Tamson Instruments

Specification sheet

Specifications TLC80-14

Tamson Low-Temperature Circulator

Item	Unit	TLC80-14	
P/N 230V/50Hz		00T0530	
P/N 230V/60Hz		00T0532	
P/N 115V/60Hz		00T0535	
Power*	[kW]	3.2 max	
Used materials inside bath		Stainless steel chrome plated coil	
Range		-80..ambient°C -112..ambient°F	
Reading	Standard °C, °F on request		
Setting ±	[°]	0.1	
Stability** ±	[°C]	Better than 0.05	
Heating	[W]	1400 (1 heater)	
Bath volume	[L]	14..15	
Opening bath	[mm]	240 x 170 (240 x 160 effective use)	
Depth bath	[mm]	150	
Pump pressure	[Bar]	0.3 / 1*** max	
Pump flow	[L/min]	10 / 16*** max	
Compressor	[W]	2 * 400	
Heat removal	[W]	@-70°C	150
	[W]	@-74°C	100
	[W]	@-80°C	50
Opening	[mm]	240 x 170 (240 x 160 effective use)	
Width	[mm]	460	
Height	[mm]	770	
Weight	[kg]	80	
CE	Conforms to CE regulation		

* Depends on bath temperature and cooling or heating cycle
** Absolute min/max value measured over 1 hour in methanol
*** P/N 24T0399 Optional pump (85~260V) pressure max 1 Bar, flow max 16 Ltrs/min.

- **Completely stainless steel**
- **Drain to empty bath**
- **Wheels fitted for easy transport**
- **Compact, fits under workbench**
- **Low noise**
- **Auto tune, high precision**
- **Fluid level detection**

TLC80-14

General
The TLC80-14 is a low temperature circulator with a bath content of 14..15 Litres. The minimum temperature which can be reached is minus 80°C. At this low temperature the heat removal capacity lies around 50 Watt. The bath can be used for general low temperature use but shows excellent heat removal performance in combination with cloud and pour point tests. The drain located at the back provides easy removal of the bath fluid. Low fluid level is detected electronically.

Cooling medium
The used cooling system is ozone friendly, so it doesn't contain any CFK/HCFK gas.

Control mechanism
With the compressor running continuously, the fluid temperature is regulated through an electronic controlled heater.

Safety
The bath conforms to CE regulation. It also is equipped with a mechanical resettable safety thermostat.

Span
The working temperature range is from -80°C to ambient (-112°F .. ambient)

Accuracy
The set point can be set in steps of 0.1°C. The overall system accuracy is ± 0.05°C.

Temperature readout
Standard available in °C, on request in °F.

Pump
A pressure pump provides circulation in the bath or via an external circuit. The pressure of the pump is 300 mBar at 10 litres per minute.

Optional
- Remote control via RS232 P/N **02T3025**
- Optional pump with higher capacity P/N **24T0399**

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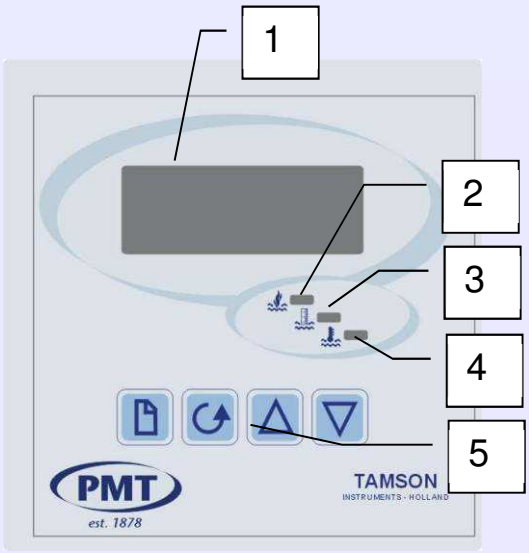
Operating the TLC80-14
1 - LED Temperature display
2 - Indicator heating
3 - Indicator level control
4 - Indicator over temperature safety
5 - Keypad

