

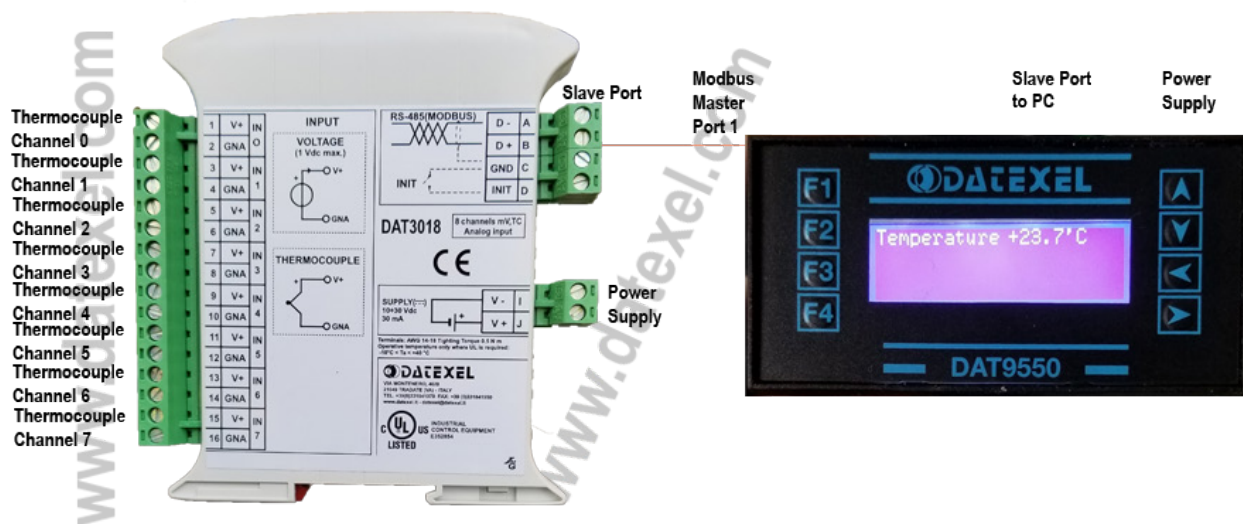
DATEXEL LLC

Using a Remote Modbus Display and an 8 Channel Thermocouple Modbus Slave.

This application reads the temperature from the registers in a Modbus RTU Slave DAT3018 and displays them on a Remote Modbus Display DAT9550.

Start-up.

1. The 8 Channel temperature Modbus Slave RTU device is set up to Baud Rate 9600, Parity None and 1 Stop bit.
2. The Address is 20 and Modbus Display address is 1.
3. The DAT9550 only has a Modbus RS485 connection. Connect the DAT3018 Slave port to the Master port of the DAT9550. The PC should be connected to the Modbus Slave port.



Wiring connections for Modbus Temperature Slave and Remote Modbus Display.

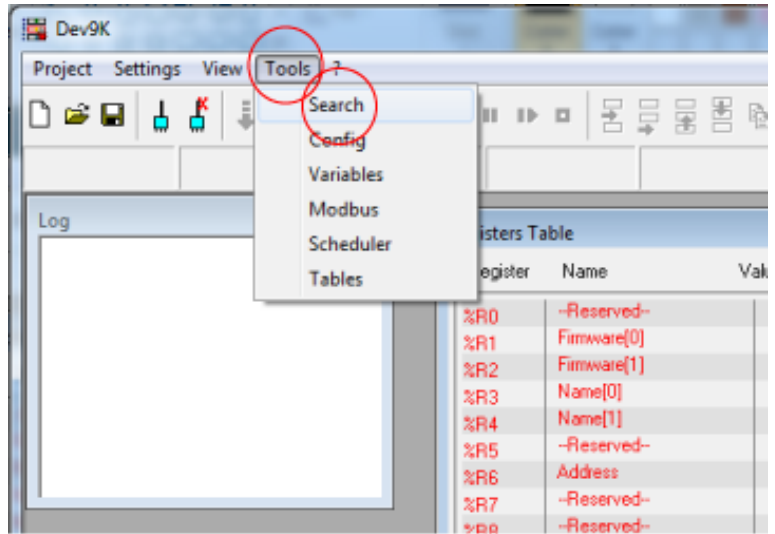
1. Connect a temperature calibrator to channel 1 or short out the input to measure the ambient temperature.
2. Connect 24 Vdc power supply to the DAT3018 and DAT9550.
3. Connect the DAT3018 Modbus port to the Modbus Master port on the DAT9550.
4. Run the Dev9K software from Datexel download page.

www.datexel.com

Call 561 779 5660 for Technical Support.

