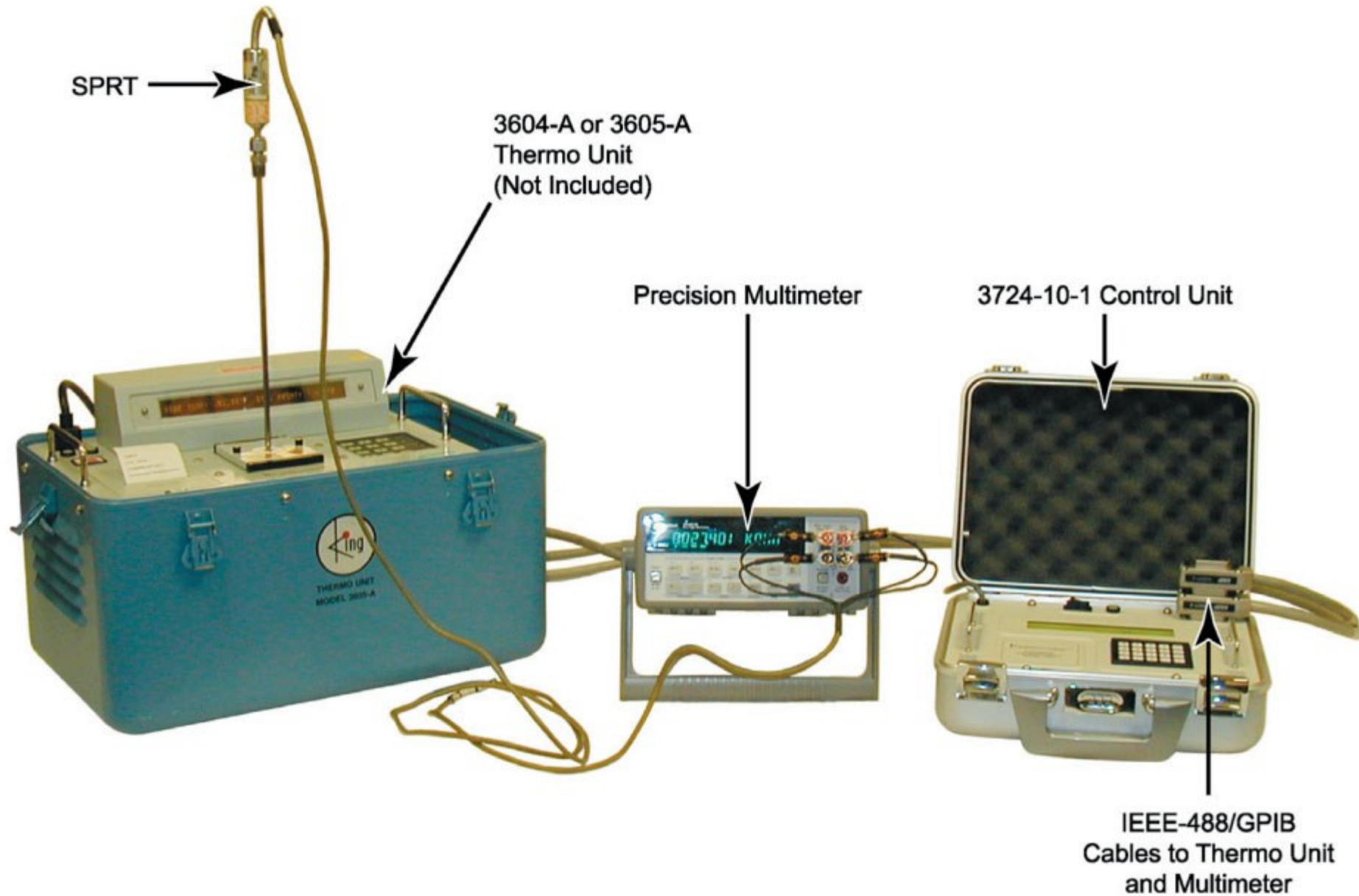


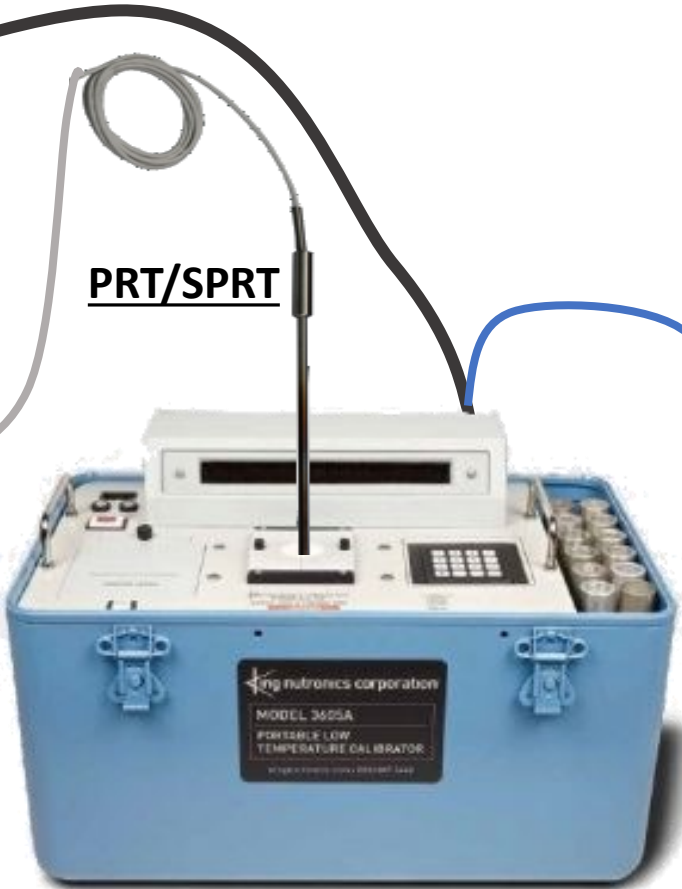
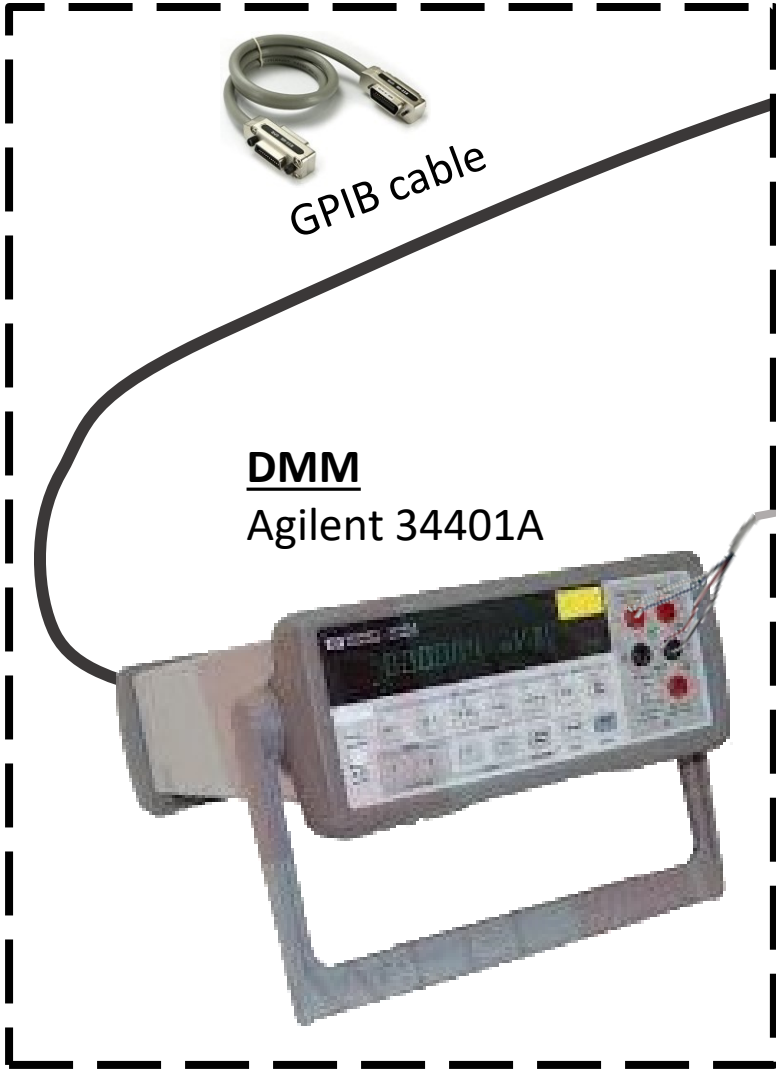
# Introduction

