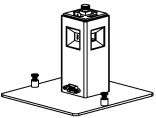
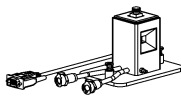
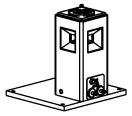
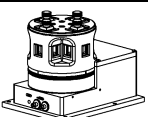
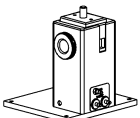
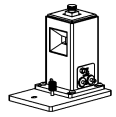

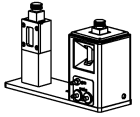
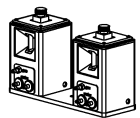
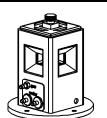
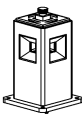
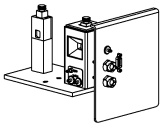
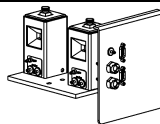
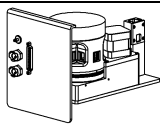
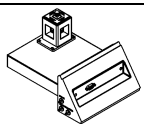
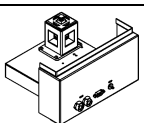

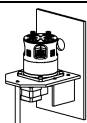
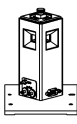

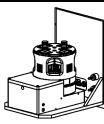
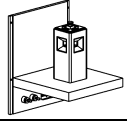
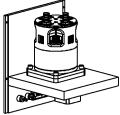


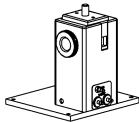
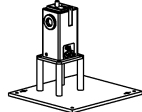
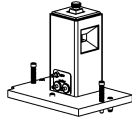
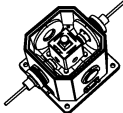
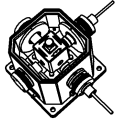
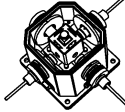


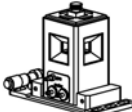
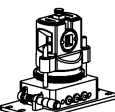


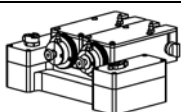


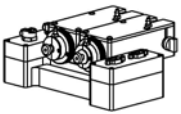

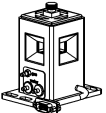
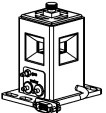
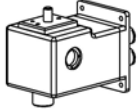


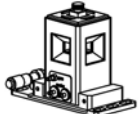
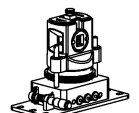
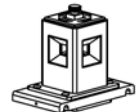

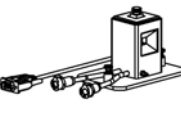
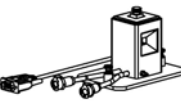
**Price List: Temperature-Controlled Cuvette Holders for Commercial Spectrometers (effective October 2008)**

*Look up your spectrometer by manufacturer. This list includes cuvette holders that we commonly provide. Please contact us if you do not find your spectrometer on the list, as we are likely to provide the adaptation or modification that you require. All prices include a temperature controller uniquely calibrated to the sample holder.*



