



PHOENIX™

Wicket Profiling System

Presented by Mr. Satit Pumpruk | 15 January 2020



? ? ?



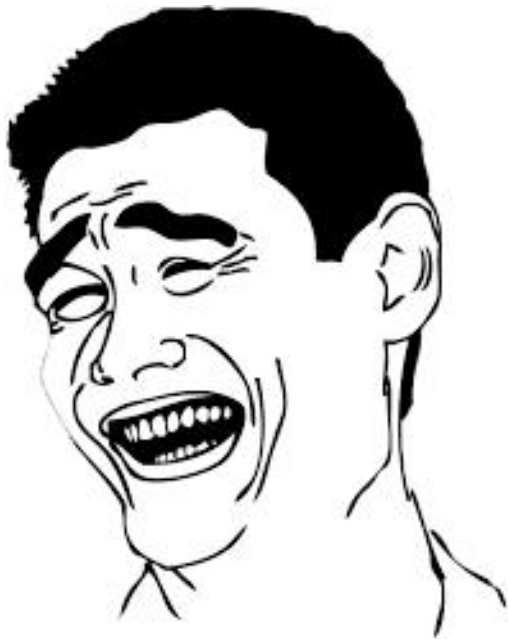
Thru-process Temperature Profile System

เทคโนโลยีบันทึกอุณหภูมิแบบติดตามสินค้า

คืออะไร ??

1. No check

- Does not know reliable of equipments.
- Cannot control product quality.
- Most urgent problems, no plan for PM.



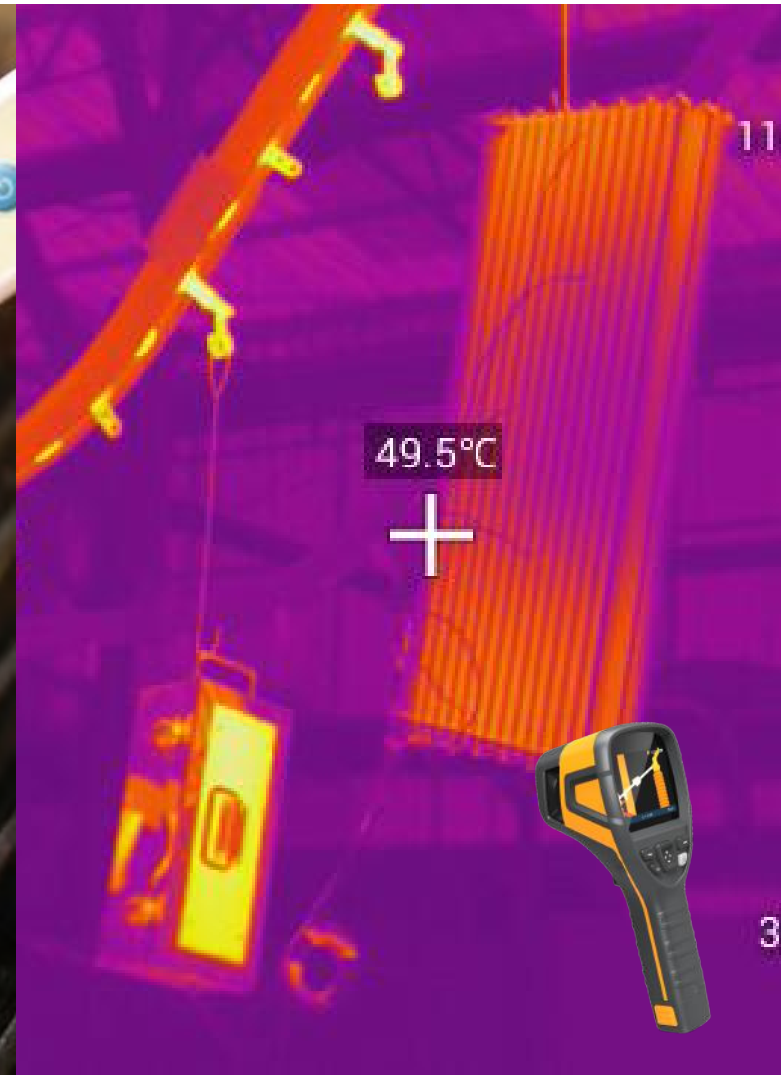
2. Thermometer

- Know just only final temperature, just some points.
- How to estimate heat up rate, max temp, time above ?



3. Non-contact Thermometer

- Does not know core temp.
- Know just surface temperature which error by surface emissivity, not accurate as wire thermocouple.