# LEGACY STATION CONFIGURATION



# NEW STATION CONFIGURATION

Optional



Any computer with NI-GPIB-USB-HS  
Replaces the legacy 3714



# Thermal-Calibrator Application Overview

**A** Thermo-Calibrator KNC

File Config Help

### Station Configuration

UNIT	DMM	PRT
MODEL 3605A	MODEL HP34401A	MODEL 5628
SN A1001	SN 4886	SN 2011
MFR KNC	MFR HP	MFR Fluke
DATE M6_D19_Y2022	DATE M1_D1_Y2025	DATE M1_D1_Y2025

GPIOB Parameters: ADDRESS GPIOB0::1::INS    GPIOB Parameters: ADDRESS GPIOB0::6::INS    ITS90 Parameters: RTPW 25.49449000

a4	0.00005302
b4	0.00000022
a7	-0.00001053
b7	0.00004105
c7	-0.00002272

LOAD SAVE    LOAD SAVE    LOAD SAVE

### Status and control

Connect OFF    Units ☒ F ☐ C

MONITOR TARGET XXXX.XX

STANDARD UNIT XXXX.XX    +/-DEV XX.XX

CALIBRATION SPRT/UUT XXXX.XX

AUTO STD-CAL

RAMP n SOAK

ABORT    BEEP ☒ Print

### Messages

--LOG: RESET  
--LOG: RESET  
Station configuration update  
wxDev.update(): Data exists  
wxDev.update(): Data exists  
wxDev.update(): Data exists

**B** Ramp and Soak Procedure viewer

Root

- AUTO: 1
- FREE: 0
- CYCLES: 1
- SEQ[...]
- 0
  - RATE: 1.80 F/MIN
  - TARGET: -20.00 F
  - SOAK: 10.0 MIN
  - PASS\_THRES: 0.50 F
- 1
  - RATE: 1.80 F/MIN
  - TARGET: -0.00 F
  - SOAK: 10.0 MIN
  - PASS\_THRES: 0.50 F
- 2
- 3
- 4
  - RATE: 1.80 F/MIN
  - TARGET: 150.00 F
  - SOAK: 10.0 MIN
  - PASS\_THRES: 0.50 F
- 5
  - RATE: 1.80 F/MIN
  - TARGET: 200.00 F
  - SOAK: 10.0 MIN
  - PASS\_THRES: 0.50 F
- 6
  - RATE: 1.80 F/MIN
  - TARGET: 250.00 F
  - SOAK: 10.0 MIN
  - PASS\_THRES: 0.50 F

Refresh  
Read File  
Write File  
Close

**C** Report viewer

Root

- TYPE: STD
- UID: A1001
- DATE
  - DAY: 20
  - MONTH: 4
  - YEAR: 2022
- UUT
- DMM
- REF
- COEF
- RESULTS
  - UNITS: C
  - AMB: 22.66433333
  - DEVTBL[...]
    - 0
      - UNIT: -5.00100000
      - RES: 195.54400000
      - REF: -4.68216760
      - DEV: -0.31883240
      - UNITS: C
      - AMB: 23.64700000
      - SOAK: 5.0 MIN
    - 1
    - 2
  - NEW\_COEF
    - TYPE: ITS27
    - R0: 199.32446300
    - Alpha: 0.00402500
    - Delta: 0.61272400

Refresh  
Read File  
Write File  
Close  
Export .xlsx

**D** Manual control

Manual control

SET PT 77.00    set

Units ☒ F ☐ C    ON OFF

**E** Station configuration

Station configuration

Description Station for the 3605A unit

STD SOAK 25.0 (Minutes)

UNIT file ./config/devices/unit/KNC3605A.json    Browse

DMM file ./config/devices/dmm/4886\_HP34401A\_Eng.j    Browse

PRT file ./config/devices/prt/Fluke\_Eng.json    Browse

PROG file ./config/prog/3605A\_fullCalib\_F.json    Browse

Save  
OK

Menus to access  
files and tools

Station  
configuration

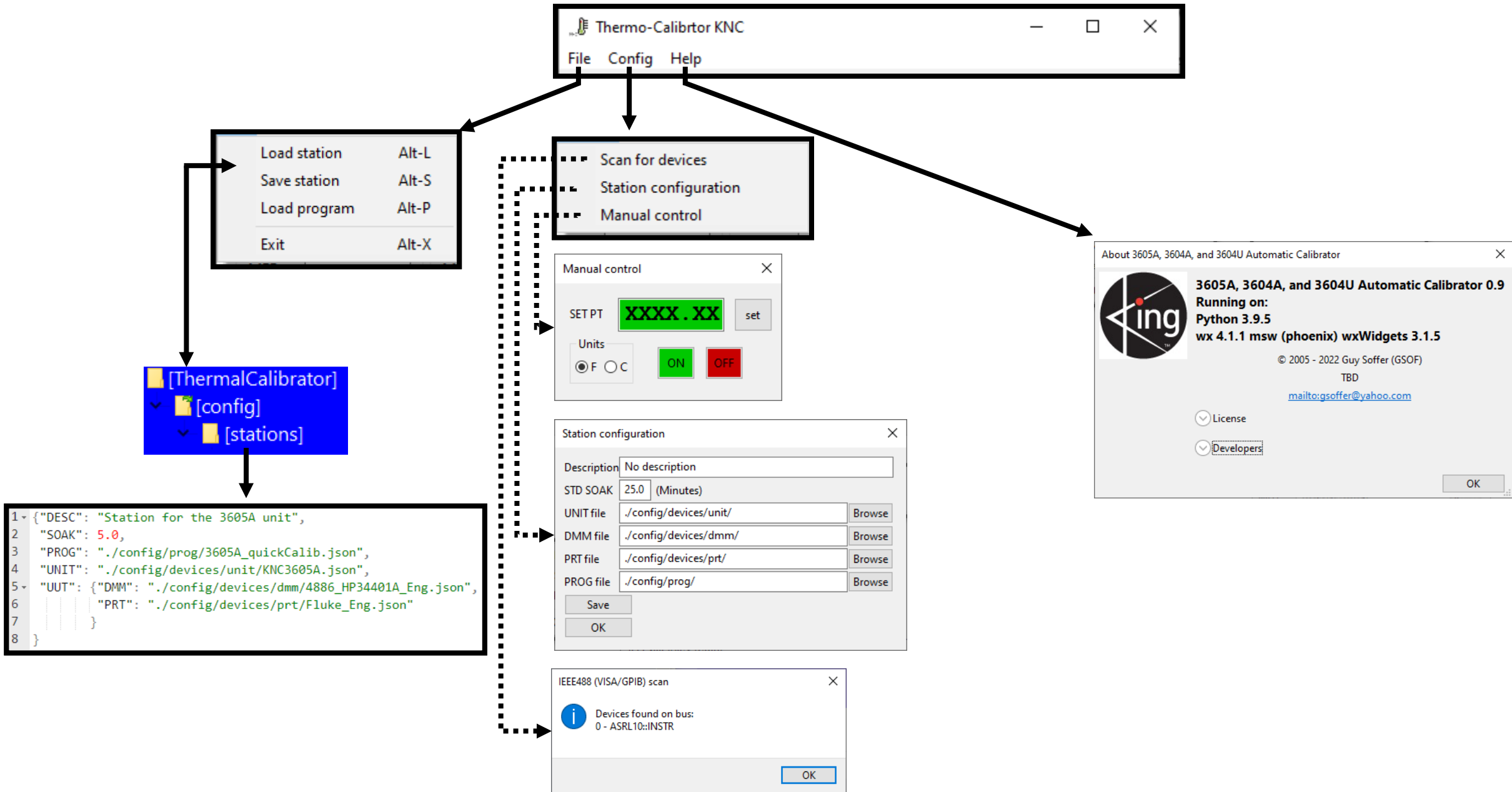
Real time  
status and  
control

Real time  
messages for  
debug

The screenshot displays the 'Thermo-Calibrator KNC' software window, which is organized into three main functional areas:

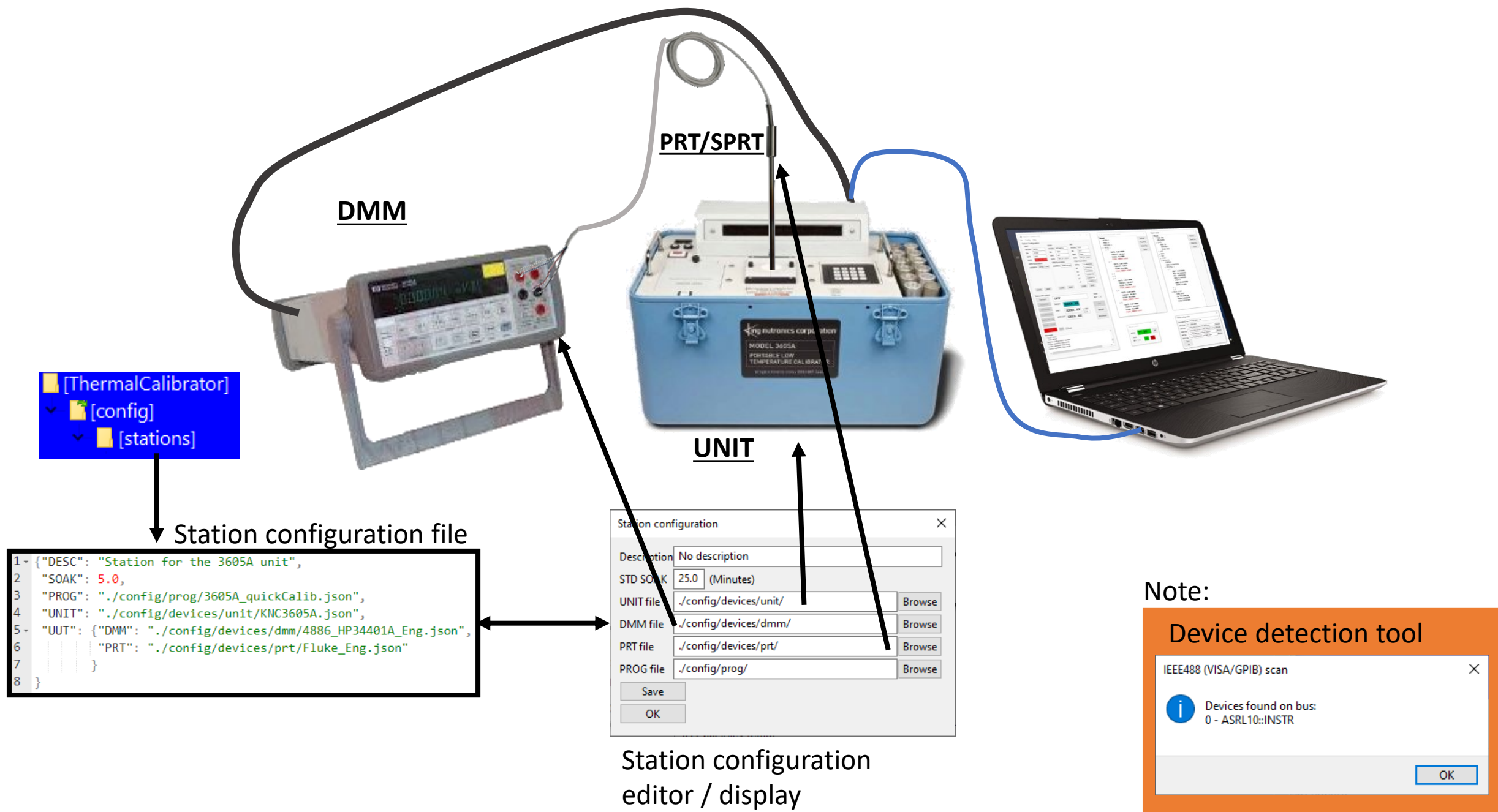
- Station Configuration:** This section is divided into three columns for configuring different units: UNIT, DMM, and PRT. Each column contains input fields for MODEL, SN, MFR, and DATE, along with a 'LOAD' and 'SAVE' button. The UNIT column also includes a 'GIPIB Parameters' section with an 'ADDRESS' field. The PRT column includes an 'ITS90 Parameters' section with fields for RTPW, a4, b4, a7, b7, and c7.
- Status and control:** This section features a 'Connect' button, a status indicator showing 'OFF', and a 'Units' selector (F for Fahrenheit, C for Celsius). It also includes a 'MONITOR' button, a 'STANDARD' button, a 'CALIBRATION' button, an 'AUTO STD-CAL' button, a 'RAMP n SOAK' button, and an 'ABORT' button. A 'BEEP' checkbox and a 'Print' checkbox are also present. The 'TARGET' field displays 'XXXX.XX', and the 'UNIT' field displays 'XXXX.XX'. The 'SPRT/UIT' field displays 'XXXX.XX'. A 'SKIP' button is located to the right of the 'MONITOR' button.
- Messages:** This section at the bottom of the window displays a log of messages, including 'LOG: RESET', 'Station configuration update', and 'wxDev.update(): Data exists'. It includes a scroll bar for navigating through the messages.





# STATION CONFIGURATION





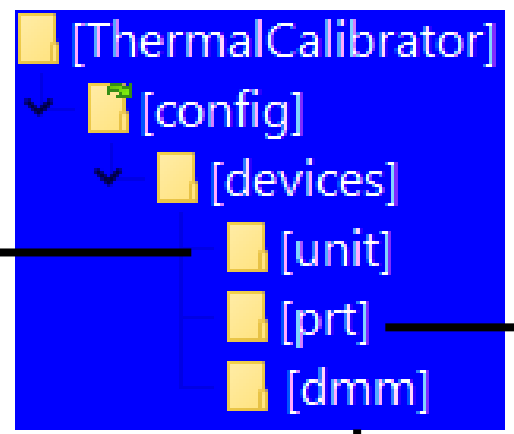
Station Configuration

UNIT		DMM		PRT	
MODEL	3605A	MODEL	HP34401A	MODEL	5628
SN	A1001	SN	4886	SN	2011
MFR	KNC	MFR	HP	MFR	Fluke
DATE	M6_D19_Y2022	DATE	M1_D1_Y2025	DATE	M1_D1_Y2025
GPIB Parameters: ADDRESS: GPIB0::1::INS		GPIB Parameters: ADDRESS: GPIB0::6::INS		ITS90 Parameters: RTPW: 25.49449000 a4: 0.00005302 b4: 0.00000022 a7: -0.00001053 b7: 0.00004105 c7: -0.00002272	
LOAD SAVE		LOAD SAVE		LOAD SAVE	

```

1 { "MFR": "KNC",
2   "MODEL": "3605A",
3   "UID": "A1001",
4   "EXP_DATE": { "YEAR": 2022, "MONTH": 6, "DAY": 19 },
5   "COEF": { "TYPE": "IEEE488",
6             "ADDR": "GPIB0::1::INSTR" }
7 }

```



```

1 { "MFR": "Fluke",
2   "MODEL": "5628",
3   "SN": "2011",
4   "EXP_DATE": { "YEAR": 2025, "MONTH": 1, "DAY": 1 },
5   "COEF": { "TYPE": "ITS90",
6             "RTPW": 25.49449,
7             "a4": 5.302158e-05,
8             "b4": 2.200709e-07,
9             "a7": -1.052826e-05,
10            "b7": 4.104768e-05,
11            "c7": -2.272356e-05
12          }
13 }

```

```

1 { "MFR": "HP",
2   "MODEL": "HP34401A",
3   "SN": "4886",
4   "EXP_DATE": { "YEAR": 2025, "MONTH": 1, "DAY": 1 },
5   "COEF": { "TYPE": "IEEE488", "LANG": "Fluke", "ADDR": "GPIB0::6::INSTR" }
6 }

```

## UNIT information

UNIT

MODEL 3605A

SN A1001

MFR KNC

DATE M6\_D19\_Y2022

GPIB Parameters:

ADDRESS GPIB0::1::INS

LOAD SAVE

Red background indicates that the date expired

## UNIT configuration source file (JSON)

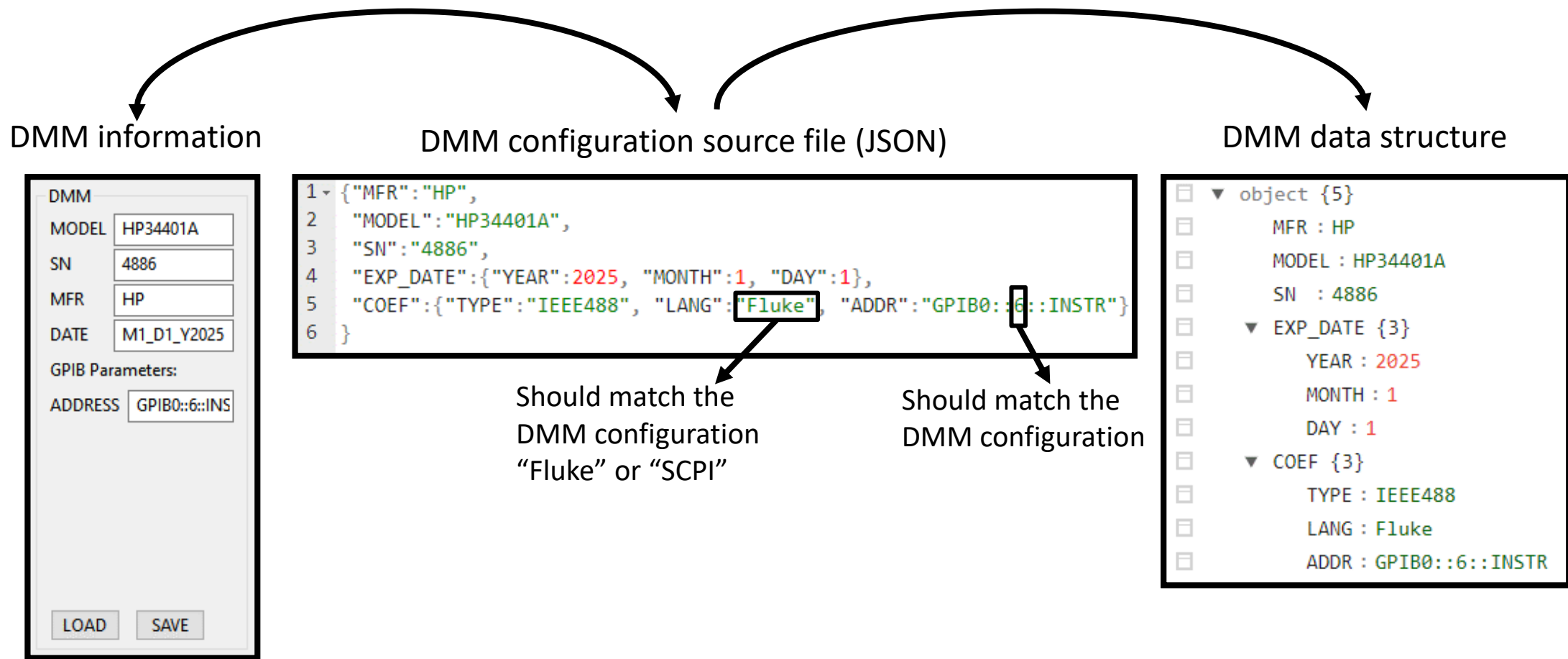
```
1 { "MFR": "KNC",
2   "MODEL": "3605A",
3   "UID": "A1001",
4   "EXP_DATE": { "YEAR": 2022, "MONTH": 6, "DAY": 19 },
5   "COEF": { "TYPE": "IEEE488",
6             "ADDR": "GPIB0::1::INSTR" }
7 }
```

GPIB bus#  
0 if a single GPIB-USB-HS  
is used

Device#  
KNC units are 1 by default

## UNIT data structure

```
object {5}
  MFR : KNC
  MODEL : 3605A
  UID : A1001
  EXP_DATE {3}
    YEAR : 2022
    MONTH : 6
    DAY : 19
  COEF {2}
    TYPE : IEEE488
    ADDR : GPIB0::1::INSTR
```



PRT information

PRT

MODEL	5628
SN	2011
MFR	Fluke
DATE	M1_D1_Y2025
ITS90 Parameters:	
RTPW	25.49449000
a4	0.00005302
b4	0.00000022
a7	-0.00001053
b7	0.00004105
c7	-0.00002272

LOAD SAVE

PRT configuration source file (JSON)

```
1 { "MFR": "Fluke",
2   "MODEL": "5628",
3   "SN": "2011",
4   "EXP_DATE": { "YEAR": 2025, "MONTH": 1, "DAY": 1 },
5   "COEF": { "TYPE": "ITS90",
6             "RTPW": 25.49449,
7             "a4": 5.302158e-05,
8             "b4": 2.200709e-07,
9             "a7": -1.052826e-05,
10            "b7": 4.104768e-05,
11            "c7": -2.272356e-05
12          }
13 }
```

Should match the SPRT  
calibration report

PRT data structure

```
object {5}
  MFR : Fluke
  MODEL : 5628
  SN : 2011
  EXP_DATE {3}
    YEAR : 2025
    MONTH : 1
    DAY : 1
  COEF {7}
    TYPE : ITS90
    RTPW : 25.49449
    a4 : 0.00005302158
    b4 : 2.200709e-7
    a7 : -0.00001052826
    b7 : 0.00004104768
    c7 : -0.00002272356
```

# STATION OPERATION

Thermo-Calibrtr KNC

File Config Help

Station Configuration

UNIT	DMM	PRT
MODEL 3605A	MODEL HP34401A	MODEL 5628
SN A1001	SN 4886	SN 2011
MFR KNC	MFR HP	MFR Fluke
DATE M6_D19_Y2022	DATE M1_D1_Y2025	DATE M1_D1_Y2025
GPIB Parameters:		
ADDRESS GPIB0::1::INS	ADDRESS GPIB0::6::INS	ITS90 Parameters:
RTPW 25.49449000		
a4 0.00005302		
b4 0.00000022		
a7 -0.00001053		
b7 0.00004105		
c7 -0.00002272		

LOAD SAVE LOAD SAVE LOAD SAVE

Status and control

Connect OFF Units ☒ F ☐ C

MONITOR STANDARD CALIBRATION AUTO STD-CAL RAMP n SOAK

TARGET XXXX.XX

UNIT XXXX.XX +/--DEV XX.XX

SPRT/UUT XXXX.XX

SKIP REPORT PROGRAM

ABORT BEEP ☒ Print

Messages

Station configuration update  
wxDev.update(): Data exists  
wxDev.update(): Data exists  
wxDev.update(): Data exists

If connection  
successful

Click disconnect

Operation  
buttons  
enabled

DMM and unit  
were detected

Thermo-Calibrtr KNC

File Config Help

Station Configuration

UNIT	DMM	PRT
MODEL 3605A	MODEL HP34401A	MODEL 5628
SN A1001	SN 4886	SN 2011
MFR KNC	MFR HP	MFR Fluke
DATE M6_D19_Y2022	DATE M1_D1_Y2025	DATE M1_D1_Y2025
GPIB Parameters:		
ADDRESS GPIB0::1::INS	ADDRESS GPIB0::6::INS	ITS90 Parameters:
RTPW 25.49449000		
a4 0.00005302		
b4 0.00000022		
a7 -0.00001053		
b7 0.00004105		
c7 -0.00002272		