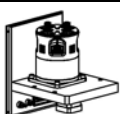
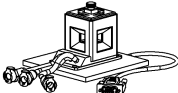
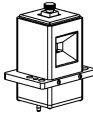
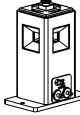
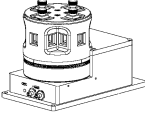
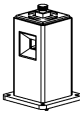
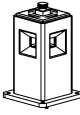
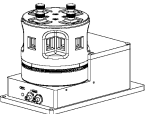
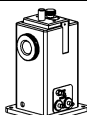
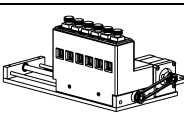
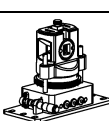
Manufacturer	Instrument Model(s)	QNW Model	Description	Price	Image
ABB Bomem	MB 160 FTNIR	<b>TLC 50/ Bomem160</b>	Single cell holder with small aperture for FTNIR	\$4,600	
Agilent Technologies	Agilent 8453, HP 8452, HP 8453	<b>TLC 40/ Agilent8453</b>	Single cell holder with two optical ports for UV/Vis spectrophotometry	\$4,150	
Applied Photophysics	Chirascan CD	<b>TLC 50/AP</b>	Single cell holder	\$4,600	
		<b>TURRET 400/AP</b>	Four-position turret for CD measurements	\$7,500	
		<b>CD 250/AP</b>	Versatile CD cell holder for different cell types (requires purchase of cell carriage - see accessories)	\$4,450	
Beckmann Coulter	DU640	<b>TLC 40/DU640</b>	Single cell holder with two optical ports for UV/Vis spectrophotometer	\$4,150	
		<b>TURRET 400/ DU640</b>	Four-position turret for UV/Vis spectrophotometry	\$7,500	
Chemito	UV 2300	<b>TLC 40/Chemito</b>	Two cell holders for reference and sample, one temperature-controlled	\$4,350	
		<b>TLC 42/Chemito</b>	Dual, independently temperature-controlled cells for reference and sample	\$6,100	
Edinburgh Instruments	FL920, OB920	<b>TLC 50/ Edinburgh</b>	Single cell holder with four optical ports for fluorescence	\$4,600	

Manufacturer	Instrument Model(s)	QNW Model	Description	Price	Image
Fluorescence Innovations	Matrix 1000	TLC 50/Matrix	Single cell holder with four optical ports for time-resolved fluorescence	\$4,600	
Hitachi	U-2000, U-2001, U-2800, U-2810, U-3010, U-3310, U-3110, U-3210, U-3410, U-4100	TLC 40/Hitachi	Two cell holders for reference and sample, one temperature-controlled	\$4,350	
		TLC 42/Hitachi	Dual, independently temperature-controlled cells for reference and sample	\$6,100	
		TURRET 400/Hitachi	Four-position turret for UV/Vis spectrophotometry	\$7,500	
	F-2500	TLC 50/F2500	Cuvette holder for fluorescence, includes modifications of Hitachi base	\$4,700	
	F-4500, F-7000	TLC 50/F7000	Cuvette holder for fluorescence, includes modifications of Hitachi base	\$4,700	
Horiba, Jobin Yvon, Spex	Fluorolog 2	TLC 50/Fluorolog2	Single cell holder with front panel and floor for fluorescence	\$4,800	
		TURRET 400/Fluorolog2	Four-position turret with front panel and floor for fluorescence	\$7,500	
	Fluoromax, Fluoromax 2	TLC 50/JY1	Single cell holder for fluorescence with mounting plate	\$4,600	
	Fluorolog 3, Fluoromax 3, Fluorolog 4, Fluoromax 4	TLC 50/JY4	Single cell holder for fluorescence with front panel and floor	\$4,800	
		TURRET 400/JY4	Four-position turret for fluorescence with front panel and floor	\$7,500	
ISS	PC1, K2, KOALA	TLC 50/ISS	Single cell holder for fluorescence with front panel and floor	\$4,800	
		TURRET 400/ISS	Four-position turret for fluorescence with front panel and floor	\$7,500	