4. Install Oven Recorder

ติดตั้งเซ็นเซอร์วัดอุณหภูมิอากาศ ไว้
ที่ผนังเตา ตลอดความยาวเตาอบ

อุณหภูมิอากาศในแต่ละตำแหน่งของเตาส่งผล
ต่ออุณหภูมิชิ้นงาน วิธีที่ 4 จะไม่ทราบใช้ปรับ
ตั้งเตาได้ให้มีอุณหภูมิที่ใกล้เคียงได้ จะใช้เพื่อดู
เสถียรภาพของเตาเท่านั้น นอกจากนี้ ยังไม่
ทราบอุณหภูมิของชิ้นงาน



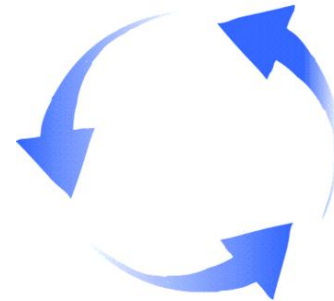
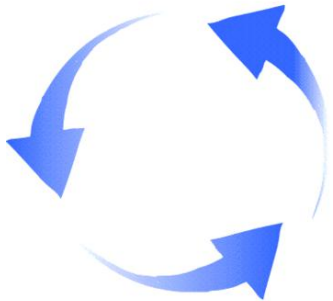
5. Triling Lead

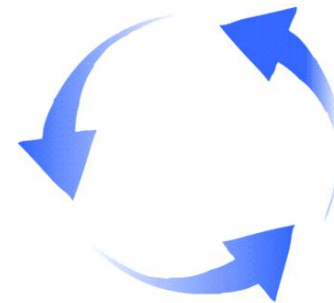
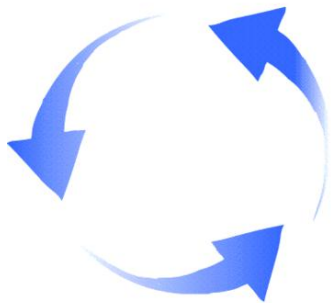
ติดตั้งเซ็นเซอร์วัดอุณหภูมิไว้กับชิ้นงาน
หรือ Jig และปล่อยเข้าเตาอบ เมื่อชิ้นงาน
ออกจากเตาแล้วปลดสายและดึงสายกลับ

- สายจะชำรุดง่ายเมื่อดึงกลับ
- สายอาจจะหลุดจากชิ้นงานได้หากปล่อยสาย
ไม่สัมพันธ์กับความเร็วย้ายพาน
- มีข้อจำกัดหากไม่ใช่เตา Batch หรือ
Strength Continous จะทำได้ยาก
- สายมีโอกาสติดพันสายพาน
- ต้องแฉมประตูเตาเอาไว้ เพื่อให้สายเข้า
อาจส่งผลให้ค่าที่วัดได้ต่ำกว่าจริง

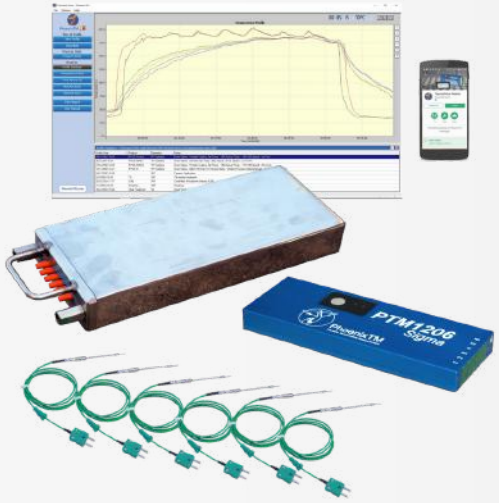
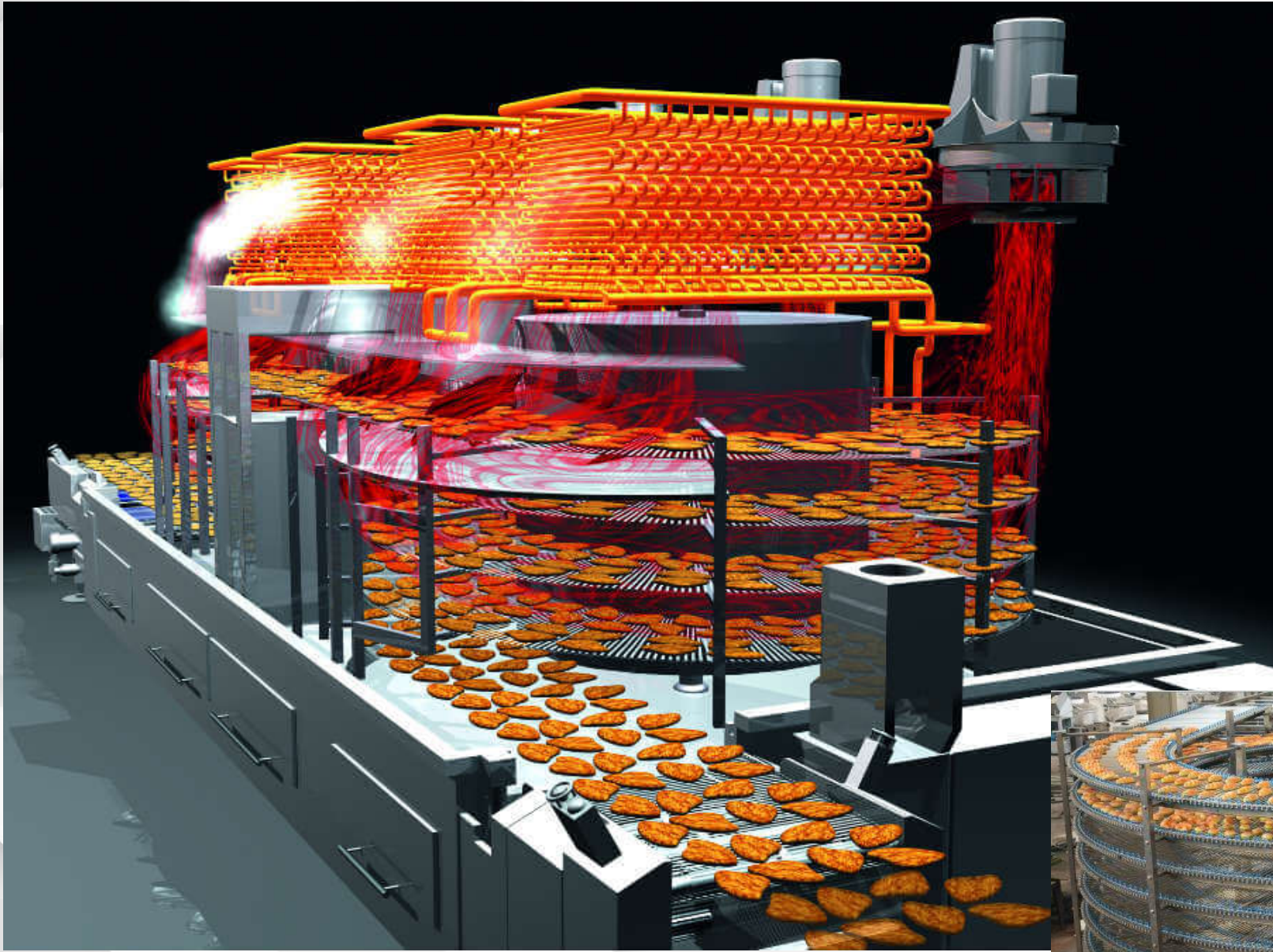