LOAD SAVE LOAD SAVE LOAD SAVE

Status and control

DISCONNECT OFF Units ☒ F ☐ C

MONITOR STANDARD CALIBRATION AUTO STD-CAL RAMP n SOAK

TARGET XXXX.XX

UNIT XXXX.XX +/--DEV XX.XX

SPRT/UUT XXXX.XX

SKIP REPORT PROGRAM

ABORT BEEP ☒ Print

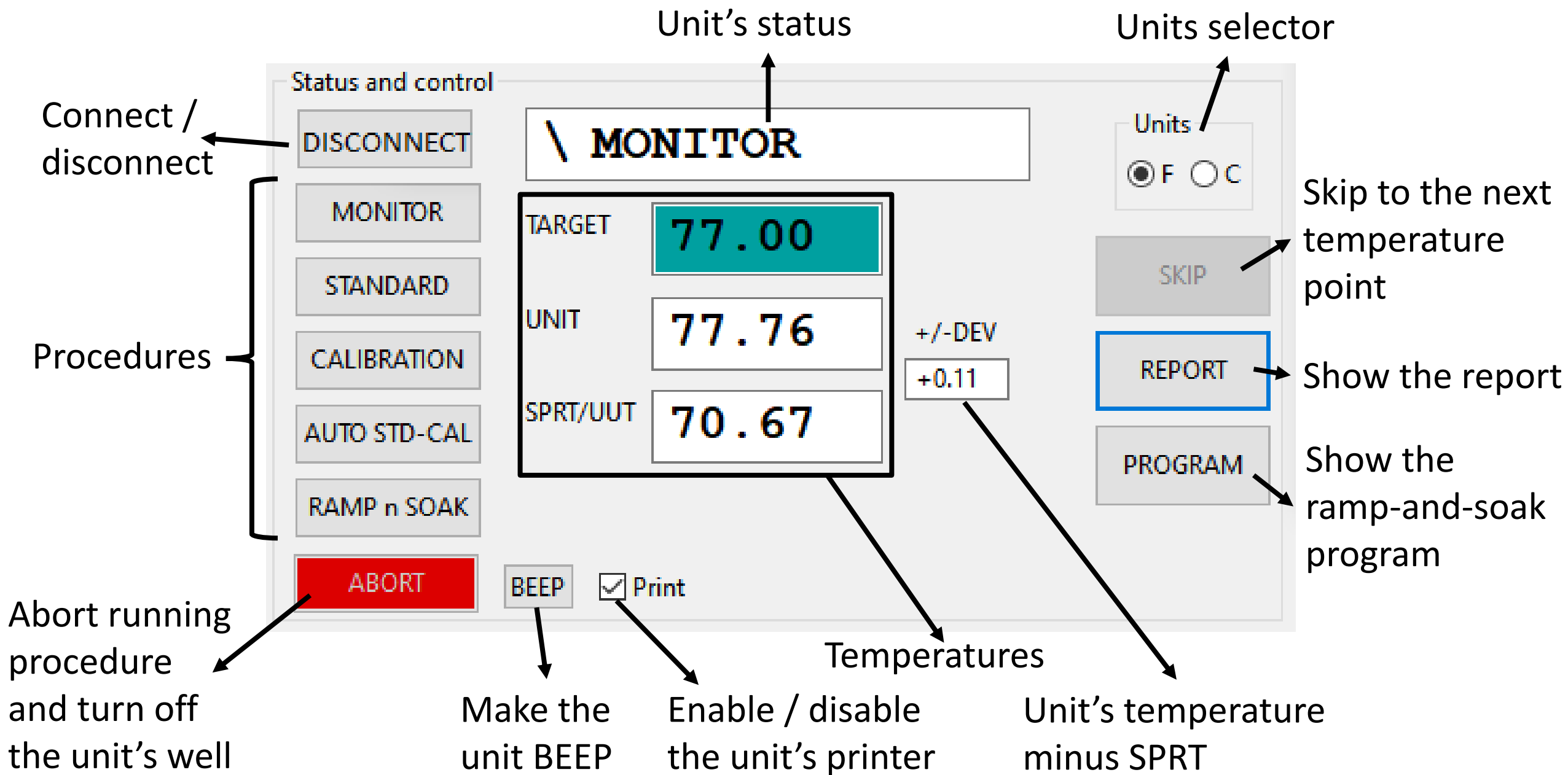
Messages

Station configuration update  
wxDev.update(): Data exists  
wxDev.update(): Data exists  
wxDev.update(): Data exists  
GPIB0::6::INSTR connected  
GPIB0::1::INSTR connected

Click  
Connect

Operation  
buttons  
disabled





MONITOR or MANUAL  
CONTROL

Thermo-Calibrator KNC

File Config Help

### Station Configuration

UNIT	DMM	PRT
MODEL: 3605A	MODEL: HP34401A	MODEL: 5628
SN: A1001	SN: 4886	SN: 2011
MFR: KNC	MFR: HP	MFR: Fluke
DATE: M6_D19_Y2022	DATE: M1_D1_Y2025	DATE: M1_D1_Y2025
GPIB Parameters: ADDRESS: GPIB0::1::INS		

LOAD SAVE LOAD SAVE LOAD SAVE

### Status and control

DISCONNECT

**MONITOR**

STANDARD

CALIBRATION

AUTO STD-CAL

RAMP n SOAK

ABORT

BEEP ☒ Print

NEW TARGET PT

TARGET: 77.00

UNIT: 72.42

SPRT/UUT: 73.35

Units: ☒ F ☐ C

SKIP

REPORT

PROGRAM

### Messages

None

--LOG: IDLE

None

--LOG: IDLE

None

--LOG: IDLE

None

Manual control

SET PT: 90.0

Units: ☒ F ☐ C

ON OFF

set

If the unit is present on the GPIB bus, it can be manually controlled via the “**Manual control**” dialog box (under the “**Config**” menu).

The “**MONITOR**” mode supports stations with unit only, SPRT only, or both connected configurations.

The TARGET and UNIT fields will be updated if the unit is present on the GPIB bus.

The SPRT/UUT field will be updated if the DMM is present on the GPIB bus.

# STANDARDIZATION

Thermo-Calibrator KNC

File Config Help

### Station Configuration

UNIT		DMM		PRT	
MODEL	3605A	MODEL	HP34401A	MODEL	5628
SN	A1001	SN	4886	SN	2011
MFR	KNC	MFR	HP	MFR	Fluke
DATE	M6_D19_Y2022	DATE	M1_D1_Y2025	DATE	M1_D1_Y2025
GPIB Parameters: ADDRESS: GPIB0::1::INS		GPIB Parameters: ADDRESS: GPIB0::6::INS		ITS90 Parameters: RTPW: 25.49449000 a4: 0.00005302 b4: 0.00000022 a7: -0.00001053 b7: 0.00004105 c7: -0.00002272	
LOAD SAVE		LOAD SAVE		LOAD SAVE	

### Status and control

DISCONNECT / **NEW TARGET PT**

MONITOR

**STANDARD**

CALIBRATION

AUTO STD-CAL

RAMP n SOAK

ABORT BEEP ☐ Print

TARGET: **-13.00**

UNIT: **76.82** +/- DEV: +3.43

SPRT/UUT: **73.38**

Units: ☒ F ☐ C

SKIP

REPORT

PROGRAM

### Messages

```
--LOG: RESEI
--LOG: IDLE
-----
VanDusen:200.802734, .003974,4.083577
-----
-45.65
--LOG: SETNEW
```

Both the unit and DMM must be present on the GPIB bus.

The SPRT/UUT field will be updated if the DMM is present on the GPIB bus.

Advance to the next standardization point.

Show the standardization report.

Not applicable in standardization mode.

Note: The unit must be place an CAL mode with activated IEEE mode. Refer to unit's user manual to further instructions.

# CALIBRATION

Thermo-Calibrator KNC

File Config Help

Station Configuration

UNIT	DMM	PRT
MODEL 3605A	MODEL HP34401A	MODEL 5628
SN A1001	SN 4886	SN 2011
MFR KNC	MFR HP	MFR Fluke
DATE M6_D19_Y2022	DATE M1_D1_Y2025	DATE M1_D1_Y2025
GIPIB Parameters:		
ADDRESS GPIB0::1::INS	ADDRESS GPIB0::6::INS	
LOAD SAVE	LOAD SAVE	LOAD SAVE

Status and control

DISCONNECT MONITOR STANDARD CALIBRATION AUTO STD-CAL RAMP n SOAK ABORT BEEP ☐ Print

NEW TARGET PT

TARGET -20.00

UNIT 67.17 +/-DEV -6.23

SPRT/UUT 73.40

Units ☒ F ☐ C

SKIP REPORT PROGRAM

Messages

```
--LOG: STARTING <D:\Projects\ThermalCalibrator\config\prog\3605A_fullCalib_F>
-----
VanDusen:200.802734, .003974,4.083577
-----
-28.889
--LOG: SETNEW
```

Both the unit and DMM must be present on the GPIB bus.

The SPRT/UUT field will be updated if the DMM is present on the GPIB bus.

The calibration protocol (target points, dwell times, and pass/fail criteria) is in a standard "Ramp-and-Soak" program **<3605A\_fullCalib\_F.json>**.

A **quick calibration** procedure can be run by loading the program **<3605A\_quickCalib.json>** before starting the procedure. Different calibration procedures can added as well.

Advance to the next calibration point.

Show the calibration report.

Show the calibration procedure steps.



# AUTOMATIC STANDARDIZATION AND CALIBRATION

Thermo-Calibrator KNC

File Config Help

### Station Configuration

UNIT		DMM		PRT	
MODEL	3605A	MODEL	HP34401A	MODEL	5628
SN	A1001	SN	4886	SN	2011
MFR	KNC	MFR	HP	MFR	Fluke
DATE	M6_D19_Y2022	DATE	M1_D1_Y2025	DATE	M1_D1_Y2025
GPIB Parameters: ADDRESS GPIB0::1::INS		GPIB Parameters: ADDRESS GPIB0::6::INS		ITS90 Parameters: RTPW 25.49449000 a4 0.00005302 b4 0.00000022 a7 -0.00001053 b7 0.00004105 c7 -0.00002272	
LOAD SAVE		LOAD SAVE		LOAD SAVE	

### Status and control

DISCONNECT MONITOR STANDARD CALIBRATION **AUTO STD-CAL** RAMP n SOAK

ABORT BEEP ☐ Print

**\ NEW TARGET PT**

TARGET **-20.00**

UNIT **67.17** +/-DEV -6.23

SPRT/UUT **73.40**

Units ☒ F ☐ C

SKIP REPORT PROGRAM

### Messages

```
--LOG: STARTING <D:\Projects\ThermalCalibrator\config\prog\3605A_FullCalib_F>
-----
VanDusen:200.802734, .003974,4.083577
-----
-28.889
--LOG: SETNEW
```

Both the unit and DMM must be present on the GPIB bus. First the standardization procedure will run. Then, the calibration procedure will begin. The natural cooling time of 5 min is inserted between the end of the STD to the beginning of the CAL.