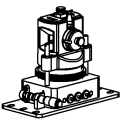
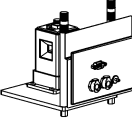
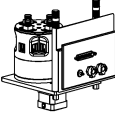
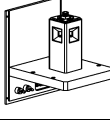
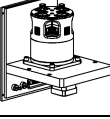
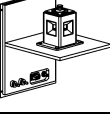
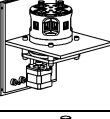
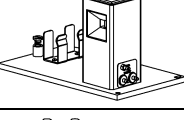
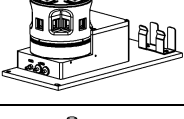
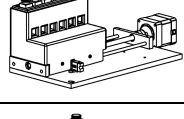
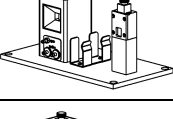
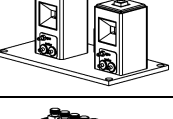
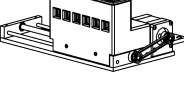
Manufacturer	Instrument Model(s)	QNW Model	Description	Price	Image
Jasco	J-600	CD 250/J600	CD cell holder for multiple cell types (requires cell carriage—see accessories)	\$4,450	
	J-815	CD 250/J815	Single square cuvette holder for circular dichroism	\$4,450	
	V-7000	TLC 40/V7000	Single cuvette holder with two optical ports	\$4,350	
Ocean Optics	various miniature fiber optic spectrometers	qpod/ABSKIT	Cuvette holder with optics and fiber optic connectors for absorbance	\$3,470	
		qpod/FLKIT	Cuvette holder with optics and fiber optic connectors for fluorescence	\$3,900	
		qpod/MPKIT	Cuvette holder for absorbance and fluorescence measurements	\$4,280	
Olis (continued on next page)	RSM 1000 (continued on next page)	TLC 50/RSM1000	Fluorescence cuvette holder for the Olis RSM 1000 Spectrofluorimeter	*	
		TLC 50/RSM1000/E	Extended temperature fluorescence cuvette holder for the Olis RSM 1000 Spectrofluorimeter	*	
		FLASH 50/RSM1000	Cuvette holder with horizontal translation for the RSM 1000	*	
		FLASH 300/RSM 1000	Cuvette holder with vertical adjustment and horizontal translation for the RSM 1000	*	
		TURRET 400/RSM 1000	Four-position turret cuvette holder for the Olis RSM 1000	*	
		LC 600/RSM1000	Six-position linear changer for the Olis RSM 1000 Spectrophotometer UV/VIS	*	
		TITRATOR 500	Single temperature titrator bath assembly for the Olis Titrator	*	

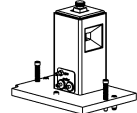
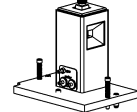
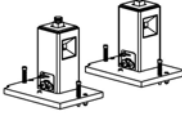
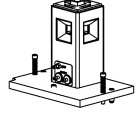
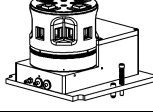
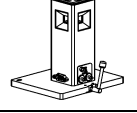

Manufacturer	Instrument Model(s)	QNW Model	Description	Price	Image
Olis (continued)	RMS 1000 (continued)	<b>TITRATOR 550</b>	Dual temperature titrator bath assembly for the Olis Titrator	*	
		<b>SA-XX</b>	Syringe adapter for the TITRATOR 500 or TITRATOR 550 (specify size)	*	
	DM 45 Scanning Fluorimeter	<b>TLC 50/DM45</b>	Fluorescence cuvette holder for the Olis DM 45 Spectrofluorimeter	*	
		<b>TLC 50/DM45/E</b>	Extended temperature fluorescence cuvette holder for the Olis DM 45 Spectrofluorimeter	*	
	DSM 20 CD	<b>CD 250/DSM</b>	Cuvette holder for the Olis DSM 17, 20 or 1000 CD Spectrophotometers (requires carriage)	*	
	DM 245	<b>TURRET 400/DM245</b>	Four-position turret for the Olis DM 245	*	
	DB 620 NIR Absorbance Spectropho- tometer	<b>TLC 50/DB620</b>	Cuvette holder for the Olis DB 620	*	
		<b>FLASH 50/DB620</b>	Cuvette holder with horizontal translation for the Olis DB 620	*	
		<b>FLASH 300/DB620</b>	Cuvette holder with vertical adjustment and horizontal translation for the Olis DB 620	*	
	14 UV/Vis/NIR Spectropho- tometer	<b>TLC 40/Olis 14</b>	Cuvette holder for the Olis 14 UV/Vis/NIR Spectrophotometer	*	
	DW-2000 Spec- trophotometer	<b>TWIN 100/DW2000</b>	Twin cuvette holder for the Olis DW-2000	*	
	Olis Computerized Diode Array	<b>TLC 40/8452</b>	Cuvette holder for the Olis Computerized HP 8452 Spectrometer	*	
		<b>TLC 40/8452/E</b>	Extended temperature cuvette holder for the Olis Computerized HP 8452 Spectrometer	*	

\* This item is only available directly from Olis  
— See [www.olisweb.com](http://www.olisweb.com).