Connecting to the Remote Modbus Display.

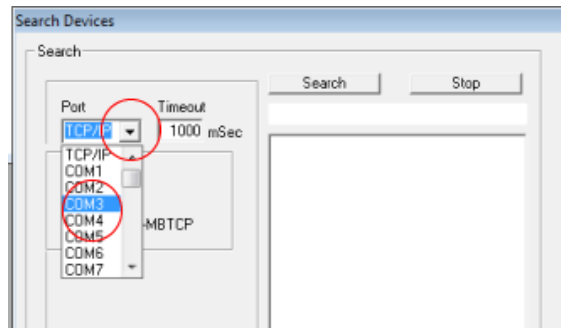
1. Click on Tools.
2. From the drop down menu click Search.



www.datexel.com

Setting up the DEV 9K Software to talk to the Modbus Slave Port.

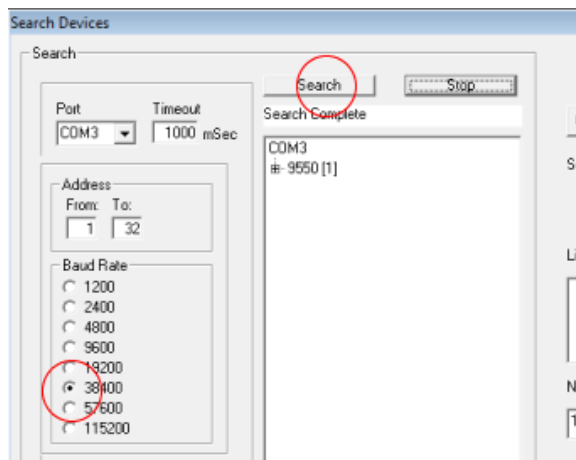
1. Click the port Label and change the port to Com3 (or whatever your com port setting is).



www.datexel.com

Setting the Baud Rate.

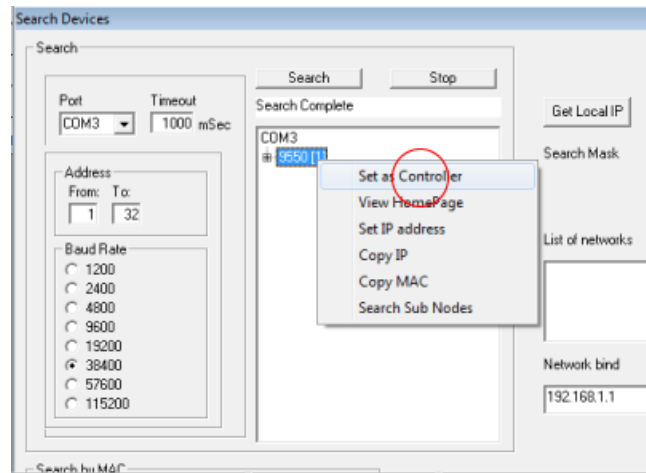
1. On the drop down menu select the slave port Baud Rate setting. Factory default is 38400. If you have used the INIT it will be 9600.
2. Click Search.
3. Com3 should appear then 9550 [1] indicating that it is connected.
4. The [1] indicates that the DAT9550 is address 1.



www.datexel.com

Set the Modbus Display as the Controller.

1. Right click on the 9550.
2. Click the Set as Controller label.
3. You are now able to write the program and load it into the DAT9550 Modbus Display.

