

ST2100 User Manual

INTRODUCTION.....1
SOFTWARE AND USD INSTALLATION2
DETECTORS 1 AND 26
SETTINGS.....7
BEAM VIEW9
MOUSE MODE AND LOCATION INDICATOR BAR10
WIRING GUIDE11

Introduction

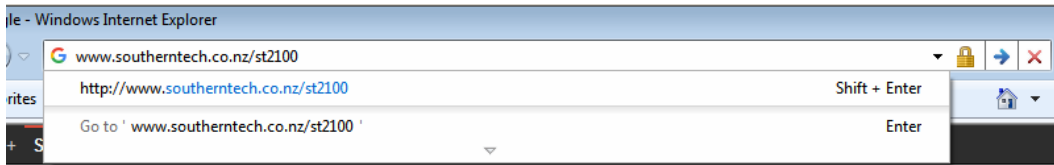
The ST2100 is dedicated interface that interfaces to the Pepperl-fuchs OMD8000-R2100, 11 Beam optical range finder.

The ST2100 is a standalone device and provides two independent change over relays from two programmable detectors.

Programming is done via USB to a Windows based PC running the ST2100 Service Tool.



Software and USD Installation



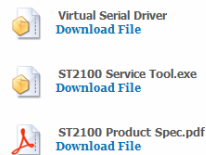
1. Go to www.southerntech.co.nz/st2100

2. Scroll to the bottom of the page, you will need to download two files and save them somewhere.

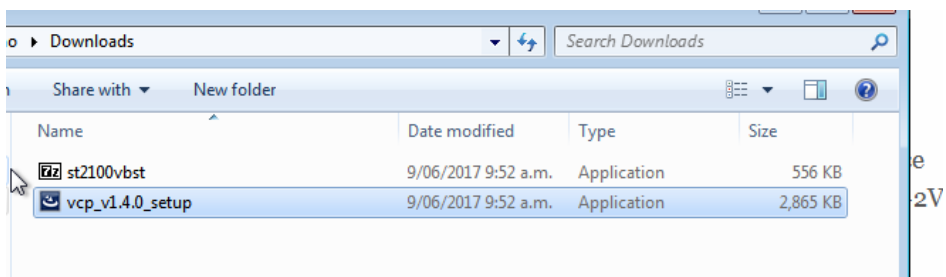
“Virtual Serial Driver”

and

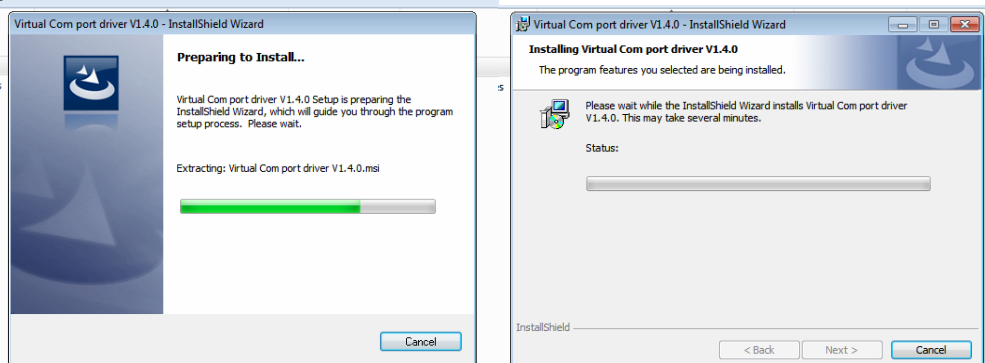
“ST2100 Service Tool.exe”



