

How to install a Wyatt Technology DAWN or miniDAWN with a Shimadzu HPLC system

Part I: UV (a.k.a. DAD / PDA) detector:

Locate a HELEOS or TREOS auxiliary cable p/n **P4045-19**, a BNC/Banana adaptor labeled p/n **P3795-04** and a BNC Male to Banana Female p/n **P3795-07**. One adaptor is provided in the HELEOS/TREOS ship kit. This adaptor's coaxial fitting connects to the UV back panel "Analog" port. Refer to the table below for wire color assignments. (Note: Optilab T-rEX and/or ViscoStar aux channels also may be used. Please refer to the "Installation and Setup" section in the instrument's user's guide for wire assignments.)

Auxiliary Connector Wire Colors:

	aux1 (+)	aux1 (-)	aux2 (+)	aux 2 (-)
HELEOS or TREOS	White	Black	Red	Green



Fig. 1: Adaptors provided by Wyatt. Left: Connector, BNC Female to RCA Male Wyatt p/n P3795-04; Right: Connector, BNC Male to Banana Female Wyatt p/n P3795-07. Also available from vendors of electronics.

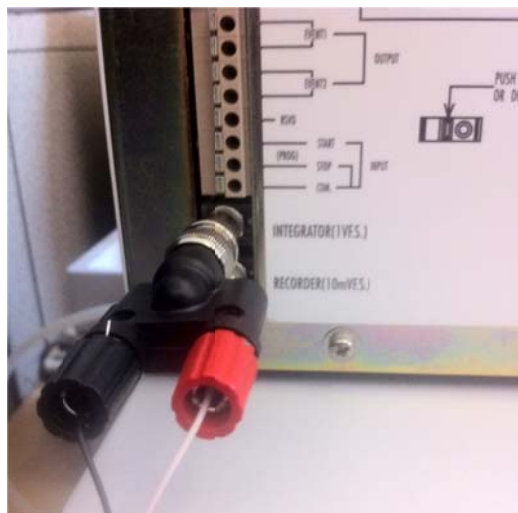


Fig. 2: The RCA connector will be connected to the INTEGRATOR (1 V.F.S.) port on the UV instrument back panel.

Refer to the Shimadzu UV manual to verify which wires connect to which terminals. The model shown uses:

- Hand tighten (crimp) the BNC/Banana adapter's **red** terminal onto the (+) wire.
- Hand tighten (crimp) the BNC/Banana adapter's **black** terminal onto the (-) wire.

Tape off any other wires with electrical tape – they are ground wires, and are not necessary for this connection.

The other end of the AUX cable will have an RJ-12 connector. Connect that end into an "Aux In 1&2" port on the back panel of the instrument.



**Fig. 3: Wyatt RJ-12 cable
p/n P4045-19**



Fig. 4: HELEOS/TREOS back panel

Part II: RI Detector:

The Shimadzu RI must be connected directly to a Wyatt instrument with the same configuration used for the UV/VIS detector. Connect the signal out from the RI detector port, illustrated in Fig. 10, to the AUX in port on the back of the Wyatt instrument.

Please refer to the Auxiliary Connector Wire Colors table in Part I of this document as a guide for the Wyatt terminal connections. As shown below, the Wyatt auxiliary cable wires should be connected to the Shimadzu terminals 3(+) and 4(-), which are the 0-1V integrator output ports.