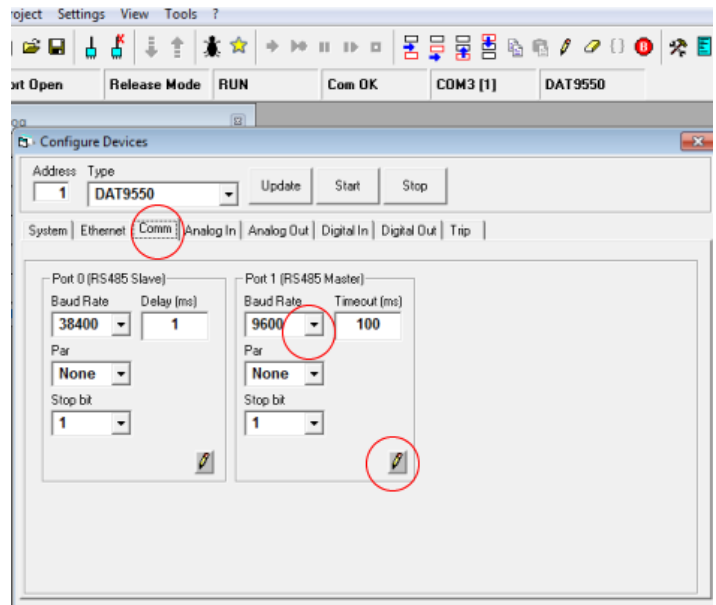


www.datexel.com

Change the Baud Rate of the DAT9550 Master Port.

As the Baud Rate of the Modbus Thermocouple Slave is 9600 mbps, the Master port on the DAT9550 has to be changed to communicate with the DAT3018.

1. Click Tools.
2. On the drop down menu Click Config.
3. Click Comm.
4. Change the Baud Rate to 9600.
5. Click the pencil to write to the DAT9550.

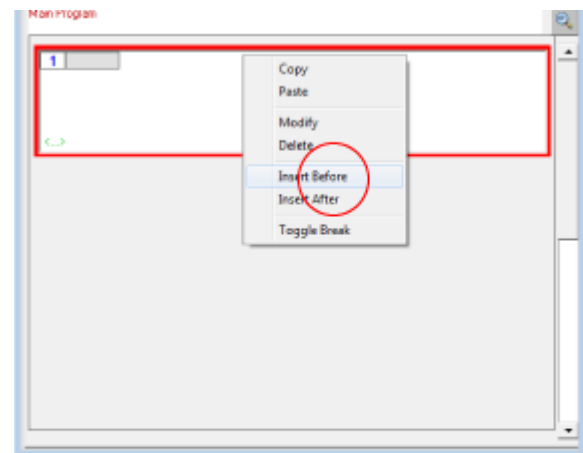


www.datexel.com

Start the Program.

1. Right click on the 9550.
2. Click the Set as Controller label.
3. You are now able to write the program and load it into the DAT9550 Modbus Display.

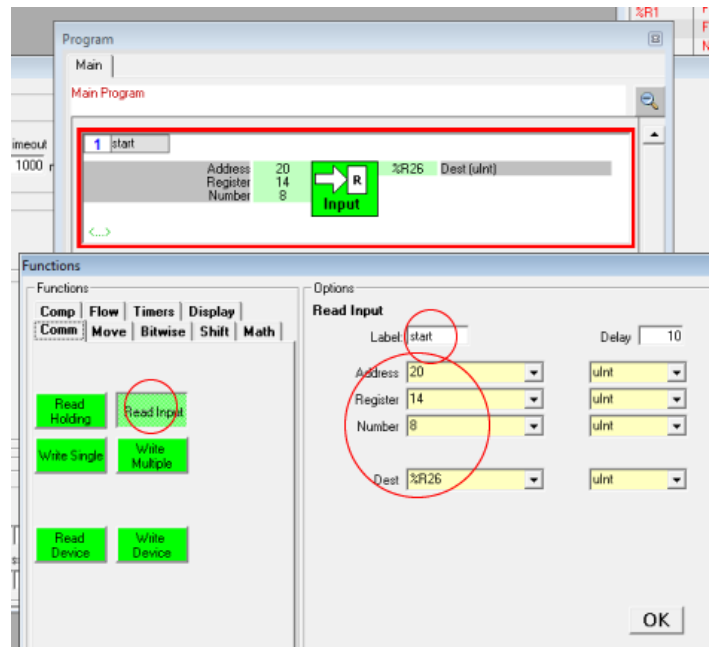
The program is made up with a group of function blocks. More information on these function blocks are available in the DAT9xxx user guide. Importantly the first function block must be labeled start and the last function block must be a goto function block with the command return to start. You can insert a function block anywhere in the program with the Insert Before or Insert After label.



www.datexel.com

The Read Input Function Block.