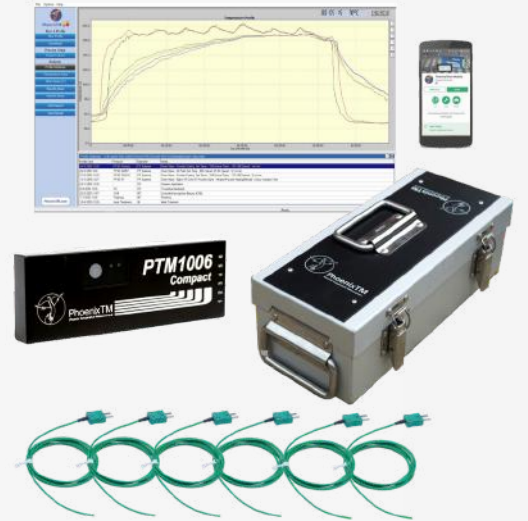


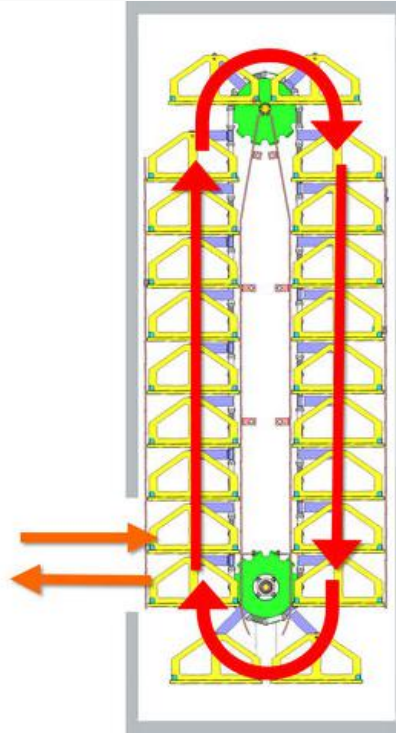
















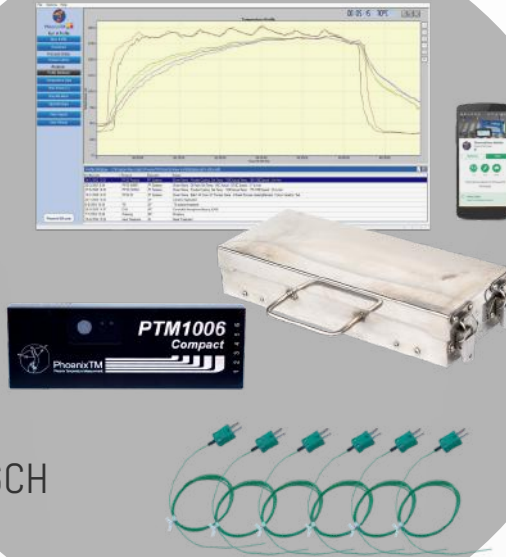
1

ECONOMIC
COST SAVING



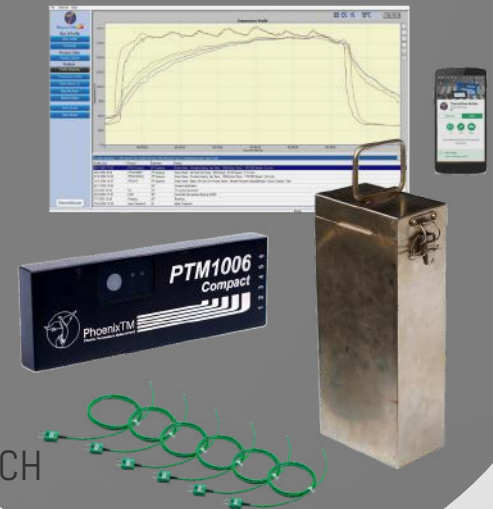
2

ULTRA-LIGHT 6CH



3

STANDARD 6CH





6

PROFESSIONAL



5

STANDARD 10CH



4

LIGHT 10CH

10Ch Wicket Profiling System



Model	PTM1-006-Compact	PTM1-210-K-LT
Channels	6	10
Measurement range	-150°C to 500°C	0°C to 500°C
Thermocouple type	K	K
Logger accuracy	± 0.3°C	± 0.3°C
Resolution	0.1°C	0.1°C
Logger operating range	0 to 80°C	0 to 80°C
Case	Anodized Aluminum	Anodized Aluminum
Sample interval	0.5s to 60 min	0.2s to 60 min
Battery	2 x 'AA' Alkaline Battery	2 x 'AA' Alkaline Battery
Battery life	up to 400 hr	up to 1,000 hr
Memory	400,000 data point	3.8 million data point
Bluetooth	Not available	 V2.0/V2.1 EDR
Dimension (l x w x h)	170 x 67 x 20 mm	170 x 67 x 20 mm for 6Ch 200 x 95 x 20 mm for 10Ch & 20Ch
Weight	0.2 kg	0.2 kg / 0.5 kg
Computer interface	USB with standard Mini-USB	USB with special COMs cable
Mobile App	Thermal View Mobile 4.0	Thermal View Mobile 4.0
Trigger mode	Start button / Rising Temperature / Date & Time / Start Now	
Stop mode	Stop Button / Date & Time	
Realtime	via USB cable / Bluetooth 10m / <u>RF Telemetry (optional)</u>	
Software language	English, Chinese, French, German, Italian, Korean, Polish, Portuguese, Russian, Spanish, Thai (English), Turkish	
Software license	free license (unlimited installation)	