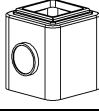
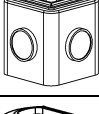


Manufacturer	Instrument Model(s)	QNW Model	Description	Price	Image
Olis (continued)	SLM 8000 Spectrofluorimeter	TLC 50/SLM	Cuvette holder for the Olis 8000 Upgraded SLM Fluorimeter	*	
		TLC 50/SLM/E	Extended temperature cuvette holder for the Olis Upgraded SLM Fluorimeter	*	
		TURRET 400/SLM	Four-position turret cuvette holder for the Olis Upgraded SLM Fluorimeter	*	
Perkin-Elmer	Lambda 35	TLC 50/Lambda35	Short profile single cuvette holder for UV/Vis spectrophotometry	\$4,800	
	Lambda 45	TLC 50/Lambda45	Short profile single cuvette holder for UV/Vis spectrophotometry	\$4,600	
PTI	QuantaMaster TimeMaster	TLC 50/PTI	Single cell holder for fluorescence electrical and plumbing hardware included	\$4,600	
	QuantaMaster TimeMaster	TURRET 400/PTI	Four-position turret for fluorescence electrical and plumbing hardware included	\$7,500	
Quantum Northwest (continued on next page)	customer - designed instruments	TLC 40	Single cuvette holder with two optical ports	\$4,000	
		TLC 50	Single cuvette holder with four optical ports	\$4,450	
		TURRET 400	4-position turret	\$7,500	
		CD 250	CD cell holder, requires purchase of one or more cell carriages (page 8)	\$4,450	
		LC 600	6-position linear changer for spectrophotometry	\$7,550	
	stand-alone units for laser spectroscopy	FLASH 300	Stand-alone cell holder with vertical and horizontal adjustments, four optical ports	\$5,650	




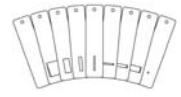
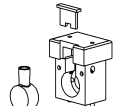
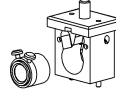
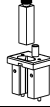
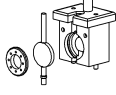
\* This item is only available directly from Olis — See [www.olisweb.com](http://www.olisweb.com).

Manufacturer	Instrument Model(s)	QNW Model	Description	Price	Image
Quantum Northwest (continued)	stand-alone units for laser spectroscopy	<b>FLASH 300/PAS</b>	FLASH 300 with photoacoustic option, Panametrics 1 MHz transducer and Panametrics 5662 preamp	\$7,435	
Shimadzu	RF-5301PC	<b>TLC 50/5301</b>	Single cell holder with modifications of base and new front panel	\$4,800	
		<b>TURRET 400/5301</b>	Four-position turret with modifications of base and new front panel	\$7,500	
SLM	SLM 8000, SLM 8100	<b>TLC 50/SLM</b>	Single cell holder with front panel and floor for fluorescence	\$4,800	
		<b>TURRET 400/SLM</b>	Four-position turret with front panel and floor for fluorescence	\$7,500	
Thermo Electron	Aminco Bowman Series 2	<b>TLC 50/AB2</b>	Single cell holder with front panel and floor for fluorescence	\$4,800	
		<b>TURRET 400/AB2</b>	Four-position turret with front panel and floor for fluorescence	\$7,500	
Varian (continued on next page)	Cary 14 Cary 50	<b>TLC 40/Cary50</b>	Single cell holder with two optical ports for UV/Vis spectrophotometry	\$4,150	
		<b>TURRET 400/Cary50</b>	Four-position turret for UV/Vis spectrophotometry	\$7,500	
		<b>LC 600/Cary50</b>	6-position linear changer	\$7,750	
	Cary 100, Cary 200, Cary 300	<b>TLC 40/Cary300</b>	Two cell holders for reference and sample, one temperature-controlled	\$4,350	
		<b>TLC 42/Cary300</b>	Dual, independently temperature-controlled cells for reference and sample	\$6,100	
		<b>LC 600/Cary300</b>	6-position linear changer	\$7,750	