Advance to the next standardization / calibration point.

Show the current procedure report.

Show the calibration procedure steps.

# RAMP AND SOAK PROGRAM

# User defined test protocols (Ramp-and-Soak)

Load a program and start a “Ramp And Soak” process

Load station	Alt-L
Save station	Alt-S
Load program	Alt-P
Exit	Alt-X

Example of a quick calibration test program  
<3605A\_quickCalib.json>

Automatically transition  
between test points

Soak time after unit's  
temperature is stable

How many times to  
repeat the sequence

The test sequence

```
1 {"AUTO": 1,  
2  "FREE": 0,  
3  "CYCLES": 1,  
4  "SEQ": [  
5    {"RATE": 1.0, "TARGET": -5.0, "SOAK": 5.0, "PASS_THRES": 0.3},  
6    {"RATE": 1.0, "TARGET": 35.0, "SOAK": 5.0, "PASS_THRES": 0.3},  
7    {"RATE": 1.0, "TARGET": 75.0, "SOAK": 5.0, "PASS_THRES": 0.3}  
8  ]  
9 }
```

Not implemented  
(°C/minute)

Target  
temperature (°C)

Soak / dwell time  
(minutes)

Pass / fail criteria (°C)

Note: All temperature values must be entered in °C units.

Thermo-Calibrto KNC

File Config Help

Station Configuration

<b>UNIT</b>	<b>DMM</b>	<b>PRT</b>
MODEL 3605A	MODEL HP34401A	MODEL 5628
SN A1001	SN 4886	SN 2011
MFR KNC	MFR HP	MFR Fluke
DATE M6_D19_Y2022	DATE M1_D1_Y2025	DATE M1_D1_Y2025
-----		
GIPIB Parameters:	GIPIB Parameters:	ITS90 Parameters:
ADDRESS GPIB0::1::INS	ADDRESS GPIB0::6::INS	RTPW 25.49449000
		a4 0.00005302
		b4 0.00000022
		a7 -0.00001053
		b7 0.00004105
		c7 -0.00002272
LOAD SAVE	LOAD SAVE	LOAD SAVE

Status and control

DISCONNECT

MONITOR

STANDARD

CALIBRATION

AUTO STD-CAL

RAMP n SOAK

ABORT

BEEP ☒ Print

**\ NEW TARGET PT**

TARGET 77.00

UNIT 72.42

SPRT/UUT 73.33

+/-DEV -0.91

Units ☒ F ☐ C

SKIP

REPORT

PROGRAM

Messages

```
--LOG: DETECTED PROG <./config/prog/3605A_wellTest_NO_Insolation>
--LOG: STARTING <./config/prog/3605A_wellTest_NO_Insolation>
-----
VanDusen:200.802734, .003974,4.083577
-----
25.0
--LOG: SETNEW
```

Depend on Ramp-and-Soak program configuration, only the unit or both the unit and DMM must be present on the GPIB bus.

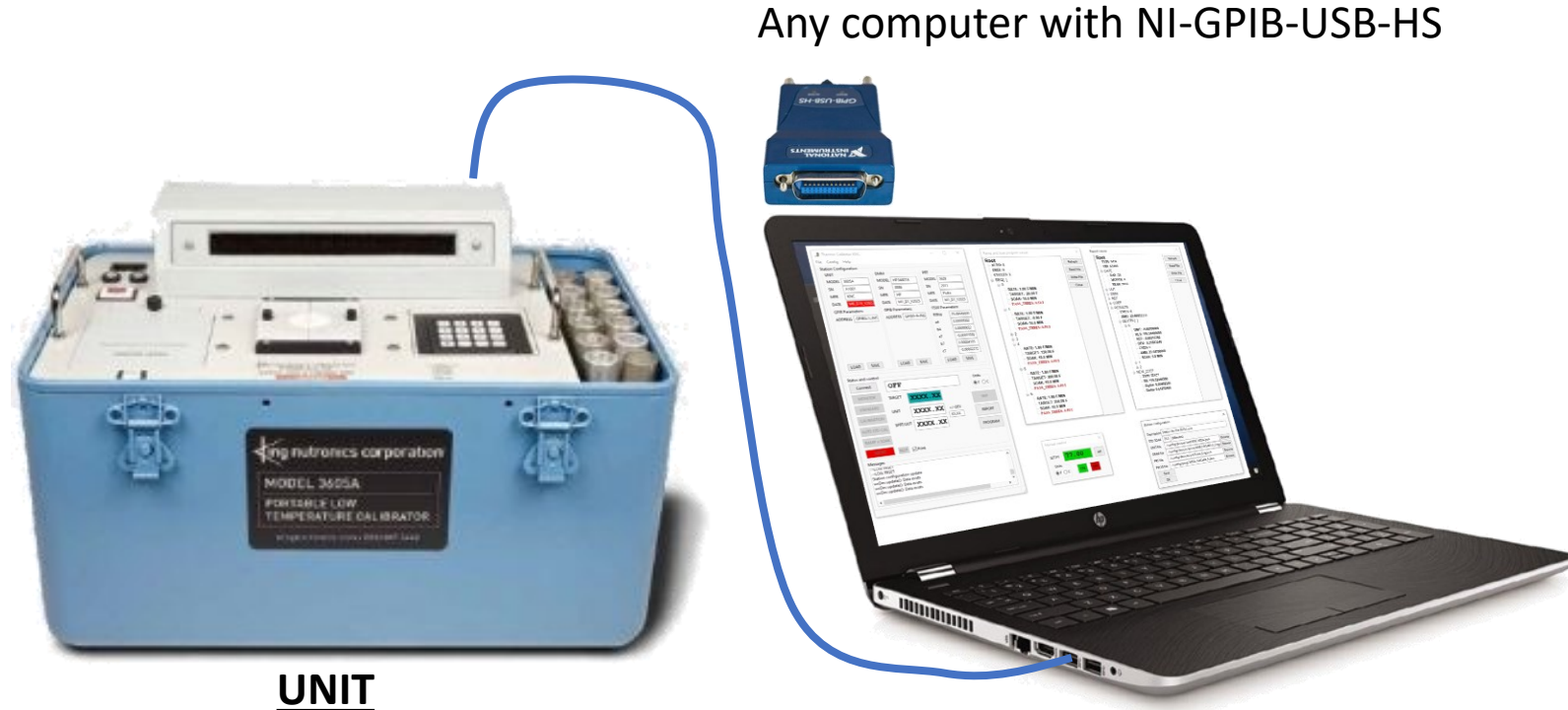
Advance to the next target point.

Show the test report.

Show the test procedure steps.

# WELL PERFORMANCE TESTING

# WELL TESTING STATION CONFIGURATION

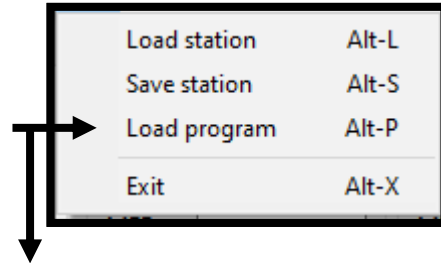


Note: DMM and SPRT are optional and no being used during the well testing procedure.