Calibration certificate	Include	Include

2

SUPER-LIGHT 6CH



3

STANDARD 6CH



1

ECONOMIC COST SAVING



Thermal Barrier Figure

Model	TS04-056-1	TS04-075-1	TS04-113-3
Construction	SUS case with microporous insulation	SUS case with microporous insulation	Aluminium case with microporous insulation
Hanger	Top	Top	Top & Side
Dimension (l x w x h)	316 x 166 x 56 mm	293 x 141 x 75 mm	320 x 161 x 113 mm
Weight	1.50 kg	1.65 kg	3.70 kg
Thermal duration	100°C at 90 mins	100°C at 120 mins	100°C at 7.5 hrs
	150°C at 48 mins	150°C at 78 mins	150°C at 3.5 hrs
	200°C at 39 mins	200°C at 55 mins	200°C at 2.2 hrs
	250°C at 33 mins	250°C at 40 mins	250°C at 1.6 hrs
Accessories	Clip lock x 4 / Hanger Chain x 1	Clip lock x 1 / Hanger Chain x 1	Clip lock x 4

4

SUPER-LIGHT 10CH



5

STANDARD 10CH



6

PROFESSIONAL



Thermal Barrier Figure	 	 	 
Model	TS04-056-2	TS04-075-1911	TS04-113-5
Construction	SUS case with microporous insulation	SUS case with microporous insulation	Aluminium case with microporous insulation
Hanger	Top	Top	Top & Side
Dimension (l x w x h)	316 x 196 x 56 mm	296 x 171 x 75 mm	320 x 185 x 113 mm
Weight	2.45 kg	2.60 kg	4.40 kg
Thermal duration	100°C at 90 mins	100°C at 120 mins	100°C at 10.0 hrs
	150°C at 48 mins	150°C at 78 mins	150°C at 5.0 hrs
	200°C at 39 mins	200°C at 55 mins	200°C at 3.0 hrs
	250°C at 33 mins	250°C at 40 mins	250°C at 2.0 hrs
Accessories	Clip lock x 4 / Hanger Chain x 1	Clip lock x 1 / Hanger Chain x 1	Clip lock x 4