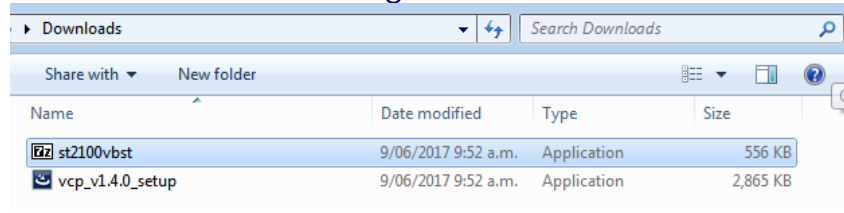
3. Install Virtual Serial Driver



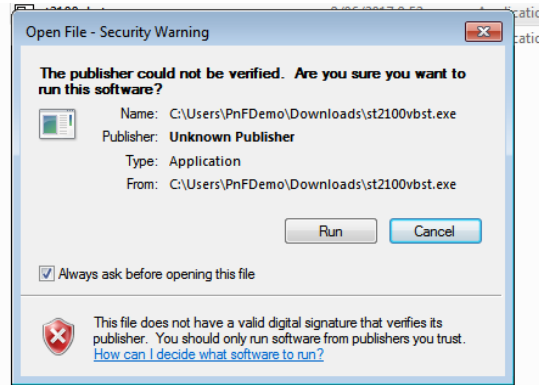
4. Select vcp_v1.4.0_setup and Execute, Follow on screen instructions.



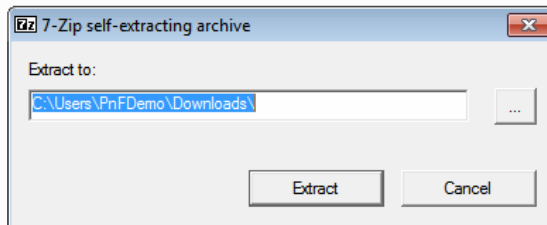
5. Select and install st2100vbst following on screen instructions