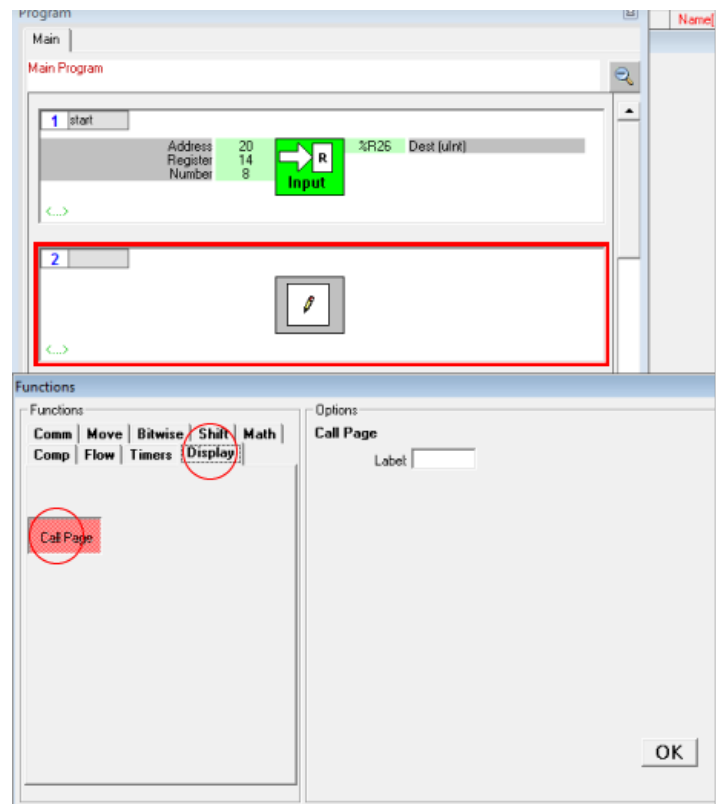
1. Click Project.
2. Click New from the Drop down menu.
3. Right click on Function Block 1.
4. On the drop down menu click Modify.
5. Click Comm and select Read Input.
6. Write start in the Label. (Important).
7. The address of the Modbus Thermocouple Slave is 20.
8. The Register where the temperature is stored for channel 0 is 14.
9. As we are going to read all the 8 channels write 8 in Number.
10. The destination register in the DAT9550 is 26 so insert %R26 in Dest.
11. Click OK.



www.datexel.com

The Display Function Block.

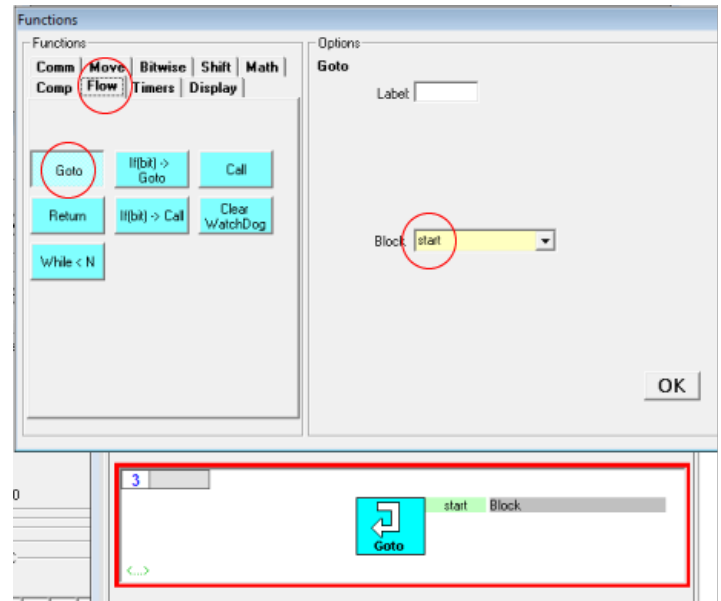
1. Insert another function block.
2. Select Display and click Call Page. This refreshes the display whilst the program is running.



www.datexel.com

The Goto Function Block.