Thermal Barrier Figure

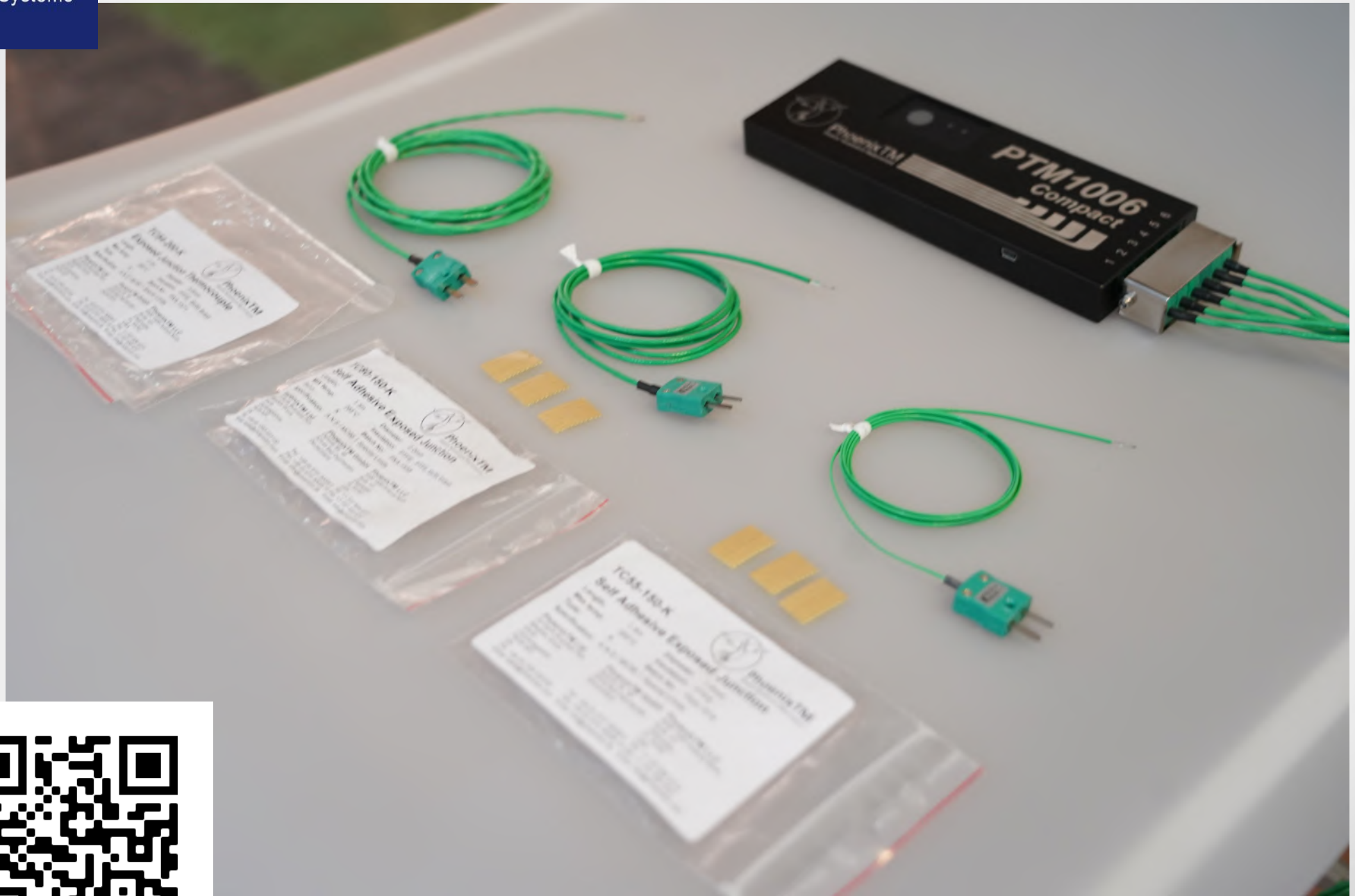


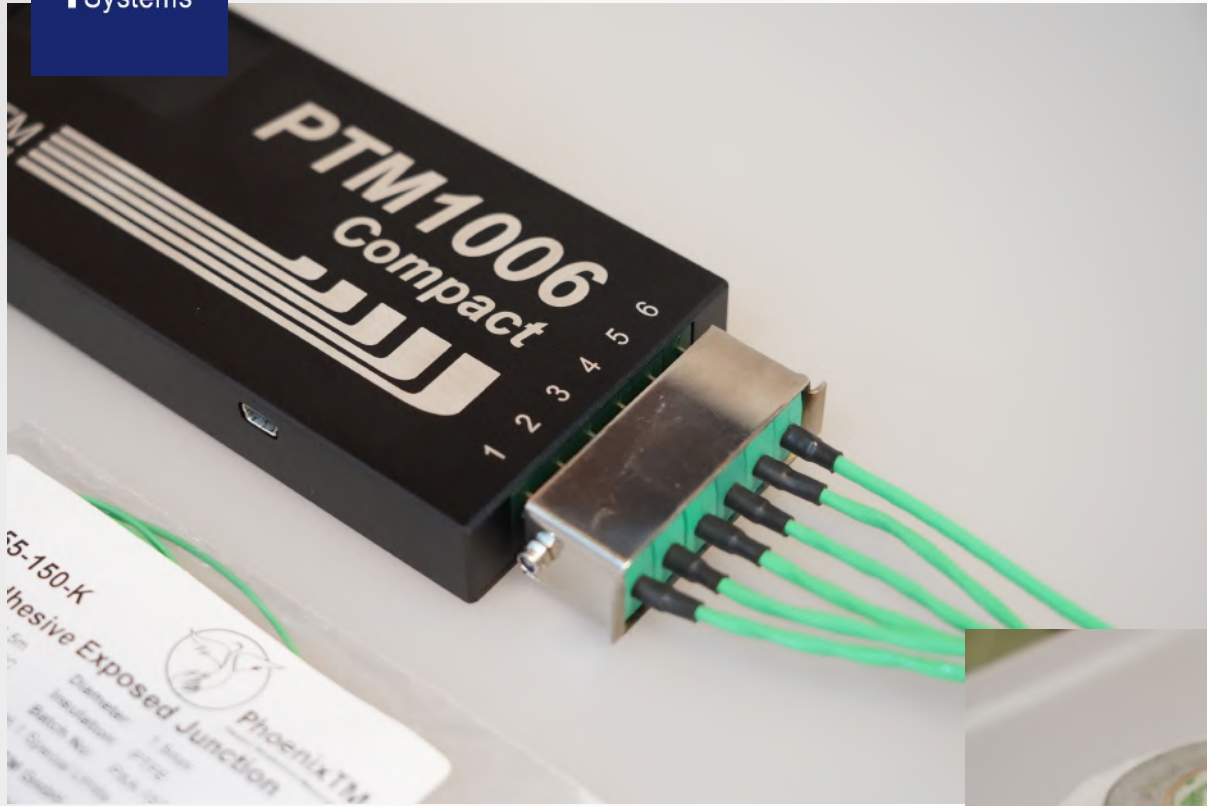
Model	TS04-056-1	TS04-075-1	TS04-113-3
Construction	SUS case with microporous insulation	SUS case with microporous insulation	Alumimium case with microporous insulation
Hanger	Top	Top	Top & Side
Dimension (l x w x h)	316 x 166 x 56 mm	293 x 141 x 75 mm	320 x 161 x 113 mm
Weight	1.50 kg	1.65 kg	3.70 kg
Thermal duration	100°C at 90 mins	100°C at 120 mins	100°C at 7.5 hrs
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Thermal Barrier Figure



Model	TS04-056-2	TS04-075-1911	TS04-113-5
Construction	SUS case with microporous insulation	SUS case with microporous insulation	Alumimium case with microporous insulation
Hanger	Top	Top	Top & Side