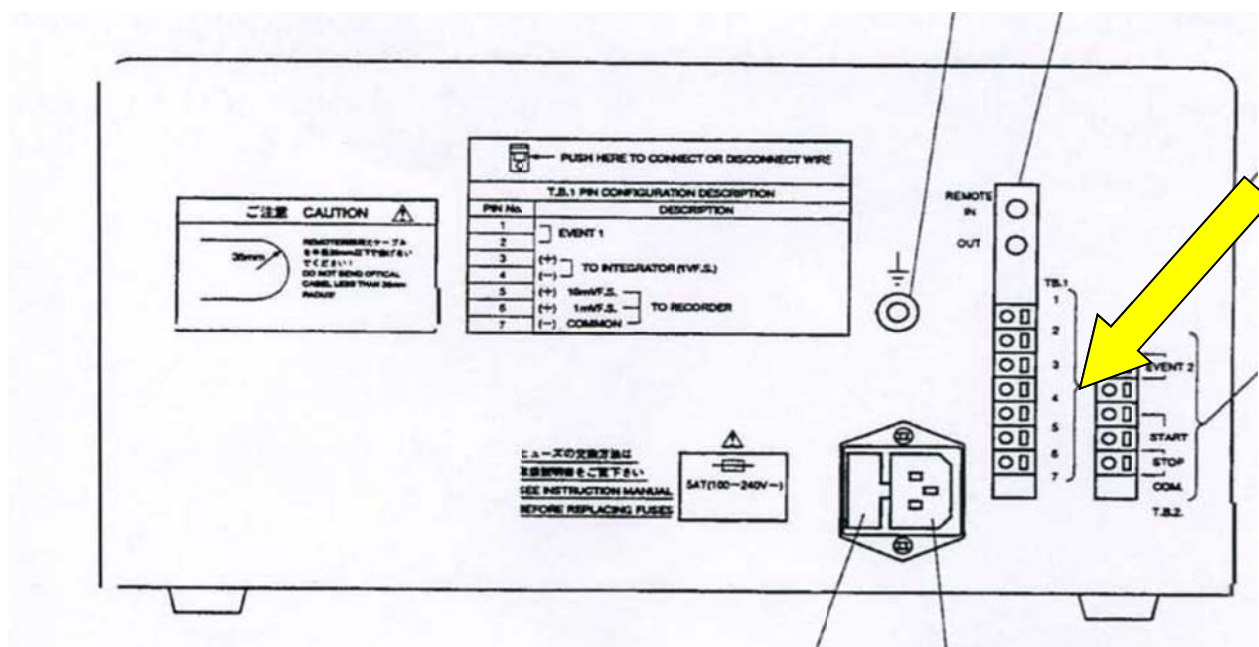


Fig. 5: Back of RI Detector

Part III: Autosampler:

Locate the remote contact closure signal terminal on the autosampler, and use an AUX cable to make the connection between the autosampler and the HELEOS' or TREOS' back panel "Auto Inject In" port.

The inject start ports are located on the back panel of the autosampler marked "OUT1" as pictured below. Alternatively, the auto inject signal may be relayed differently than pictured below. The auto inject signal may be labeled as a "START" port.



Fig. 6: Back Panel of Shimadzu Autosampler

Part IV: Manual Injector:

When the injection out signal is output from a manual injector to a HELEOS or TREOS, it will no longer be seen by the LCsolution software unless the signal is relayed back to the Shimadzu system. Both the autoinject in and autoinject out cables will need to be connected to the Wyatt instrument to relay the trigger. Note: even if you do not wish to collect light scattering data, you'll need to keep the Wyatt instrument's power on any time you use the Shimadzu equipment, to ensure the trigger is relayed!

The manual injector is equipped with a pair of black wires that is normally connected from the manual injector to the pump module (LC2-0AD most often). These wires are connected into push/release connectors similar to those pictured in figure 11 above. From the manual injector, the black wires should be connected to the Wyatt cable according to the table below:

Autoinject In Wire Colors:

	Autoinject in (+)	Autoinject in (-)
HELEOS, TREOS, Optilab T-rEX	Red	Green

Autoinject Out Wire Colors:

	Autoinject in (+)	Autoinject in (-)
HELEOS, TREOS, Optilab T-rEX	White	Black

To relay the injection signal back to the Shimadzu components, you'll also need to connect an autoinject out cable from the Wyatt instrument to Shimadzu pump module. The wiring may need to be spliced. Please note: this relay cannot be accomplished with an EOS or TriStar instrument as these instruments have no autoinject out port. To connect a manual injector to an EOS or TriStar, and if no other Wyatt instrument is available, you can purchase a third-party contact closure relay device. Alternatively, consider wiring both the Shimadzu and Wyatt autoinject cables into the same inject signal ports.

***Note:** The autosampler or manual injector is probably already configured to complete an adequate contact closure for the HELEOS or TREOS upon injection; contact closure will initiate ASTRA data collection only if ASTRA is properly configured. There is no formal communication between the HPLC and ASTRA beyond this simple contact closure, nor does ASTRA control the autosampler in any way.*

Appendix:

Connections to Wyatt DAWN EOS or miniDAWN TriStar:

Refer to the table above, as well as the table posted on the back panel of the Waters UV instrument to verify which wires connect to which terminals. The model shown uses the Waters “Analog Out +/-” labeled connection ports:

To create your own cable connection to an older model Wyatt EOS or TriStar instrument, please use the guide below and a turck cable p/n **P4045-05** to create the connections mentioned above:

	aux1 (+)	aux1 (-)	aux2 (+)	aux 2 (-)
EOS or TriStar	Brown	Blue	Brown	Blue



**Fig. 7: Wyatt Turck cable
p/n P4045-05**

For additional information, please refer to the DAWN or miniDAWN hardware manual or contact Wyatt Technology Support at support@wyatt.com