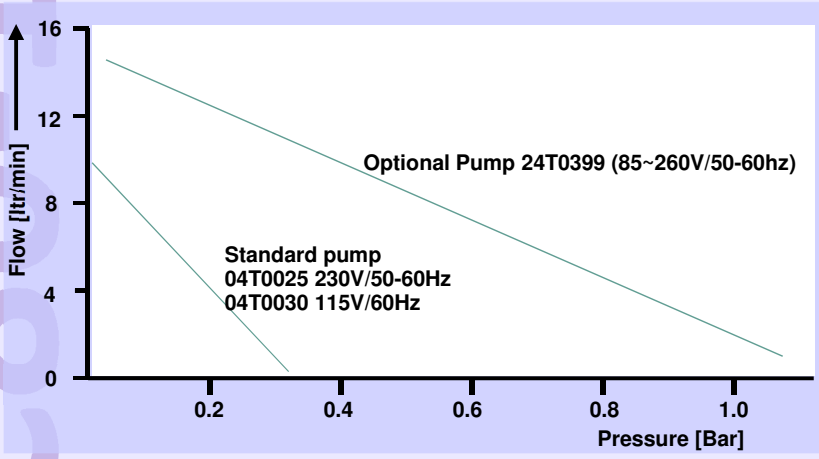
The TLC80-14 apparatus is easy to operate. Simply pressing the up/down keys will set the desired working temperature (SP). Auto-tune can be started manually and PID parameters can be read out afterwards or set manually. The SP can be set in steps of 0.1°C. When operating, the process value (PV) is displayed with a resolution of 0.1°C. The performance of the temperature control is better than ± 0.05°C, as can be seen in the graph on the next page.

The bath is standardly equipped with a 90W stirrer/pump combination (10L max ., 0.3 Bar max).

Optional available is a stronger pump with adjustable flow. Part number is 24T0399. Flows of up to 16 Litres per minute can be realised. This pump is for circulating purposes where a constant external flow with higher pressure of up to 1 Bar is required.



Standard pump versus optional "performance" pump



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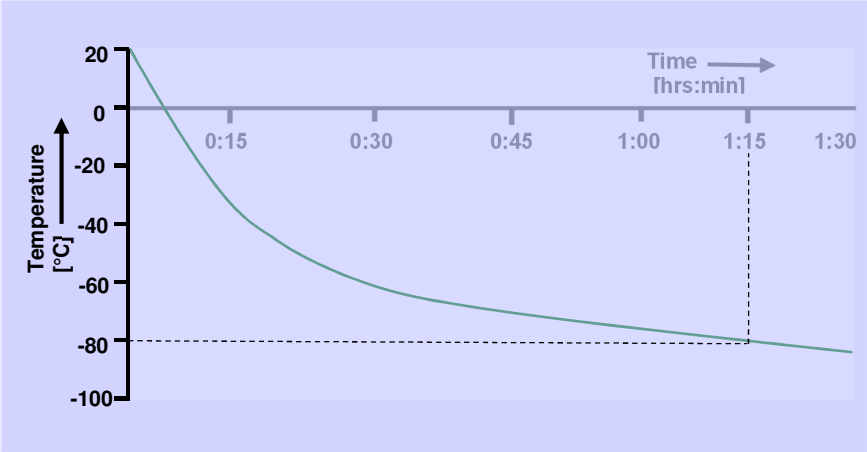
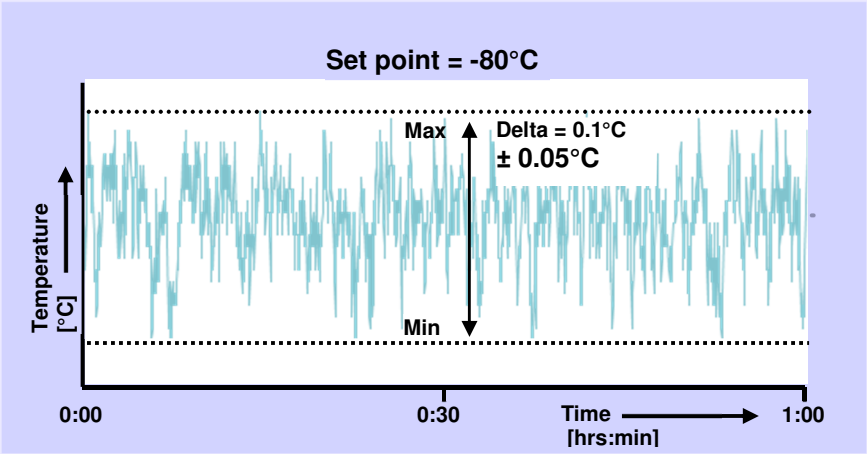
Cooling down (methanol used as bath liquid)



Temperature stability (methanol used as bath liquid)



The intended use for operation is a circulating temperature below -30°C