Dimension (l x w x h)	316 x 196 x 56 mm	296 x 171 x 75 mm	320 x 185 x 113 mm
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TC55-150-K

Fast response, self adhesive, exposed junction Thermocouple. Type K, single wire 0.2mm dia., double wrapped PTFE insulation.

Maximum Temperature 265°C
Length 1.5 cm long.



TC80-150-K (New! 2018)

Adhesive Patch Round Thermocouple Type K, single wire 0.2mm dia., double wrapped PTFE insulation protection with SUS braid, outer PTFE insulation.

Maximum Temperature 265°C
Length 1.5 cm long.



TC54-150-K

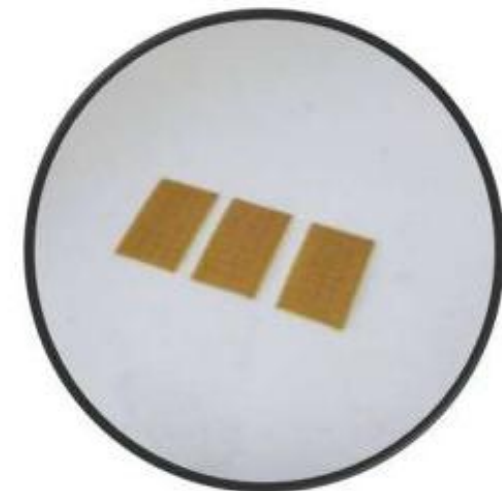
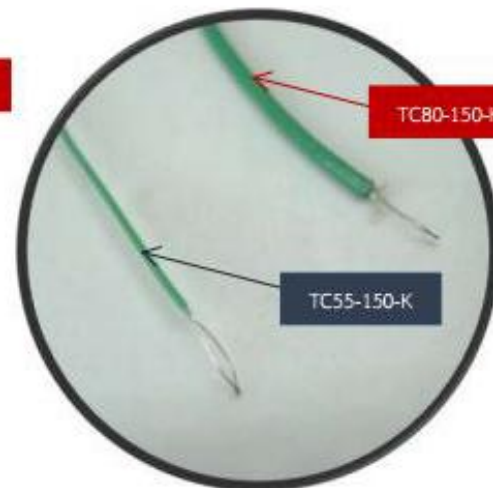
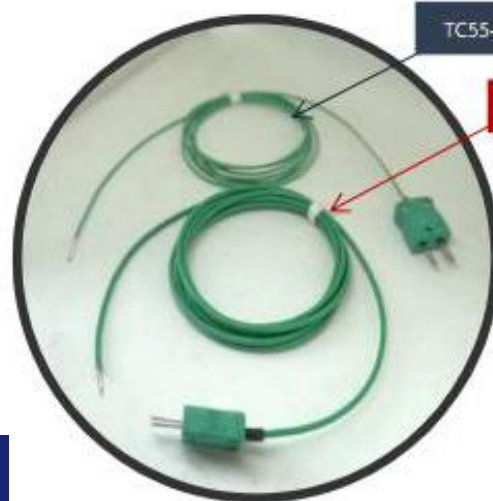
Exposed junction Thermocouple. Type K, 7 strand x 0.2mm triple wrapped insulation, SUS braid, outer PTFE insulation

