TRAVERSE
SOLUTIONS &
INSTRUMENTATION LLC

SOFTWARE MANUAL

TS&I MODULAR PDV SYSTEM

Traverse Solutions & Instrumentation, LLC
MODULAR PDV SYSTEM

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1. INTRODUCTION

1.1 INTENDED USERS

This document is intended for end users, developers, and administrators who are building, deploying, and using the Traverse Solutions & Instrumentation (TS&I) Modular PDV System. The document assumes knowledge of heterodyne/ frequency upshift PDV testing procedures.

It is necessary for users to read the manual before operating the system safely and effectively.

1.2 SAFETY WARNINGS

> ⚠ WARNING
>
> START UP: *DISCONNECT* POWER SUPPLY BEFORE *INSERTING* OR *REMOVING* PDV MODULE(S)

> ⚠ WARNING
>
> TREAT THE PROBE OUTPUT WITH THE SAME CARE AS THE SIGNAL LASER SOURCE INPUT.

> ⚠ WARNING
>
> IMPORTANT: SAFETY INTERLOCKS MUST BE PRESENT ON THE USER'S LASER SOURCE AND THEY MUST BE WORKING PROPERLY. REGULATIONS ALLOW FOR INTERLOCKS TO BE OVERRULED BY AUTHORIZED PERSONNEL. THE ATTENUATION CAPABILITY OF THE TS&I MODULAR PDV SYSTEM IS **NOT** TO BE USED AS A SAFETY FEATURE.

2. SOFTWARE INSTALLATION

The PDV Module Controller Software for the TS&I Modular PDV System was provided as a DVD and shipped with the unit. If the DVD is missing please contact support@traversindustries.com.

> IMPORTANT: The PDV Module Controller Software requires Windows 7 with Service Pack 1, or above.

2.1 TO INSTALL FROM THE DVD FOR WINDOWS 7 & 10

To Install run Setup.msi as admin user before plugging in USB. Following install: Plug in the USB, power up the PDV System, and start the software.
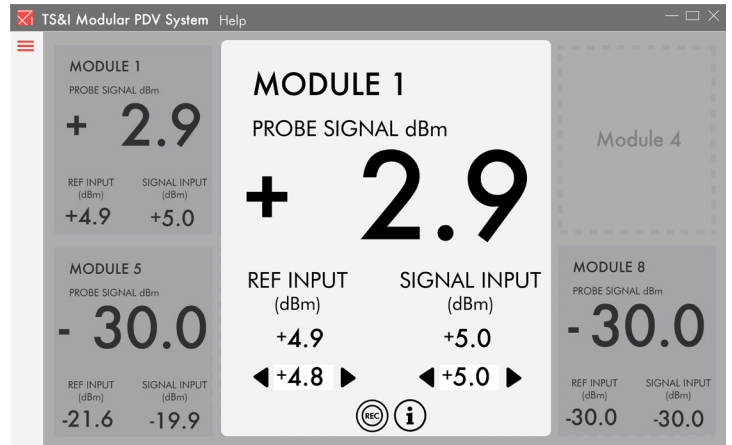
3. USING THE SOFTWARE

The PDV Module Controller Software is used
to adjust the Signal (SIG) and Reference (REF)
power for each PDV Module. The power meter
locations are on the schematic below in blue.