Manufacturer	Instrument Model(s)	QNW Model	Description	Price	Image
Varian (continued)	Cary 500	TLC 40/Cary500	Single cell holder	\$4,350	
	Cary 4000, Cary 5000, Cary 6000, Cary 5	TLC 40/Cary5000	Single cell holder that mounts on the Cary accessory base	\$4,350	
		TLC 42/Cary5000	Dual temperature-controlled cells, including the accessory base	\$6,250	
		TLC 50/Cary5000	Single cell holder with four windows permitting perpendicular access	\$4,600	
		TURRET 400/Cary5000	Four-position turret for UV/Vis spectrophotometry	\$7,500	
	Eclipse	TLC 50/Eclipse	Single cell holder with lock-down base for fluorescence	\$4,600	
		TURRET 400/Eclipse	Four-position turret with lock-down base for fluorescence	\$7,500	

## Accessories

use with sample holder	QNW model number	description	price	image
TLC 40 and TLC 42	WJ-40	windowed jacket for UV/Vis with two AR-coated fused silica windows for added thermal insulation	\$520	
TLC 50	WJ-50	windowed jacket for fluorescence with four AR-coated fused silica windows for added thermal insulation	\$760	
FLASH 300	WJ-300	windowed jacket for the FLASH 300 with four AR-coated fused silica windows	\$820	
any sample holder	BATH 100	circulating bath consisting of a submersible pump, plastic bucket and hose fittings	\$109	

Use with sample holder	QNW model number	Description	Price	image
any sample holder	<b>SER 2.2</b>	serial interface, serial cable and computer program for external computer control	<b>\$149</b>	
TLC 50	<b>SLITS-50</b>	a set of 17 assorted optical slits for the TLC 50	<b>\$30</b>	
FLASH 300	<b>SLITS-300</b>	a set of 19 assorted optical slits for the FLASH 300	<b>\$30</b>	
TURRET 400	<b>SLITS-400</b>	a set of 36 assorted optical slits for the TURRET 400	<b>\$40</b>	
CD 250	<b>CARR/120</b>	Cuvette Carriage for the Hellma 120 cuvette (cuvette not included)	<b>\$375</b>	
	<b>CARR/121.000</b>	Cuvette Carriage for the Hellma 121.000 cuvette (cuvette not included)	<b>\$350</b>	
	<b>CARR/10x10</b>	Cuvette Carriage for a standard 10 x 10 mm square cuvette (cuvette not included)	<b>\$375</b>	
	<b>CARR/titrator</b>	Carriage for the Olis titrator (cuvette not included)	<b>\$375</b>	
any TLC 40 or TLC 50	<b>/E</b>	Modifications for extended temperature range (-55 °C to +150 °C)	<b>\$850</b>	150.00 °C
Most TLC 40, TLC 50 and TURRET 400	<b>/Z15</b>	Modification to raise Z height from 8.5 mm to 15 mm	<b>\$200</b>	Z = 15

## Options and Special Requirements

**Temperature Range** – The normal full control range for each of the temperature controllers is -55 °C to +105 °C  $\pm$  0.02 °C. Low temperature operation depends on the particular sample holder and how it is used. At any temperature below the dew point temperature, dry gas flow should be used to minimize condensation on cuvette windows. With dry gas flow and exposed to room air, the holders can generally be used down to about -10 °C. Within a spectrometer, where the moisture content of the environment can be controlled, they may be used to much lower temperatures down to about -25 °C. Below these temperatures it is necessary to provide additional insulation and optical windows to isolate the cuvette. For this purpose we recommend the windowed jackets **WJ-40**, **WJ-50** and **WJ-300** on the **TLC 40**, **TLC 50** and **FLASH 300**, respectively. Very low temperatures also require the use chilled cooling fluid to remove heat from the Peltier unit. Typically one uses methanol or methanol-water mixtures within about 25 °C of the temperature you wish to achieve. The single temperature holders have been tested down to -40 °C. If you require lower temperatures, contact us for suggestions on how these can be achieved.

