7 kg (without the blue carrying case)
Operating temperature:	-40 °C to 65 °C (-40 °F to 150 °F)
Output current:	Up to 20A
Output voltage:	Up to 2400V
Power source:	220-240 V / 50-60 Hz