# Protocol for testing the thermal performance

Load a program and start a “Ramp And Soak” process



<3605A\_wellTest\_NO\_Insolation.json>

FREE = 1: Dwell timer starts immediately after setpoint is set

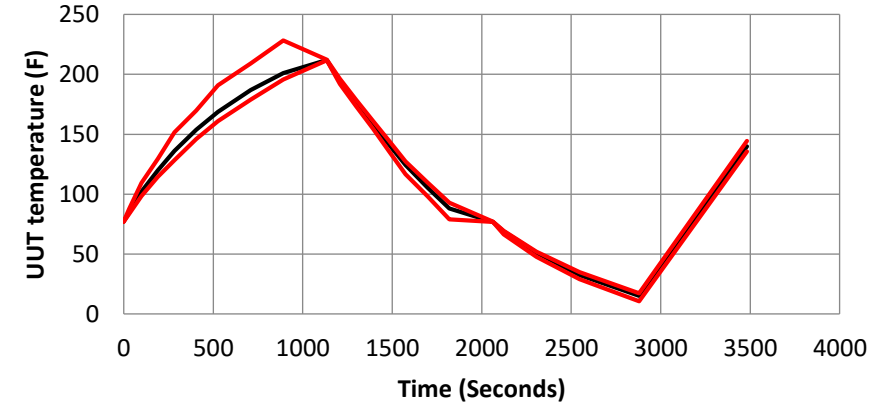
Deviation is calculated between unit and set-point

```
1- {"AUTO": 1,  
2  "FREE": 1,  
3  "DEV":["UNIT","TARGET"],  
4  "CYCLES": 1,  
5- "SEQ": [  
6    {"RATE": 1.0, "TARGET": 25, "SOAK": 2.5, "PASS_THRES":0.1},  
7  
8    {"RATE": 1.0, "TARGET": 30, "SOAK": 0.5, "PASS_THRES":1.2},  
9    {"RATE": 1.0, "TARGET": 40, "SOAK": 1.1, "PASS_THRES":3.0},  
10   {"RATE": 1.0, "TARGET": 50, "SOAK": 1.5, "PASS_THRES":4.2},  
11   {"RATE": 1.0, "TARGET": 60, "SOAK": 1.5, "PASS_THRES":6.4},  
12   {"RATE": 1.0, "TARGET": 70, "SOAK": 2.0, "PASS_THRES":6.6},  
13   {"RATE": 1.0, "TARGET": 80, "SOAK": 2.0, "PASS_THRES":8.3},  
14   {"RATE": 1.0, "TARGET": 90, "SOAK": 3.0, "PASS_THRES":8.4},  
15   {"RATE": 1.0, "TARGET": 100, "SOAK": 3.0, "PASS_THRES":9.0},  
16  
17   {"RATE": 1.0, "TARGET": 100, "SOAK": 4.0, "PASS_THRES":0.1},  
18   {"RATE": 1.0, "TARGET": 90, "SOAK": 1.2, "PASS_THRES":1.2},  
19   {"RATE": 1.0, "TARGET": 80, "SOAK": 1.5, "PASS_THRES":1.5},  
20   {"RATE": 1.0, "TARGET": 70, "SOAK": 1.5, "PASS_THRES":1.8},  
21   {"RATE": 1.0, "TARGET": 60, "SOAK": 1.5, "PASS_THRES":2.4},  
22   {"RATE": 1.0, "TARGET": 50, "SOAK": 1.5, "PASS_THRES":3.0},  
23   {"RATE": 1.0, "TARGET": 40, "SOAK": 2.0, "PASS_THRES":3.2},  
24   {"RATE": 1.0, "TARGET": 30, "SOAK": 2.0, "PASS_THRES":3.9},  
25  
26   {"RATE": 1.0, "TARGET": 25, "SOAK": 4.0, "PASS_THRES":0.1},  
27   {"RATE": 1.0, "TARGET": 20, "SOAK": 1.0, "PASS_THRES":0.8},  
28   {"RATE": 1.0, "TARGET": 10, "SOAK": 3.0, "PASS_THRES":1.2},  
29   {"RATE": 1.0, "TARGET": 0, "SOAK": 4.0, "PASS_THRES":1.6},  
30   {"RATE": 1.0, "TARGET": -10, "SOAK": 5.5, "PASS_THRES":1.8},  
31  
32   {"RATE": 1.0, "TARGET": 60, "SOAK": 10, "PASS_THRES":2.4}  
33 ]  
34 }
```

## Results of good well

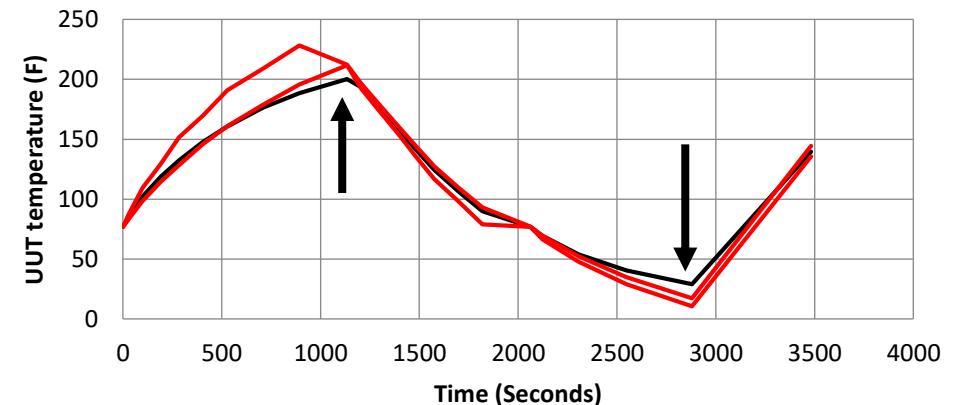
Red lines indicate minimum and maximum acceptance criteria  
Black line indicates the measured well's temperature

### Temperature profile



## Results of defective well

### Temperature profile



# Test Report

Double click "**Root**" to expand

Type of test  
STD, CAL, MEAS

Station  
configuration  
during the test

Average ambient  
temperature  
during the test

Measurements at  
each temperature  
point

In case of  
standardization,  
the new calculated  
coefficients

Report viewer

**Root**

- TYPE: STD
- UID: A1001
- DATE
  - DAY: 20
  - MONTH: 4
  - YEAR: 2022
- UUT
- DMM
- REF
- COEF
- RESULTS
  - UNITS: C
  - AMB: 22.66433333
  - DEVTBL[...]
    - 0
      - UNIT: -5.00100000
      - RES: 195.54400000
      - REF: -4.68216760
      - DEV: -0.31883240
      - UNITS: C
      - AMB: 23.64700000
      - SOAK: 5.0 MIN
    - 1
    - 2
  - NEW\_COEF
    - TYPE: ITS27
    - R0: 199.32446300
    - Alpha: 0.00402500
    - Delta: 0.61272400

Refresh

Read File

Write File

Close

Export .xlsx

Refresh the report of a running test

Read a saved report

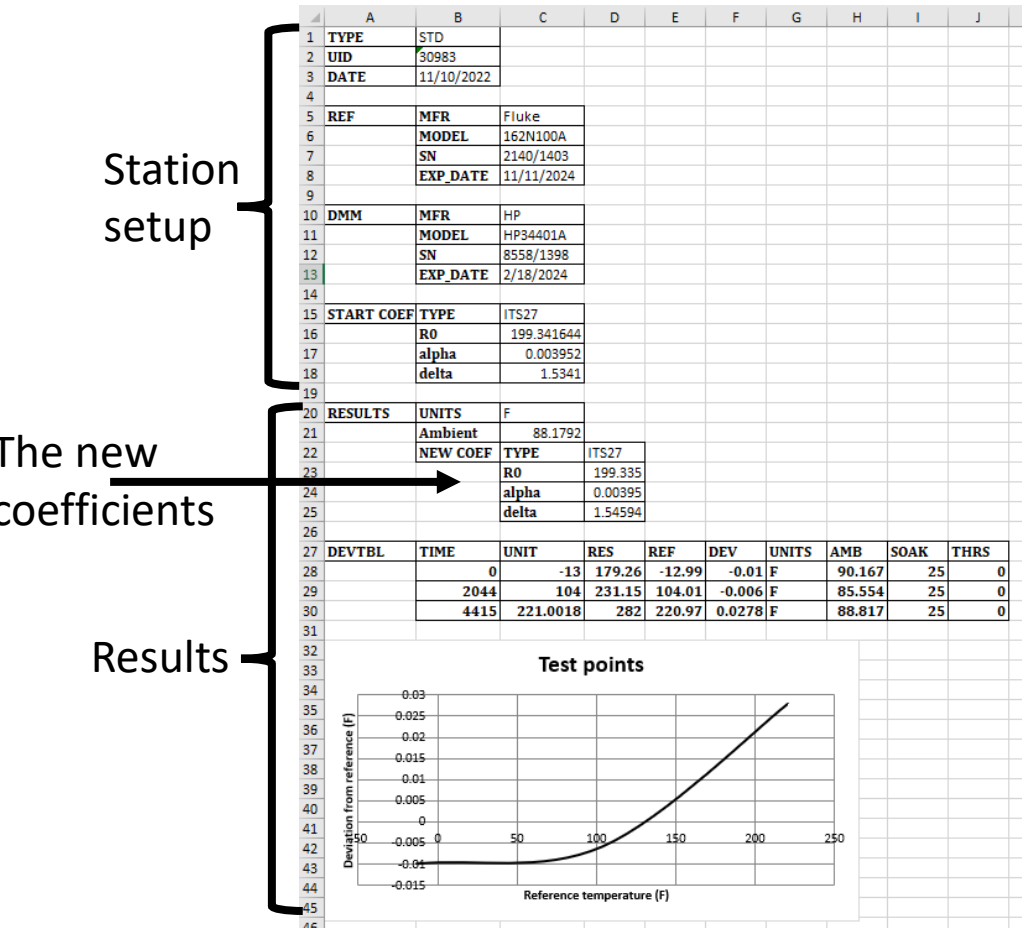
Save the report to a JSON file

Generate an excel report file

Note: The reports can displayed in °C or °F units. Select the desired units in the application's main screen before opening the report viewer windows.