**Power Requirements** – The temperature controllers provided with these cuvette holders will accept any AC power from 100 to 240 volts at 50 to 60 Hz. The controllers accept a standard IEC cord (the same as that used for most computers). If the controller will be used in a country other than the United States or Canada, then you must specify the country. Appropriate cords will be provided at no additional cost for use in the UK and Europe. There may be an additional charge for other special cords.

**High Temperature Operation** – Specify a **/E** after the model number if you would like to operate a **TLC 40** or **TLC 50** cuvette holder above 105 °C. This requires special firmware in the microcomputer of the temperature controller and special changes that replace or isolate heat sensitive components under the cuvette. Temperatures up to 150 °C may be obtained, although the upper range of temperatures should not be used for extended periods of time.

**BATH 100** – The BATH 100 is a submersible pump, plastic bucket and brass fitting that can be used as an inexpensive source of circulating water for the cuvette holders. As noted in the price list, the Bath 100 is already included in the price for the qpod options and the sample holders for Varian.

**Optical slits** – Optical slits with a variety of apertures are provided with any purchase of the TLC 50, FLASH 300 and TURRET 400 sample holders.

**External Computer Control** – Order the serial interface (SER 2.2) for temperature ramping capability or if other external computer control of the temperature controller is desired. External computer control is required for temperature ramping.

**Beam Height** – The standard beam height for all of the cuvette holders (except the **CD 250**) is 8.5 mm above the bottom of the cuvette to match the dimension of a standard sized microcuvette. For a small additional cost, some of the versions of the **TLC 40**, **TLC 42**, **TLC 50** or **TURRET 400** may be made to accommodate a 15 mm beam height. Please inquire if you would like this modification.

Please see separate price lists for:

**Fiber Optic Spectroscopy**  
**Laser Spectroscopy**  
**Pulsed-Laser Photoacoustics**



**TC 125**  
Single Temperature Controller



**TC 225**  
Dual Temperature Controller



**TC 425**  
Turret Temperature Controller

## Temperature Controllers

A temperature controller is included in the listed price for each cuvette holder. The controller gain is set for a particular cuvette holder and the matched pair is calibrated against a NIST-traceable thermometer. Calibration data are provided. Although one controller may be individually used to control the temperature of more than one cuvette holder, only one holder-controller pair can be calibrated to read the temperature closely.

Single cuvette holders such as the **TLC 40**, **TLC 50**, **FLASH 300** and **CD 250** are provided with a **TC 125** controller. The dual cell **TLC 42** cuvette holders use the **TC 225**, which independently controls the temperature of two cuvettes. The four-position **TURRET 400** uses the **TC 425** controller, which has four position buttons on its front panel to rotate the turret. The **LC 600** 6-cell linear changer is provided with a **TC 125** controller and cell changing requires external software control.

Each temperature controller provides variable speed magnetic stirring under every cuvette, and will accept standard Series 400 and Series 500 thermistor probes that may be used for measuring the sample temperature.

## Ordering Information

Please contact us via email at [quantum@qnw.com](mailto:quantum@qnw.com) or by phone at 509-624-9290. We will be pleased to answer your questions and provide a formal quotation. We accept institutional purchase orders or major credit cards.

Many of these cuvette holders may be purchased directly from the spectrometer manufacturer and installed in new instruments. PTI, Varian Analytical Instruments, Olis, Ocean Optics and Applied Photophysics have been particularly adept at coordinating Quantum Northwest temperature control with their own software.

*All prices are FOB Liberty Lake, WA, USA, for domestic sales to USA and Canada. Additional charges may apply to shipments overseas. Prices are subject to change without notice.*

*Warranty: Two years parts and labor on all equipment manufactured by Quantum Northwest.*



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