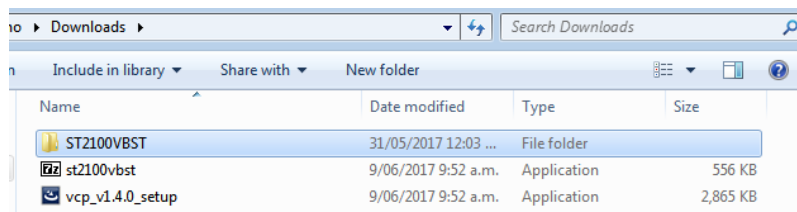
6. Accept warning



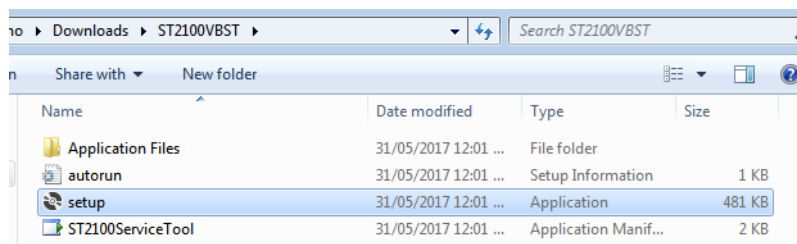
7. Extract to Folder



8. Open ST2100VBST Folder

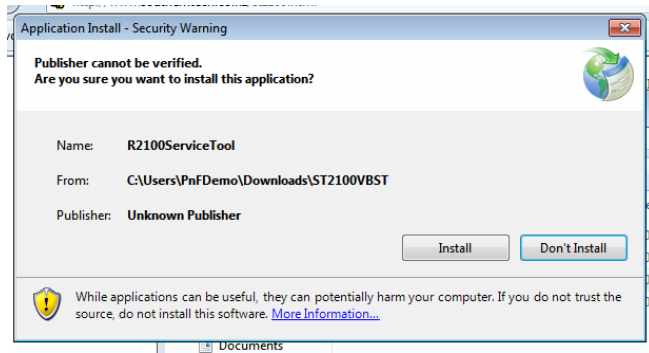


9. Select setup

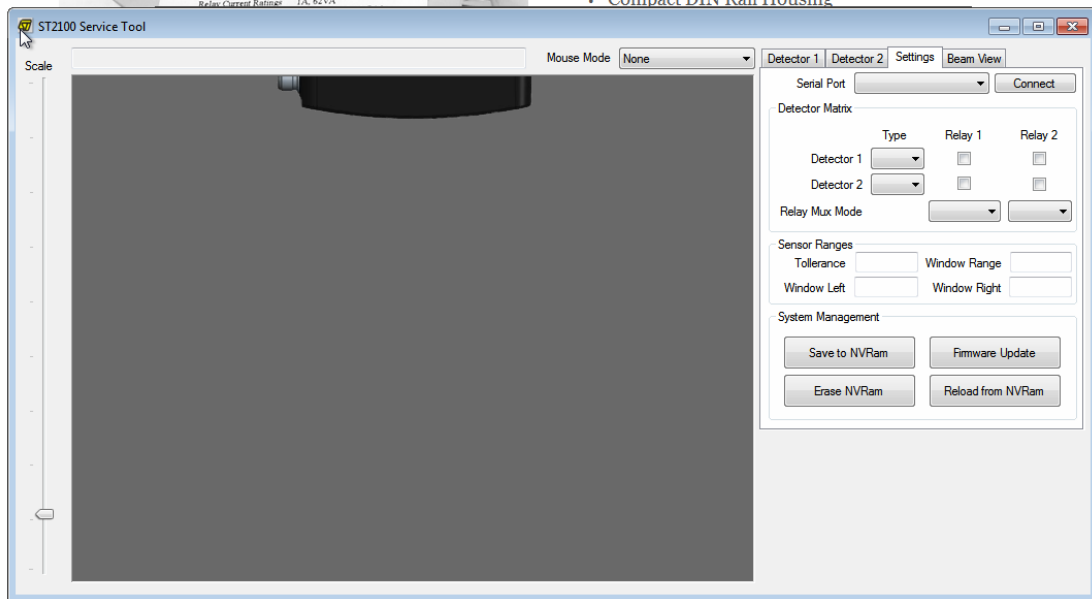


10. Accept EULA and follow on-screen instructions. Note this may involve the automatic installation of Microsoft .NET 4.5 Framework.

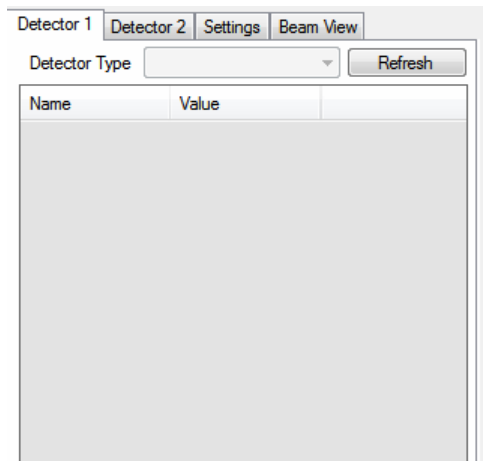
11. Accept Application Warning and Install



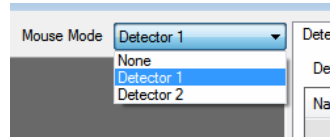
12. Main window will now open. Installation is now complete.



Detectors 1 and 2



To configure settings for Detector 1
When successfully connected to the ST2100 there will be some Name/Value settings. Double Click each value to edit manually or alternately you can change the Mouse Mode to "Detector 1" and draw the boxes graphically.



Detector Common Values:

- "Invert Output" – when set to true, reverse's operation of the trigger output.
- "Minimum Beams" – If less beams than the minimum are triggered, the trigger is ignored as noise
- "Maximum Beams" – if more beams than the maximum are triggered, the trigger is ignored as noise / blinded

Detector Types and their possible Values:

- "None" - The detector is disabled
- "Beam" – The detector simply checks the range of each beam and if a beam is closer, the relay will be triggered. Each of the 10 degrees values are just the detector Range.
- "Limit" – The detector has a single straight line. If enough beams cross the threshold, the output is triggered. This only has one setting "Range"
- "Box" – The detector has a box, if enough beams are inside the box, the output is triggered. Location values are in reference from the sensor. -4000 means 4 Meters to the Left of the center of the sensor. If Left is 200 and Right is 800, then the box will be 200mm to the right of the sensor, and 600mm Wide. The Box Detector has 4 Values
 - "Left" - The Left distance from the center of the sensor
 - "Right" – The Right distance from a center of the sensor
 - "Range" – Distance from the sensor.
 - "Offset" – Depth of the box.

Settings

	Type	Relay 1	Relay 2
Detector 1	Limit	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Detector 2	Box	<input type="checkbox"/>	<input checked="" type="checkbox"/>

On this tab, Serial Port selects which port the Service Tool will connect using. It will fetch a new list of ports each time the list is dropped down.

Detector Matrix allows you to define which kind of detector you want, and also which relay will activate when the detector is triggered. See Detectors Chapter for details on the type.

** Note: Detector Data will be cleared when changing types*

“Relay Mux Mode” allows for a relay to require either or both triggers to operate.