MODULAR PDV SYSTEM SCHEMATIC

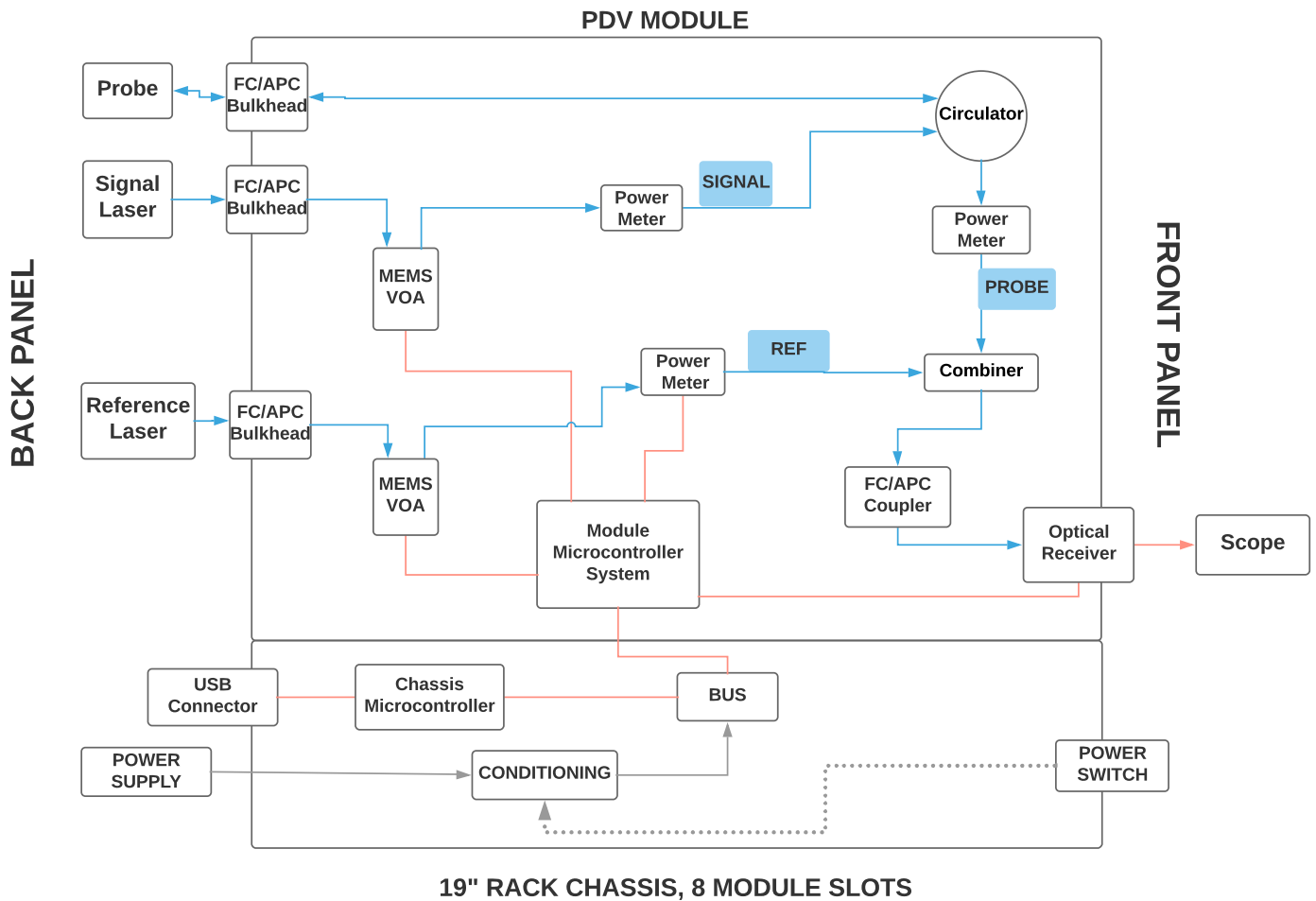The software continually monitors for over power situations to protect the PDV Modules. Both MEMS VOA's (variable optical attenuators) shown below are set to the maximum attenuation of approximately 40dB at system start up. The system then monitors for the following situations:

- Signal Input plus the VOA setting greater than 26.5dBm or 450mW.
- Reference Input plus the VOA setting greater than 26.5dBm or 450mW.
- Receiver Overpower Situation: The probe signal and reference inputs are added together per the PDV Modules combiner ratio. A value greater than 7.5 dBm signals a warning.

A warning will flash on the screen when these conditions are met and the data is logged for maintenance and warranty purposes.
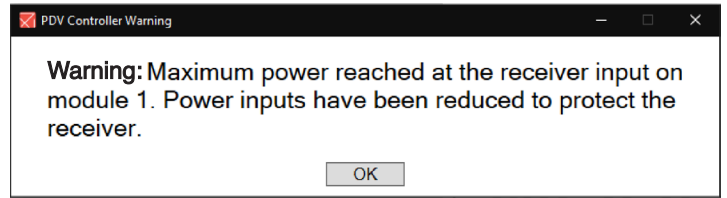

