Starter Kit SKT-1165 Setup Guide

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Developed, assembled, and tested in Switzerland

Index

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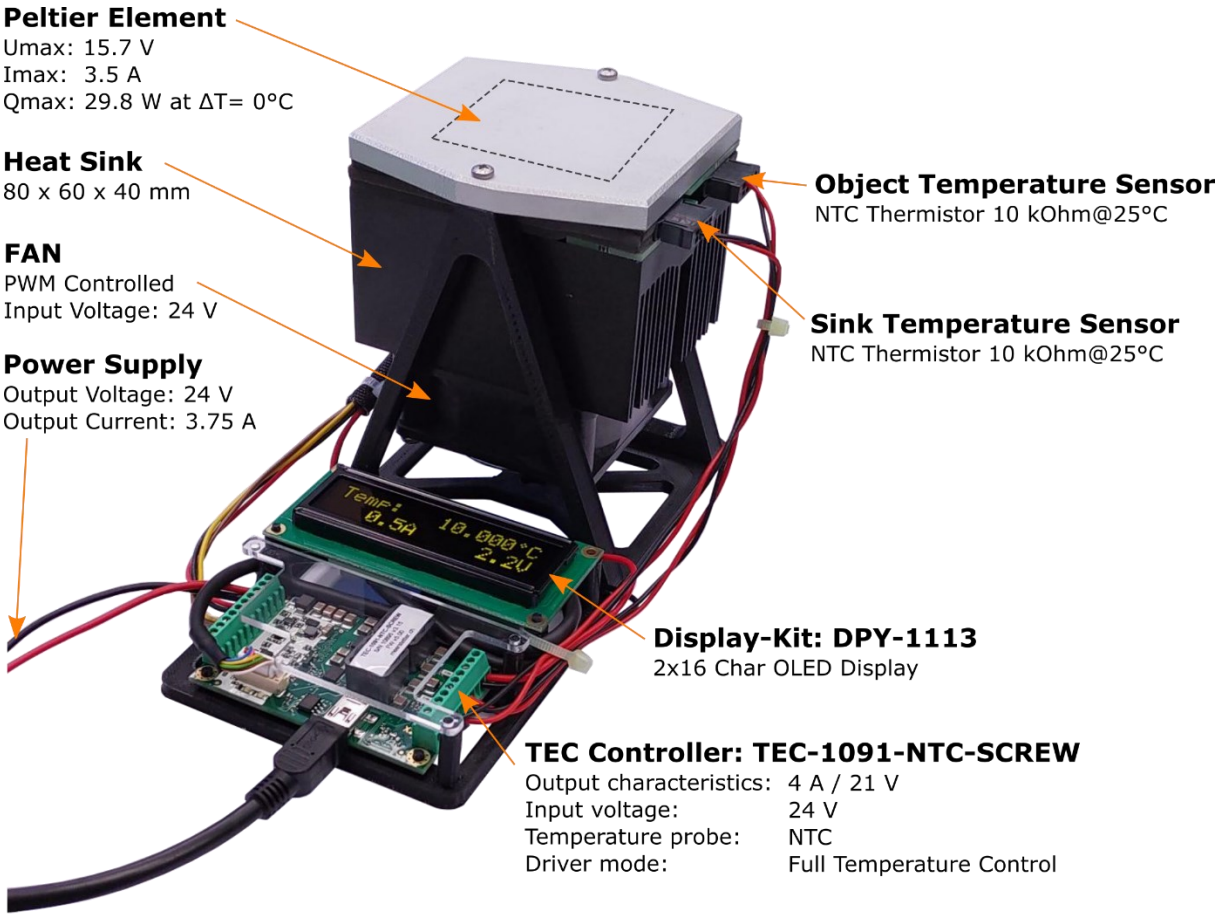
1 General Information

The starter kit consists of the following components:

Components	Description
TEC Controller TEC-1091	Drives/controls the Peltier element, the fan, and the display
Display DPY-1113	Easy and simple status display
Peltier Assembly - Peltier Element - NTC Thermistor - NTC Thermistor - Heat Sink - FAN	 > Cooling and heating > Measurement of object temperature > Measurement of sink temperature > Removal of heat > Used for increased heat removal and improves the thermal efficiency of the Peltier assembly