Maximum Temperature 265°C
Length 1.5 cm long.



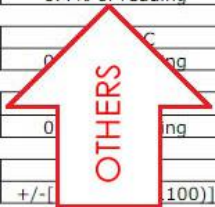
Adhesive Patch Thermocouple

Model	Picture	Specification
TC55-150-K		Fast response, self adhesive, exposed junction Thermocouple. Type K, single wire 0.2mm dia., double wrapped PTFE insulation. Maximum Temperature 265°C Length 1.5 cm long.
TC80-150-K		Adhesive Patch Round Thermocouple (New! 2018 Version). Type K, single wire 0.2mm dia., double wrapped PTFE insulation protection with <u>SUS braid, outer PTFE insulation.</u> Maximum Temperature 265°C Length 1.5 cm long.



Accuracy for thermocouples in accordance with IEC-EN 60584-2 and ASTM E230-ANSI MC96.1

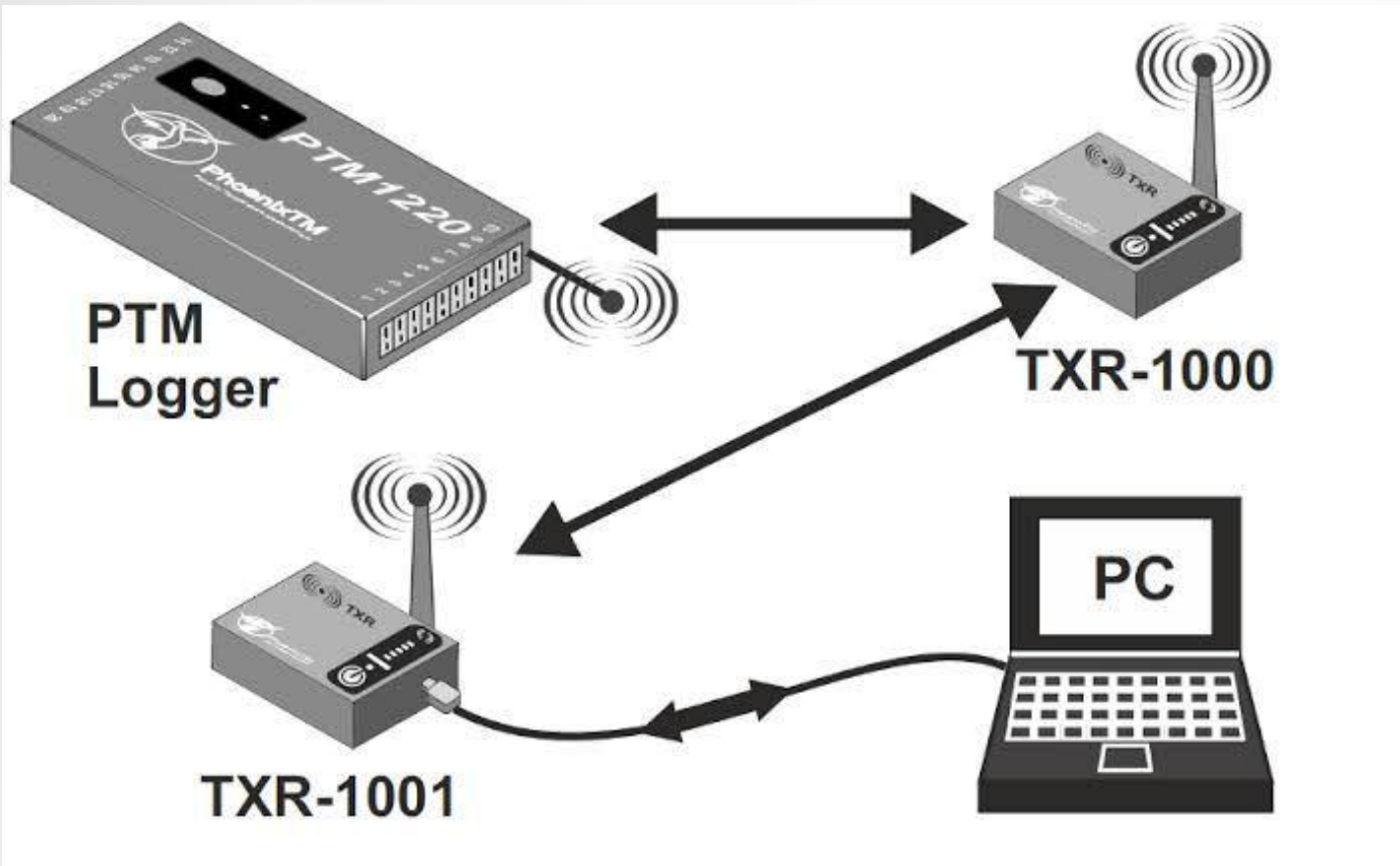
IEC Tolerance class EN60584-2				
TC type	Class 1	Tolerance	Class 2	Tolerance
J	-40 to 375°C	+/-1.5°C	-40 to +333°C	+/- 2.5°C
	375 to 750°C	0.4% of reading	333 to 750°C	0.75% of reading
K-N	-40 to 375°C	+/-1.5°C	-40 to +333°C	+/- 2.5°C
	375 to 1200°C	0.4% of reading	333 to 1200°C	0.75% of reading
T	-40 to 125°C	+/- 0.5°C	-40 to +133°C	+/- 1.0°C
	125 to 350°C	0.1% of reading	133 to 350°C	0.2% of reading
E	-40 to 375°C	+/- 1.5°C	-40 to +333°C	+/- 2.5°C
	375 to 800°C	0.4% of reading	333 to 800°C	0.75% of reading
R-S	0 to 1100°C	+/- 1.5°C	-0 to 600°C	+/- 2.5°C
	1100 to 1600°C	+/- [0.4 + (0.0015 x (T - 1100))] of reading	333 to 800°C	0.75% of reading
B	Not applicable		-0 to 600°C	EMK to small
			600 to 1700°C	0.25% of reading