pop-up warning

3.1 REQUIRED OPERATION SEQUENCE

1. **Device On.**

2. **Software Open.**

3. **Lasers On and Off for Testing.**

4. **Software Off.**

5. **Device Off.**

⚠ WARNING

ADJUSTING THE LASER SOURCE AFTER MODULES HAVE BEEN SET MAY LEAD TO DAMAGE. ANY INCREASED POWER WILL NOT BE ATTENUATED. TO AVOID DAMAGE USE THE LASER CONTROL WITHIN THE PDV CONTROLLER SOFTWARE OR SELECT THE "FULL ATTENUATION" OPTION ON THE MENU BAR TO RESET ALL MODULES TO MAXIMUM ATTENUATION. THEN INCREASE THE LASER SOURCE POWER. RESTART THE SOFTWARE TO RESET ALL ATTENUATORS TO MAXIMUM ATTENUATION BEFORE INCREASING THE LASER SOURCE POWER.
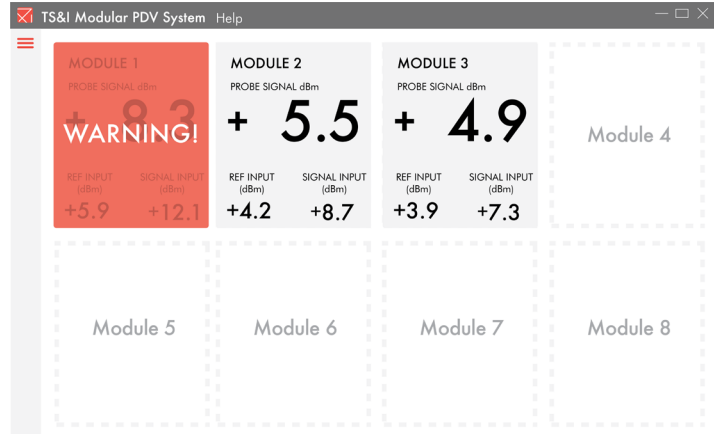
3.2 ADJUSTING THE PDV MODULE SETTINGS

1. Open the TS&I Modular PDV
   System Controller Software
   The Power meters values as shown in the
   schematic are displayed for each module.

2. Click on the number of the PDV Module
   you want to adjust; the blue LED light of
   the module being adjusted will flash.

   > NOTE: Modules in the chassis are
   > numbered 1 to 8, left to right from the front.

3. Use the arrows or key in the desired power
   level of the Signal (SIG) and Reference (REF)
   inputs. The power meter readout will flash
   until the software is done driving the MEMS
   VOA's to the desired output power level.

   > NOTE: Hold CTRL while using Arrows or
   > type in the desired value CTRL Enter to set all
   > installed PDV Modules to the entered value.

IMPORTANT: Do not run a test while
the input numbers are flashing. The
system is actively being adjusted when
the lights are flashing, and the test data
will be affected. Small adjustments may
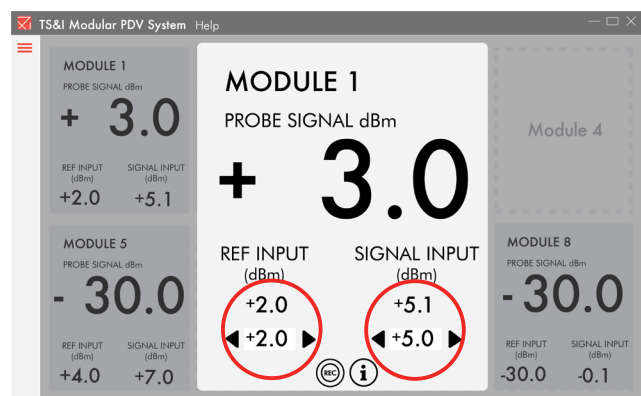be required to exit the control loop.

To protect the system, the software will return
the attenuators to their full closed position
when laser source(s) are not present or when
the user requests more power than is available.
This allows safe adjustment of the laser
sources without damage to the system.
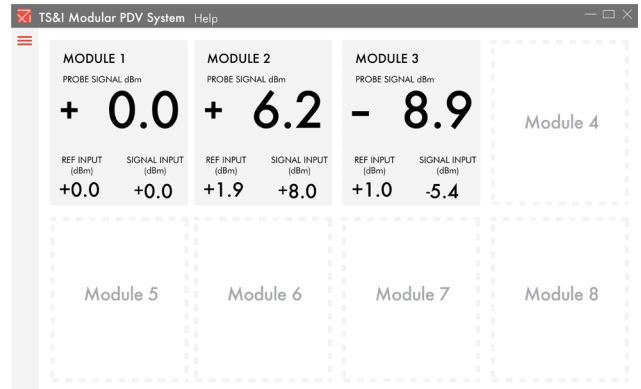
1
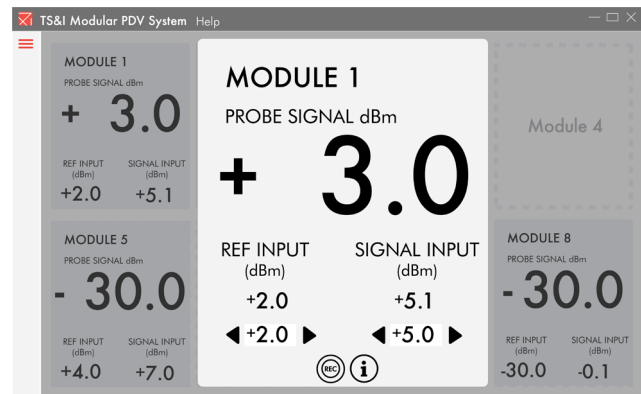
2