Sensor Ranges will set the global limits on the detectors, “Tolerance” is the dead band that the sensor must see before toggling the relay.

“Window Range” is the maximum distance you are sensing before the beam is disabled.

“Window Left” is the left most maximum distance you are sensing before the beam is disabled

“Window Right” is the right most maximum distance you are sensing before the beam is disabled.

ST2100 User Manual

System Management used for Saving/Restoring settings.
Instantaneous changes are not permanent and will be lost after a restart unless saved to NVRam.

"Save to NVRam" will save all settings to be used after a reboot.

"Reload from NVRam" will restore previously saved settings

"Erase NVRam" will factory reset the unit

"Firmware Update" will restart the ST2100 into a software upgrade utility, your COMM port will disappear and you may see a "STM32 Bootloader" USB Device.

Separate upgrade procedures will be released with firmware upgrades.

To return to normal operation you will need to remove all power connections (both the USB and 24vDC).
It will then start back up as normal.

Beam View

Inside the "Beam View" tab you can see individual beam status information.

"Beam" is the Angle from Center of the Sensor

"Range" is the distance away from the Sensor

"Echo" is the amount of reflection returned to the beam from the detected object.

"Mask" is the maximum distance each beam can be (unused)

"X" is the calculated position of the detected object

"Y" is the calculated position of the detected object

Beam	Range	Echo	Mask	X	Y
-40	****				
-32	****				
-24	****				
-16	****				
-8	****				
0	****				
8	****				
16	****				
24	****				
32	****				
40	****				

Mouse Mode and Location Indicator Bar



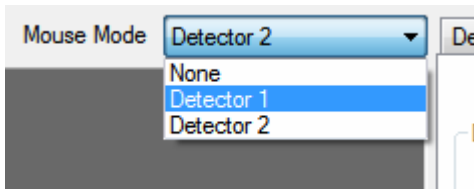
The Mouse Location Indicator Bar allows for easy measurement from the Graphical Display Area, while the mouse button is clicked the bar will update with the calculated location of the cursor, this is useful for working out box/limit ranges.

X means the coordinate distance from Center Line to Left or Right.

Negative numbers mean the location is Left of the centreline.

Y means the coordinate distance from the Sensor forward.

R means the Range (angular distance) from the point to the Sensor

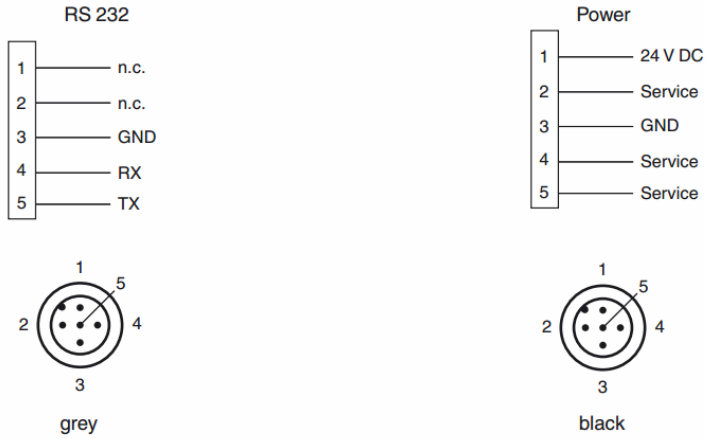


Changing the "Mouse Mode" option allows directly setting the Detectors directly from the Graphical Interface, when it is set to "None", this will only

update the Mouse Location Bar.

Wiring Guide

OMD8000-R2100 Wiring



ST2100 Wiring

1	Supply / 8-36 vDC		
2	Ground / 0 vDC	10	Relay 1 NC
3		11	Relay 1 NO
4		12	Relay 1 COM
5	COM1 RX		
6	COM1 TX	14	Relay 2 NC
7		15	Relay 2 NO
8		16	Relay 2 COM

ST2100 Pin 5 (COM1 RX) to OMD8000-R2100 Grey-5
 ST2100 Pin 6 (COM1 TX) to OMD8000-R2100 Grey-4
 ST2100 Pin 2 (Ground) to OMD8000-R2100 Grey-3

ST2100 Pin 1 to System 24vDC
 ST2100 Pin 2 to System Ground

ODM8000-R2100 Black-3 to System Ground
 ODM8000-R2100 Black-1 to System 24vDC