

Thursday, June 10, 2021, Time 14:17

Wintherm32v3 Version 3.31.143 Uni

Instrument: F200s

Instrument Program Version 290

Instrument Serial Number: 2520

Sample Name: A1-F4-20210610

Thickness: 37.89mm

Rear Left : 37.85 mm

Rear Right : 37.90 mm

Front Left: 37.90 mm

Front Right: 37.92 mm

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Thickness obtained : from instrument

TEST RUN

Calibration used : User Type

Calibration File Id: IRMMCalibration_sn2520

Number of transducers per plate: 1

Number of transducers used per plate: 1

Number of Setpoints: 3

Setpoint duration: 89 min

Block Averages for setpoint 1 in SI units

| | Tupper [°C] | Tlower [°C] | Qupper [μV] | Qlower [μV] | Lambda [W/mK] | SampleU [°C] | SampleL [°C] |
|------|----------------|----------------|----------------|----------------|------------------|-----------------|-----------------|
| -ne- | 16.05 | 24.60 | -11863 | 4012 | 1.732 | 19.39 | 23.87 |
| -ne- | 15.00 | 24.96 | -6737 | 2001 | 0.6134 | 17.39 | 24.38 |
| -te- | 15.00 | 25.01 | -5425 | 2374 | 0.5215 | 16.96 | 24.30 |
| -te- | 15.00 | 25.01 | -4850 | 2791 | 0.5062 | 16.75 | 24.17 |
| -te- | 15.00 | 25.01 | -4500 | 3112 | 0.5028 | 16.63 | 24.06 |
| -te- | 15.00 | 25.01 | -4274 | 3333 | 0.5015 | 16.54 | 24.00 |
| -te- | 15.00 | 25.01 | -4126 | 3474 | 0.5003 | 16.49 | 23.95 |
| -te- | 15.00 | 25.01 | -4019 | 3580 | 0.4998 | 16.45 | 23.92 |
| -te- | 15.00 | 25.01 | -3961 | 3635 | 0.4991 | 16.42 | 23.90 |
| -te- | 15.01 | 25.01 | -3909 | 3684 | 0.4987 | 16.41 | 23.89 |
| -te- | 15.01 | 25.01 | -3883 | 3707 | 0.4983 | 16.39 | 23.88 |
| -pe- | 15.00 | 25.01 | -3869 | 3720 | 0.4983 | 16.39 | 23.87 |
| -pe- | 15.00 | 25.01 | -3852 | 3734 | 0.4979 | 16.38 | 23.87 |
| -pe- | 15.00 | 25.01 | -3842 | 3743 | 0.4978 | 16.38 | 23.87 |
| -pe- | 15.00 | 25.01 | -3834 | 3747 | 0.4974 | 16.38 | 23.87 |
| -pe- | 15.00 | 25.01 | -3828 | 3751 | 0.4973 | 16.38 | 23.86 |
| -pe- | 15.00 | 25.01 | -3826 | 3750 | 0.4972 | 16.38 | 23.87 |
| -pe- | 15.00 | 25.01 | -3822 | 3754 | 0.4970 | 16.38 | 23.87 |
| -pe- | 15.00 | 25.01 | -3820 | 3755 | 0.4969 | 16.37 | 23.86 |
| -pe- | 15.00 | 25.01 | -3817 | 3756 | 0.4965 | 16.37 | 23.87 |
| -pe- | 15.01 | 25.01 | -3819 | 3754 | 0.4966 | 16.37 | 23.87 |

Thursday, June 10, 2021, Time 15:46

Setpoint No. 1

Setpoint Upper: 15.00 °C

Setpoint Lower: 25.00 °C

Temperature Upper: 16.37 °C

CalibFactor Upper: 0.025935

Results Upper: 0.5008 W/mK

Temperature Lower: 23.87 °C

CalibFactor Lower: 0.025942

Results Lower: 0.4925 W/mK

Percent Difference: 1.66%

Thermal Equilibrium Criteria:

Temperature Equilibrium: 0.20

Between Block HFM Equil.: 49

HFM Percent Change: 2.00

Min Number of Blocks: 4

Calculation Blocks: 3

Setpoint duration: 97 min

Block Averages for setpoint 2 in SI units

| | Tupper [°C] | Tlower [°C] | Qupper [μV] | Qlower [μV] | Lambda [W/mK] | SampleU [°C] | SampleL [°C] |
|------|----------------|----------------|----------------|----------------|------------------|-----------------|-----------------|
| -ne- | 10.20 | 20.08 | -11769 | -5029 | 1.160 | 13.78 | 20.93 |
| -te- | 10.00 | 20.00 | -7078 | 414 | 0.5103 | 12.66 | 19.93 |
| -te- | 10.00 | 20.00 | -6006 | 1410 | 0.5003 | 12.25 | 19.59 |
| -te- | 10.00 | 20.00 | -5257 | 2151 | 0.4966 | 11.97 | 19.36 |
| -te- | 10.00 | 20.00 | -4741 | 2656 | 0.4941 | 11.79 | 19.20 |
| -te- | 10.00 | 20.00 | -4401 | 3000 | 0.4929 | 11.66 | 19.09 |
| -te- | 10.00 | 20.01 | -4178 | 3224 | 0.4920 | 11.57 | 19.02 |
| -te- | 10.00 | 20.00 | -4023 | 3377 | 0.4912 | 11.52 | 18.97 |
| -te- | 10.00 | 20.01 | -3921 | 3479 | 0.4908 | 11.48 | 18.94 |
| -te- | 10.00 | 20.00 | -3856 | 3543 | 0.4905 | 11.45 | 18.91 |
| -te- | 10.01 | 20.01 | -3814 | 3586 | 0.4903 | 11.44 | 18.90 |
| -pe- | 10.00 | 20.00 | -3791 | 3608 | 0.4902 | 11.43 | 18.89 |
| -pe- | 10.00 | 20.00 | -3764 | 3635 | 0.4901 | 11.41 | 18.88 |
| -pe- | 10.00 | 20.00 | -3748 | 3650 | 0.4903 | 11.41 | 18.87 |
| -pe- | 10.00 | 20.00 | -3735 | 3665 | 0.4900 | 11.41 | 18.88 |
| -pe- | 10.00 | 20.00 | -3729 | 3670 | 0.4899 | 11.40 | 18.87 |
| -pe- | 10.00 | 20.00 | -3728 | 3670 | 0.4897 | 11.40 | 18.88 |
| -pe- | 10.00 | 20.00 | -3724 | 3673 | 0.4897 | 11.40 | 18.87 |
| -pe- | 10.00 | 20.00 | -3721 | 3677 | 0.4899 | 11.40 | 18.87 |
| -pe- | 10.00 | 20.00 | -3718 | 3679 | 0.4897 | 11.40 | 18.87 |
| -pe- | 10.00 | 20.01 | -3719 | 3678 | 0.4896 | 11.40 | 18.87 |
| -pe- | 10.00 | 20.00 | -3717 | 3679 | 0.4897 | 11.40 | 18.87 |
| -pe- | 10.01 | 20.01 | -3718 | 3676 | 0.4895 | 11.40 | 18.87 |

Thursday, June 10, 2021, Time 17:24

Setpoint No. 2
Setpoint Upper: 10.00 °C
Setpoint Lower: 20.00 °C
Temperature Upper: 11.40 °C
CalibFactor Upper: 0.026229
Results Upper: 0.4946 W/mK
Temperature Lower: 18.87 °C
CalibFactor Lower: 0.025977
Results Lower: 0.4846 W/mK
Percent Difference: 2.05%

Thermal Equilibrium Criteria:

Temperature Equilibrium: 0.20
Between Block HFM Equil.: 49
HFM Percent Change: 2.00
Min Number of Blocks: 4
Calculation Blocks: 3