3

**Numbers circled in red will flash

3.3 TEST LOG AND OVER POWER LOG

Click on the Information button at the bottom of the PDV Module box to view the PDV Module Test and Over Power Logs. (The Test Log can also be accessed by clicking the REC button.)

Click on the REC button to record the power meter values of a test. The Test Log will show

the values recorded. To repeat any recorded values, **double click** on the desired test line to load the values automatically.

NOTE: Clicking on the REC button before the test will also record the Probe Signal values.
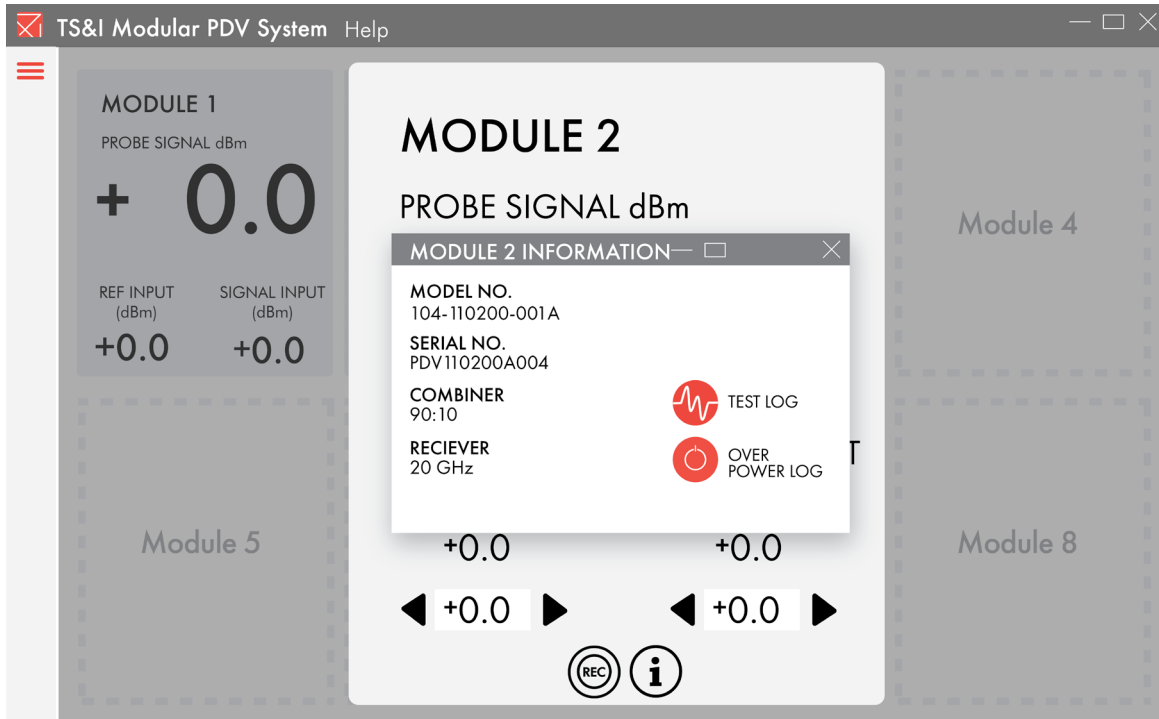
MODULE TEST LOG

TIME STAMP	SIGNAL INPUT	REF INPUT	PROBE SIGNAL
2017-08-31 3:08:51 PM	6.1	3.4	10.2
2017-08-31 3:08:51 PM	1.3	28.6	5.2
2017-08-31 3:08:51 PM	2.5	2.7	29

PDV Module Test Log

MODULE OVER POWER LOG

TIME STAMP	SIGNAL INPUT	DURATION (s)	REF INPUT	DURATION (s)	PROBE SIGNAL	DURATION (s)
2017-08-31 3:08:51 PM	-3.4		10.2		6.1	5
2017-08-31 3:08:51 PM	28.6	2	5.2		1.3	
2017-08-31 3:08:51 PM	2.7		29	8	2.5	