1. Insert another function block called “Flow”, Click “Goto”. In the Block box write start. Make sure it is the same case and spelling as the Label in the first function block.
2. This function block returns the project back to the beginning.



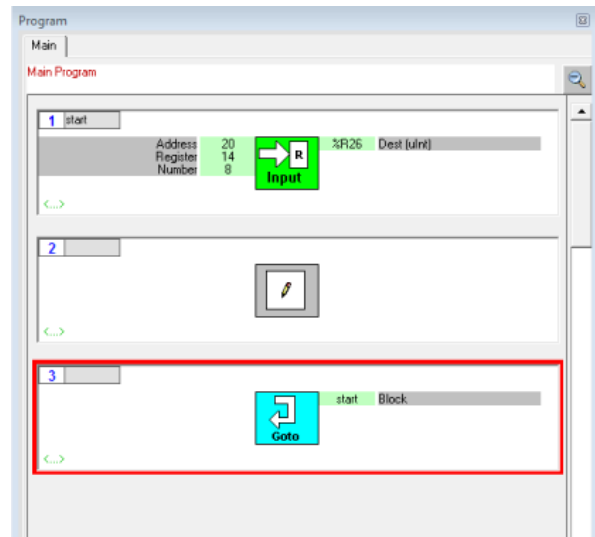
www.datexel.com

Saving the Project.

The project should now have 3 function blocks and needs to be stored to the PC.

1. Click “Project” on the drop down menu Click “Save as” .
2. Save as Display2019.

It is best at this stage to run the project to check communication with the Thermocouple Modbus Slave.



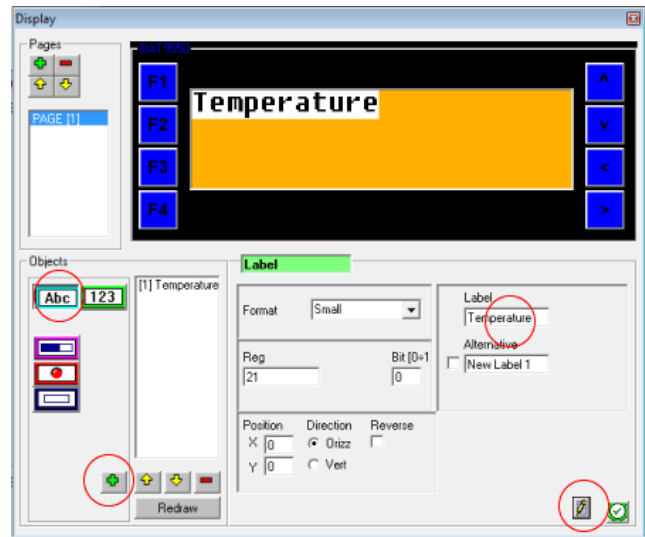
www.datexel.com

Downloading the Project from the PC to the DAT9550.

1. Make sure you are still connected to the DAT9550 and set as controller again.
2. Click the Debug button.
3. Click the Download button, in the download drop down menu click OK.
4. The project will now download from the PC to the DAT9550.
5. Wait until the download has finished and click the Star Button (Set Release Button).
6. It is very important now to click the Release mode.
7. Now the program is stored in the DAT9550.
8. Click the yellow R register button on the register table and check that the reading is in Register 26. Also Register 27 to 33 should have readings.
9. Adjust the calibrator whilst clicking the R button and watch the temperature change. Please note the temperature is x 10.

The Display now needs to be set up.