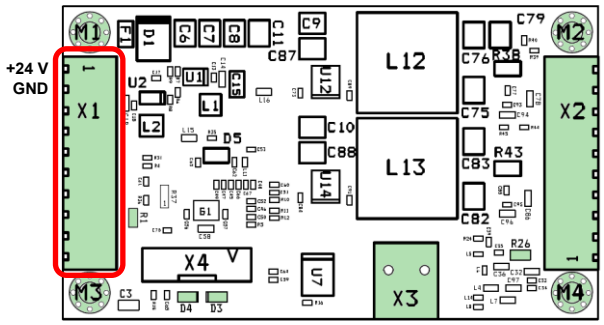


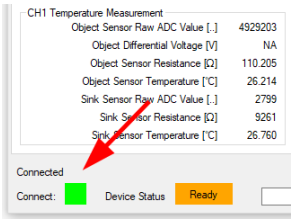
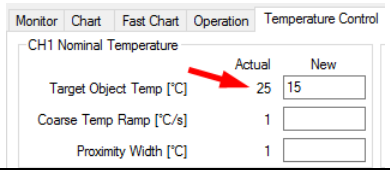
Additional requirements:

- PC with Microsoft Windows 7 or newer
- Cable with Mini-USB-B connector
- Power supply (24 V, 3.75 A or more); Recommended power supply
  Power supply connection cables

The Starter Kit is not tested for CE compliance; it is intended as demonstration unit for laboratory use by trained personnel.

2 Setup

Step	Action	Information / Feedback
1	**Hardware Setup**	
1.1	Unpack your Starter Kit	
1.2	Switch on the power supply. Set the power supply to 24 V.	The power supply must be able to provide enough electric power (24 V, 3.75 A). A fitting power supply can be ordered from our web shop. We can recommend the following power supply.
1.3	Switch off the power supply.	
1.4	Connect the TEC Controller of your Starter Kit to the power supply at X1 Pin 1 (24 V) and X1 Pin 2 (ground). 	
1.5	Switch on the power supply.	The green LED starts flashing continuously on the TEC Controller. The TEC Controller starts to cool / heat to 25°C.
2	**Install and Start the Software**	
2.1	Download the TEC-Family TEC Controllers Software Package (.msi). Execute the MSI-file and follow the instructions.	The MSI setup procedure will also provide you with the FTDI USB driver and Microsoft .NET files if you do not have the necessary versions already installed. Two new icons appear on your desktop: “TEC Service Software vX.XX” and “TEC Software vX.XX Additionals” which contains further information. The “… Additionals” folder also contains the firmware upgrade file for the TEC Controller itself and some other helpful stuff.
2.2	Connect the TEC Controller on X3 to your PC using a Mini-USB-B cable. Open the Service Software (TEC Service vX.XX).	The Service Software displays “Connected” and the connect status indicator is green. The “Device Status” is amber and ready. Information about your TEC Controller is displayed in the top right corner of the “Monitor” tab.

		ⓘ If an error occurs, the description is displayed in the “Monitor” tab in the lowest box of the rightmost column. 
3	**Temperature Control**	
3.1	🛠 In the tab “Temperature Control” →“CH1 Nominal Temperature”, set “Target Object Temp [°C]” to 15. 	ⓘ Our goal is now to keep an object at a constant temperature. First, we set the target temperature. ⓘ The TEC Controller does not yet start to cool or heat, for this you must first switch on the output.
3.2	🛠 In the tab “Operation”, set “CH1 Output Stage Enable” to “Static ON”	🔍 The temperature on the display decreases.
3.3	🛠 Save the changed settings to the TEC Controller by clicking “Write Config” in the bottom right corner of the window.	ⓘ Generally, you must set values by typing them into the corresponding fields and by clicking on “Write Config” to save them to the TEC Controller.
3.4	🛠 Observe the temperature in the “Chart” tab.	🔍 The temperature will converge to 15°C. 🔍 In the status bar at the bottom, the CH1 object temperature indicator is amber if the target temperature has not yet been reached. 🔍 If the measured “Object Temperature” equals the target temperature the indicator is green and the temperature on the display is close to 15. ⓘ There can be a small difference between the desired target temperature and the measured object temperature.

3 Further Information

Component	Link	Reference
TEC Controller	TEC-1091 Datasheet	
	Autotuning	TEC Family User Manual Page 21
	TEC Family User Manual	
Display	DPY-1113 Display	
	Display Software Configuration	TEC Family User Manual Page 34
Peltier Element	12703TD Datasheet	
Object Temperature Sensor	NTC Thermistor NXFT15XH103FA2B100	
Sink Temperature Sensor	NTC Thermistor	
FAN	SAN ACE 60 9G0624P4S001	
	Fan Software Configuration	TEC Family User Manual Page 30
Recommended Power Supply	MEAN WELL USA INC. GST90A24-P1M	

A Change history

Date of change	Doc/Version	Changed/ Approved	Change / Reason
15 February 2021	A	LS	• Initial release
19 March 2021	B	XF	• Removed general service software parameter information from annex as it is the same information as can be found in the TEC-Family User Manual • Adjusted the document to the new document template: o Added index o Added Meerstetter disclaimer • Fixed various typos and formatting errors
07 July 2021	C	XF	• Added step 3.3 in the Setup > Temperature Control section that explains how to save settings to the TEC Controller