PDV Module Over Power Log

3.4 LASER CONTROL

Protect your system by utilizing the built in laser control GUI. Currently NKT Lasers are supported. When the user requests additional power the PDV Modules are first set to full attenuation and then the laser power is adjusted. NKT Boostik Control is in development.
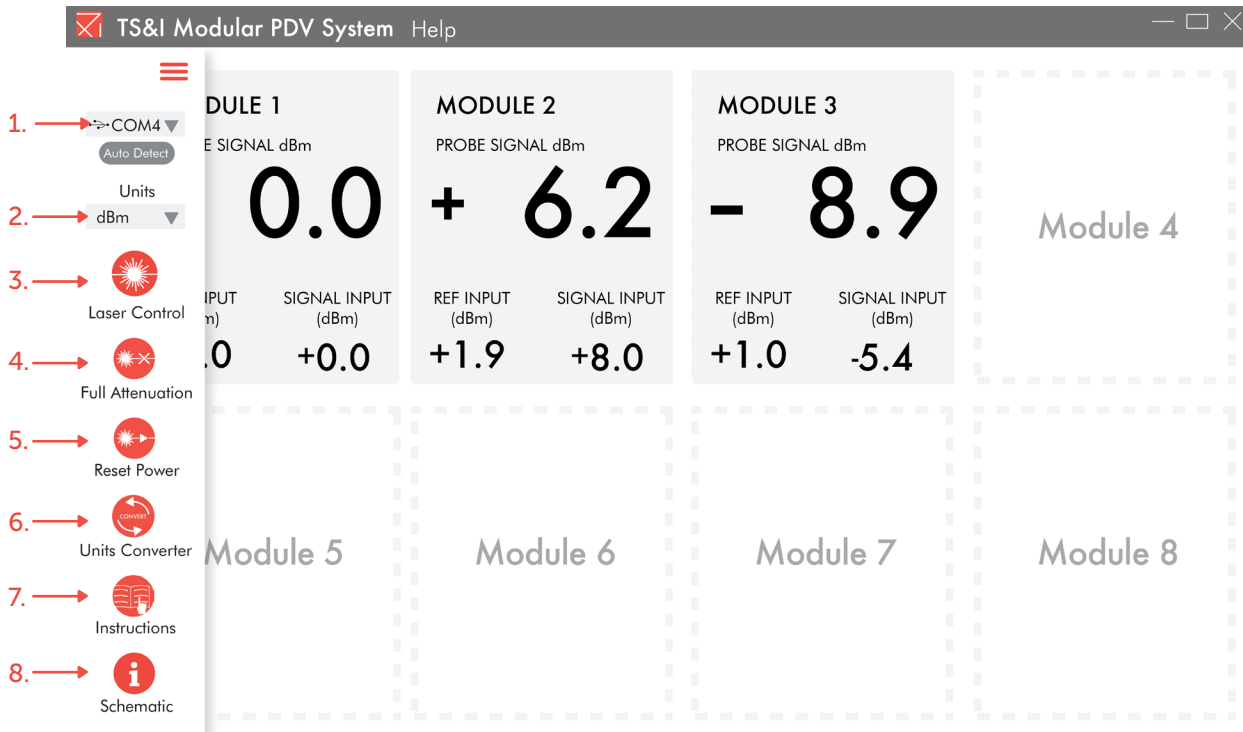
NOTE: If increased power is needed from the laser system the user can adjust the Basik power to force the PDV Module attenuators closed. Then safely increase the power.