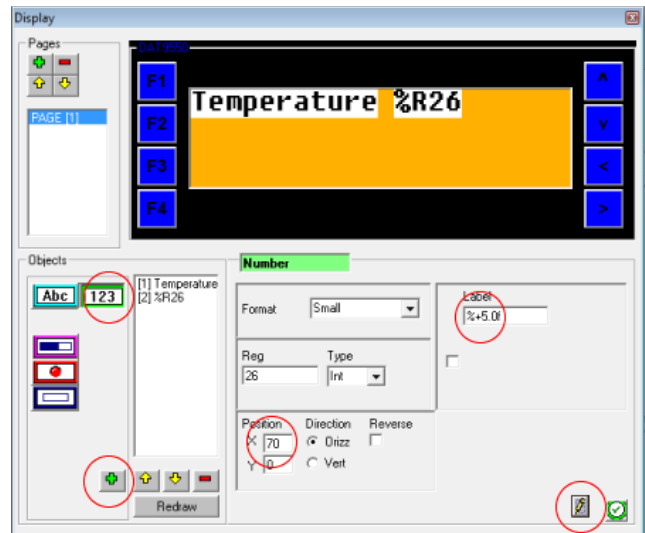
1. Click “Tools” and open the “Display” page.
2. Click The Abc Button then the + Button.
3. This opens the first Label type ”Temperature” under the Label Title.
4. Click the pencil.



www.datexel.com

Displaying the Register.

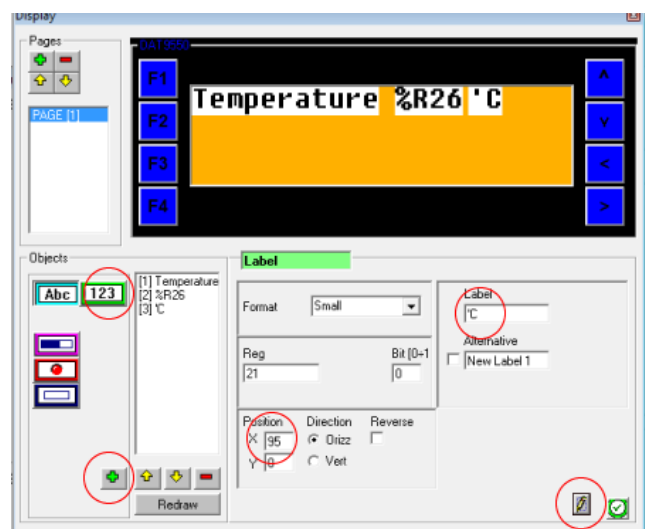
1. Click the 123 Button and then the +Button.
2. Under the Reg write in 26 for register 26.
3. Under Label write %+5.1f. This is for 1 decimal place.
4. Next to the X position type 70. This moves the indication of Register 26 to 70 pixels to the right on the Horizontal position.
5. Click the pencil.



www.datexel.com

Positioning the Celsius Label.

1. Click The Abc Button then the + Button.
2. This opens the Label to indicate Celsius.
3. Type ”C” under the Label Title.
4. Next to the X position type 95.
5. Click the pencil.



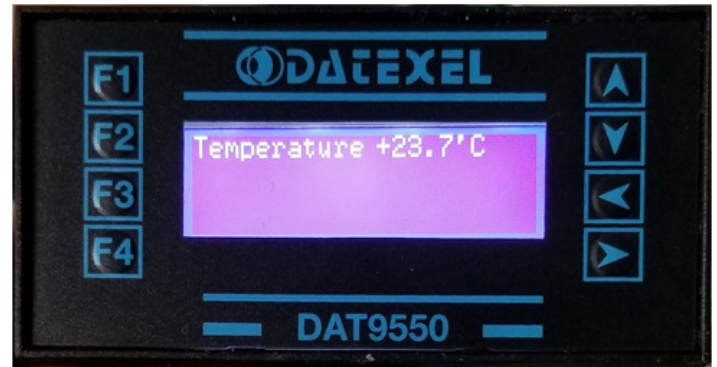
www.datexel.com

Saving the Complete Project.

The project is now complete. Save the project as before. Connect to the DAT9550 and set as Controller and Download the project and set Release.

Run the Project.

1. The correct temperature should now be displayed on the DAT9550. Adjust the calibrator to see the correct operation.
2. If more parameters need to be displayed just add in the Display section.



www.datexel.com

Explanation of the Project.

- Using a DAT9550 Remote Modbus Display Master to read a Thermocouple Modbus Slave with 8 channels DAT3018.
- Set up Communication from the PC to the DAT9550.
- Set up Communication between the DAT9550 and the DAT3018.
- Design a program with 3 function blocks to grab the information from the Thermocouple Modbus Slave and store in the Remote Modbus Master.