Setpoint duration: 97 min

Block Averages for setpoint 3 in SI units

| | Tupper [°C] | Tlower [°C] | Qupper [μV] | Qlower [μV] | Lambda [W/mK] | SampleU [°C] | SampleL [°C] |
|------|----------------|----------------|----------------|----------------|------------------|-----------------|-----------------|
| -ne- | 5.30 | 15.13 | -11451 | -4888 | 1.152 | 8.92 | 15.97 |
| -ne- | 4.95 | 14.92 | -6958 | 321 | 0.5067 | 7.70 | 14.89 |
| -te- | 5.00 | 15.00 | -5870 | 1397 | 0.4982 | 7.31 | 14.60 |
| -te- | 5.00 | 15.00 | -5128 | 2113 | 0.4925 | 7.03 | 14.36 |
| -te- | 5.00 | 15.00 | -4629 | 2604 | 0.4893 | 6.84 | 14.21 |
| -te- | 5.00 | 15.00 | -4296 | 2938 | 0.4878 | 6.71 | 14.10 |
| -te- | 5.00 | 15.00 | -4079 | 3162 | 0.4871 | 6.62 | 14.03 |
| -te- | 5.00 | 15.01 | -3928 | 3314 | 0.4865 | 6.57 | 13.98 |
| -te- | 5.00 | 15.01 | -3829 | 3409 | 0.4857 | 6.53 | 13.95 |
| -te- | 5.00 | 15.01 | -3765 | 3478 | 0.4857 | 6.50 | 13.93 |
| -te- | 5.00 | 15.01 | -3722 | 3522 | 0.4856 | 6.49 | 13.91 |
| -pe- | 5.00 | 15.00 | -3701 | 3540 | 0.4855 | 6.48 | 13.90 |
| -pe- | 4.99 | 15.00 | -3677 | 3565 | 0.4854 | 6.47 | 13.89 |
| -pe- | 4.99 | 15.00 | -3661 | 3581 | 0.4852 | 6.46 | 13.89 |
| -pe- | 5.00 | 15.00 | -3655 | 3589 | 0.4854 | 6.46 | 13.89 |
| -pe- | 5.00 | 15.00 | -3648 | 3597 | 0.4853 | 6.46 | 13.88 |
| -pe- | 5.00 | 15.00 | -3642 | 3603 | 0.4852 | 6.45 | 13.88 |
| -pe- | 5.00 | 15.00 | -3644 | 3603 | 0.4852 | 6.45 | 13.89 |

| | | | | | | | |
|------|------|-------|-------|------|--------|------|-------|
| -pe- | 5.00 | 15.00 | -3642 | 3605 | 0.4851 | 6.45 | 13.89 |
| -pe- | 5.00 | 15.00 | -3640 | 3607 | 0.4851 | 6.45 | 13.89 |
| -pe- | 5.00 | 15.01 | -3638 | 3608 | 0.4849 | 6.45 | 13.89 |
| -pe- | 5.00 | 15.00 | -3638 | 3608 | 0.4850 | 6.45 | 13.89 |
| -pe- | 5.00 | 15.01 | -3640 | 3605 | 0.4847 | 6.45 | 13.89 |

Thursday, June 10, 2021, Time 19:02

Setpoint No. 3
Setpoint Upper: 5.00 °C
Setpoint Lower: 15.00 °C
Temperature Upper: 6.45 °C
CalibFactor Upper: 0.026523
Results Upper: 0.4917 W/mK
Temperature Lower: 13.89 °C
CalibFactor Lower: 0.026010
Results Lower: 0.4780 W/mK
Percent Difference: 2.83%

Thermal Equilibrium Criteria:
Temperature Equilibrium: 0.20
Between Block HFM Equil.: 49
HFM Percent Change: 2.00
Min Number of Blocks: 4
Calculation Blocks: 3

Results Table -- SI Units

| Mean Temp | Upper Cond | Lower Cond | Average Cond |
|-----------|------------|------------|--------------|
| 20.12 | 0.5008 | 0.4925 | 0.4967 |
| 15.14 | 0.4946 | 0.4846 | 0.4896 |
| 10.17 | 0.4917 | 0.4780 | 0.4849 |