3.5 SIDE MENU

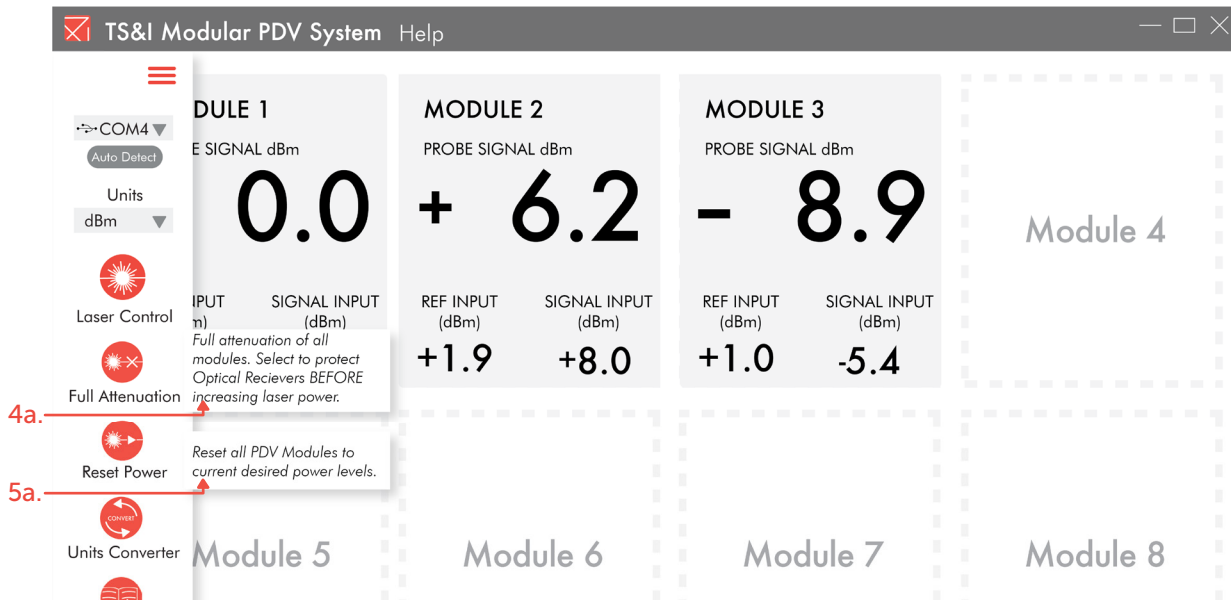1. Connect to your computers COM port
2. Switch Units between bDM and mW
3. TS &I Laser Controls for NKT AcoustiKv
4. Full Attenuation (4a. Hover for more info)

5. Reset Power (5a. Hover for more info)
6. Units Converter
7. Instruction Manual
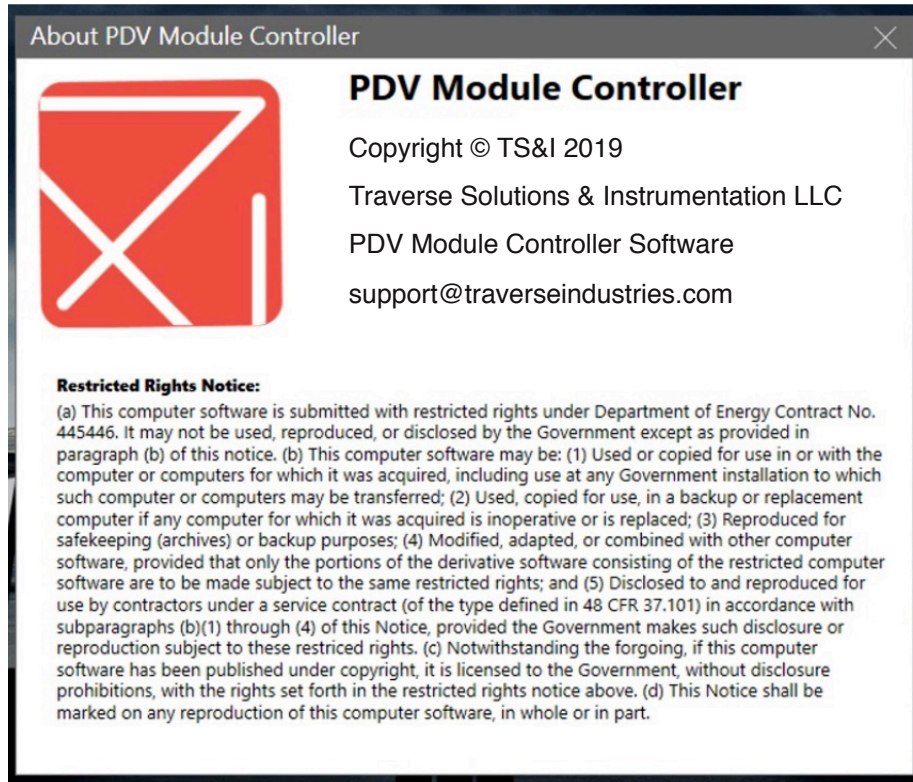8. System Schematic PDV Module Controller

To open the left side menu, move the mouse cursor to the left side bar.

Side Menu Controls

Side Menu Controls

About PDV Module Controller

PDV Module Controller

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PDV Module Controller Software

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About PDV Module Controller