

Summary

TC software scans and finds the HMP2020 and (with the new config file) all functions seem to be working fine – the instrument responds appropriately to commands from TC and TC can log and chart measurements from the instrument. Excellent.

Connection:

I've been unable to get the instrument listed on the "Load Devices" tab. See in the debug window below, if TC is started with the "Scan serial ports" checkbox ticked then the scan finds the instrument and I can use it. When I try to add the instrument to the "Load Devices" tab (using the Add button) the only field I can edit is the address field and the only value I can think to enter in there is "COM2" but when I do that it throws the exception below. In the template config file there is an entry "#port 5025". Commenting this line out does not seem to affect behaviour.

```
C:\WINDOWS\system32\cmd.exe
Starting
;; Start thread for: COM1
;; Start thread for: COM2
;; COM1: Set params: 9600
;; COM2: Set params: 9600
;; COM1: Tx: <*IDN?> 2A 49 44 4E 3F 0A
;; COM2: Tx: <*IDN?> 2A 49 44 4E 3F 0A
;; COM2: Rx: <HAMEG,HMP2020,019442423,HW50010002/SW2.30> 48 41 4D 45 47 2C 48 4D 50 32 30 32 30 2C
30 31 39 34 34 32 34 32 33 2C 48 57 35 30 30 31 30 30 30 32 2F 53 57 32 2E 33 30
;; COM2: Tx <SYST:REM>
;; COM2: Tx: <SYST:REM> 53 59 53 54 3A 52 45 4D 0A
;; Found Hameg HMP2020 on HAMEG H0720 (COM2) sn: 19442423
;; COM1: Rx: timeout
;; COM1: Tx: <*IDN?> 2A 49 44 4E 3F 0A
;; COM1: Rx: timeout
;; Stopping thread for: COM1
;; COM1: Close
;; HMP2020: Tx <abort>
;; HMP2020: Tx <sample:count 1>
;; HMP2020: Tx <trig:source imm>
;; HMP2020: Tx <trig:count inf>
;; HMP2020: Tx <init>
;; HMP2020: Tx <OUTP:GEN 0>
;; HMP2020: Tx <SYST:LOC>
Exception in thread "Scan ports" ;; Start thread for: COM2
java.lang.NumberFormatException: For input string: "2268 com"
    at java.lang.NumberFormatException.forInputString(Unknown Source)
    at java.lang.Integer.parseInt(Unknown Source)
    at java.lang.Integer.parseInt(Unknown Source)
    at dk.hkj.main.InterfaceThreads$ScanPorts.addDevicesSocketAuto(InterfaceThreads.java:642)
    at dk.hkj.main.InterfaceThreads$ScanPorts.run(InterfaceThreads.java:739)
;; Stopping thread for: COM2
```

The screenshot shows the 'Test Controller' application window. The 'Load devices' tab is active, displaying a table of found devices. The 'Scan serial ports' checkbox is checked. The table lists a device named 'Search socket' with type 'Socket?', address 'COM2', and the 'Enable' checkbox is checked. The 'Configuration' tab is also visible, showing various settings for the device.

Device	Type	Address	Baudrate	Enable	Notes
Search socket	Socket?	COM2	-	<input checked="" type="checkbox"/>	

Feature Request

The manual describes a combined voltage and current setting command, APPLy, example below:

Example:

```
INST OUT1
APPL 6,2
// sets the output of channel 1 to 6 V and 2 A

APPL?
// queries the voltage and current the selected channel
// response: 6.000,2.000
```

From the config file, the command string to poll the instrument is:

```
#askValues INST OUT1;MEAS:Curr?;INST OUT1;MEAS:VOLT?;INST OUT2;MEAS:Curr?;INST OUT2;MEAS:VOLT?
```

I expect that polling the instrument using the APPLy command would be much more efficient returning both voltage and current measurements with a single command. Would it be a lot of work to implement the APPLy command?

Configuration file notes

HMP2020 has higher current rating than HMC8043: CH2 is rated for 5A, CH1 is rated for 10A up to 16V then power limited to 160W up to the maximum output voltage of 32V (so limited to 5A at 32V).

“#cmdSetup number Current Output_1” - the max output current has been changed from 3A to 10A

“#cmdSetup number Current Output_2” – the max output current has been changed from 3A to 5A

“#cmdSetup number Current Outputs_1/2” – the max output current has been changed from 3A to 5A

This will limit the current available on CH1 to 5A when using the “Current Outputs_1/2” tab (not a problem but good to be aware of). The pre-set values assigned to the radio buttons in the popup are not changed, it would be good if these could be customised/user defined in runtime to be task appropriate.

HMP2020 has only two channels so where a third channel was referenced, the code block has been deleted. An impact of deleting the blocks is that the tab for channel 3 no longer appears in the device popup which is good.

Power measurements are not available from the HMP so references to POW are removed from this config file.

I have no experience using electronic fuses but I’ve cross-checked the commands used in this config file versus the fuse commands in the HMP manual and they are the same so I expect that all is good - but have not tested them yet.

In addition to the current sensitive electronic fuse function, the HMP also has over voltage protection that cannot be controlled by TC yet.

```
VOLTage:PROtection[:LEVel].....
VOLTage:PROtection:CLEAr.....
[SOURce:]VOLTage:PROtection:MODE..
VOLTage:PROtection:TRIPped?.....
```

The HMP has “An arbitrary function allows you to define freely programmable waveforms for voltage and current, on a timeframe down to 10 ms.” Perhaps the device popup could have a tab to allow control of this function but I expect any such arbitrary waveform could be defined and run from a script – I haven’t explored scripting yet. I would expect having the instrument programmed would give more regular intervals since it wouldn’t have communications to deal with at the same time.

HMP manual: https://www.rohde-schwarz.com/hu/manual/r-s-hmp-series-power-supplies-user-manual-manuals-gb1_78701-524912.html