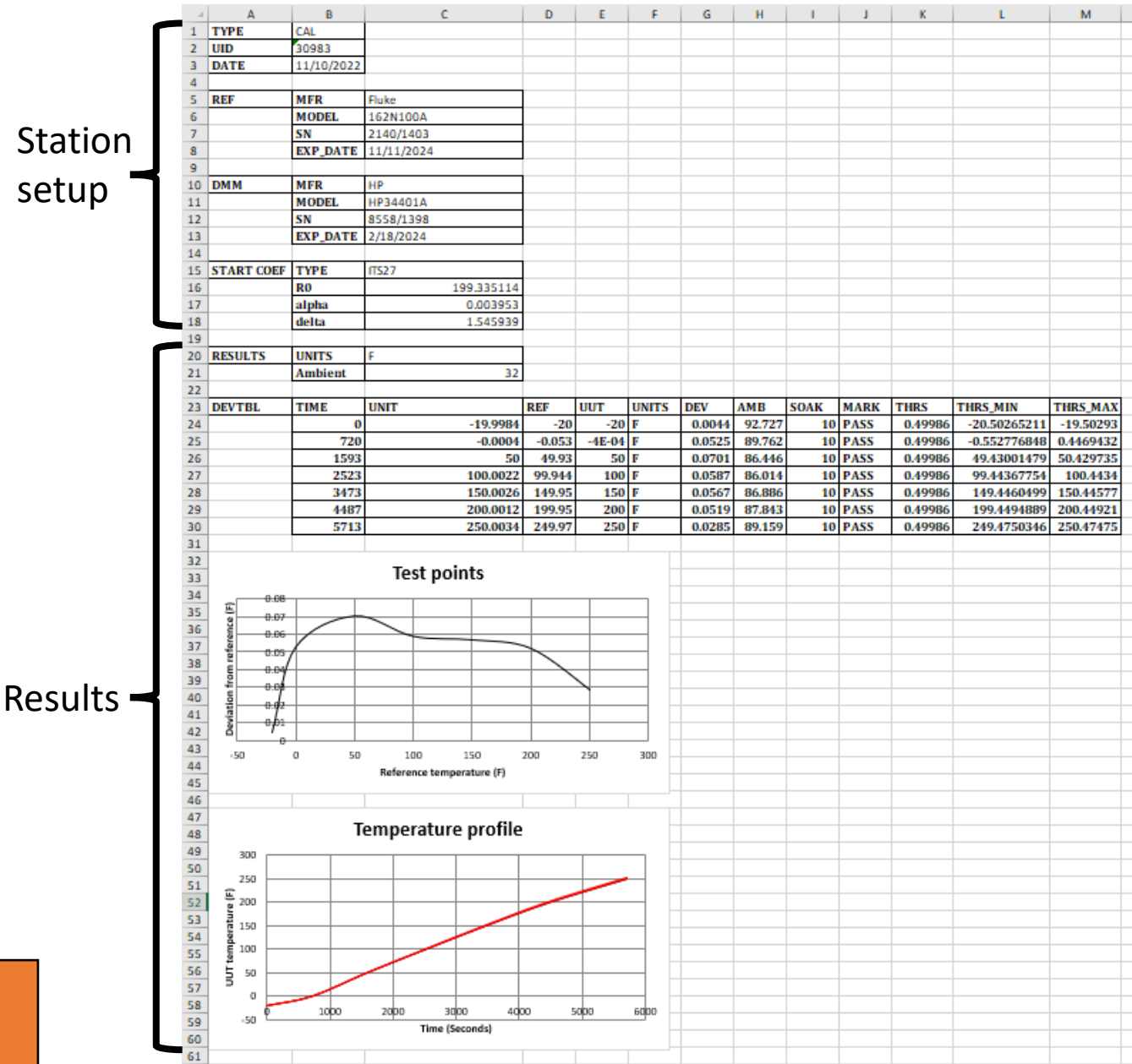


# Standardization report in excel format



Note: The reports can be generated in °C or °F units, depends on the Report viewer window.

# Calibration report in excel format



# INSTALATION

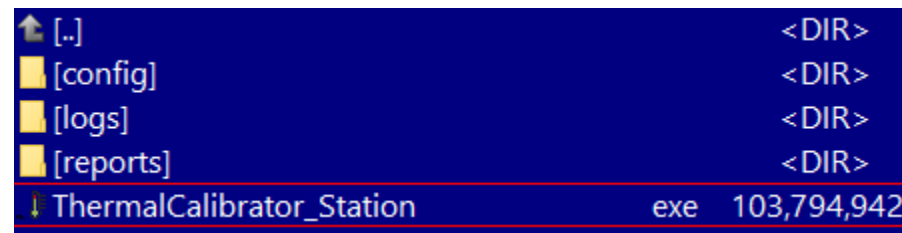
1. Download and install the NI IEEE488.2 drivers for windows

<https://www.ni.com/en-us/support/downloads/drivers/download.ni-488-2.html#467646>

2. Download the ThermoCalibrator application

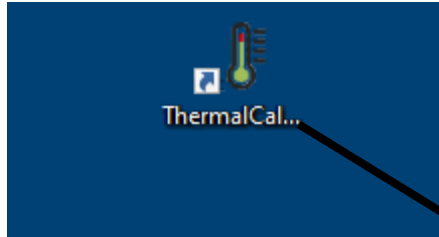
[https://drive.google.com/file/d/1KcgN22rnByD-dbM9KaY9K4KyVqcFsqsT/view?usp=share\\_link](https://drive.google.com/file/d/1KcgN22rnByD-dbM9KaY9K4KyVqcFsqsT/view?usp=share_link)

3. Unzip the ThermoCalibrator files into the desired folder

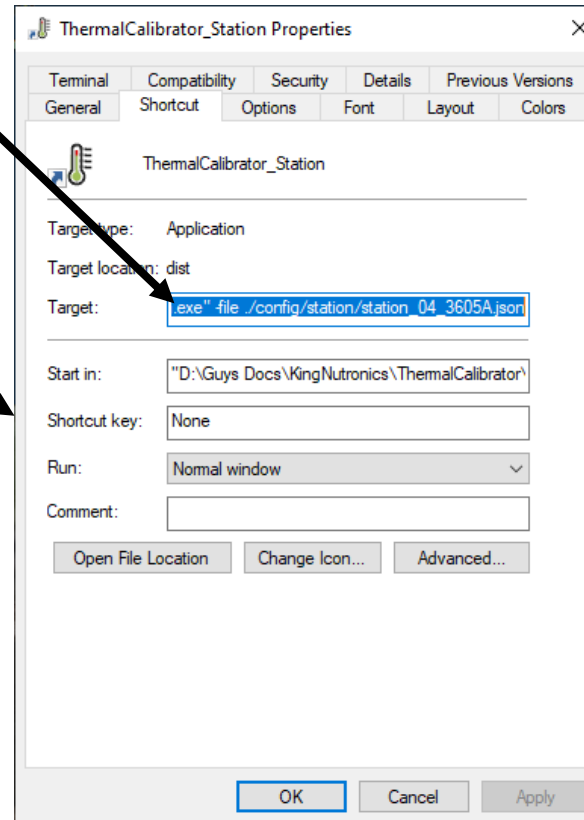


4. Make a shortcut on the desktop. The link can include the station configuration file to load on start.

```
"D:\KNC\ThermalCalibrator\ThermalCalibrator_Station.exe" -file ./config/station/station_04_3605A.json
```



Right click and select  
***"Properties"***



The path and file name of  
the station configuration  
file to load on start