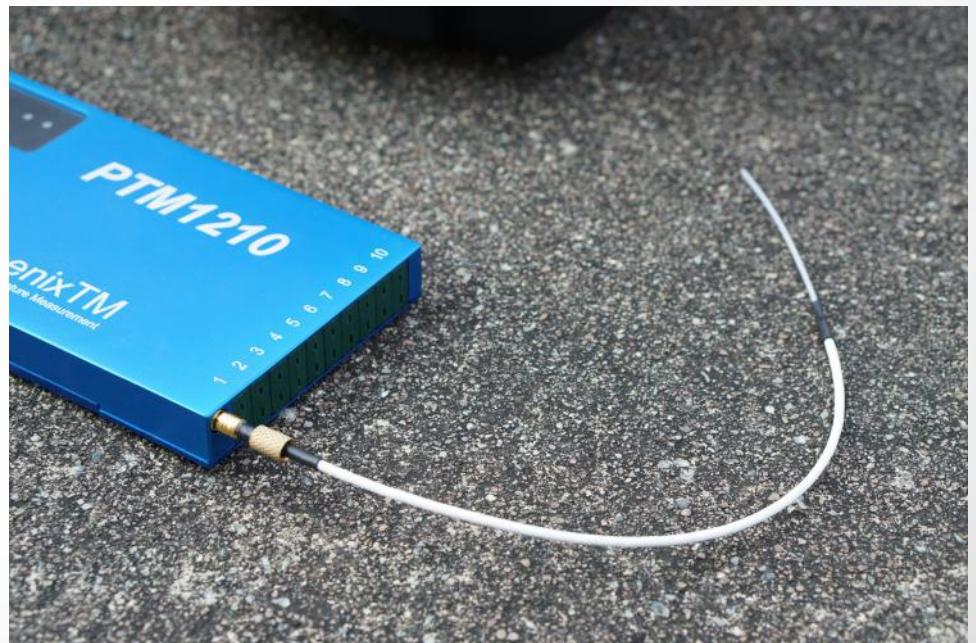


Limits of Error ASTM E230-ANSI MC96.1				
TC type	Special limits	Tolerance	Standard limits	Tolerance
J	0 to 750°C	+/-1.1°C-or 0.4% of reading	0-750	+/- 2.2°C or 0.75% of reading
			-200 to 0°C	+/- 2.2°C or 2% of reading
K	0 to 750°C	+/-1.1°C-or 0.4% of reading	0-750	+/- 2.2°C or 0.75% of reading
T	0 to 350°C	+/-0.5°C or 0.4% of reading	0 to 350°C	+/- 1°C or 0.75% of reading
			-200 to 0°C	+/- 1.0°C or 1.5% of reading
E	0 to 900°C	+/- 1.7°C or 0.5% of reading	0 to 900°C	+/- 1.7°C or 0.5% of reading
			-200 to 0°C	+/- 1.7°C or 1 % of reading

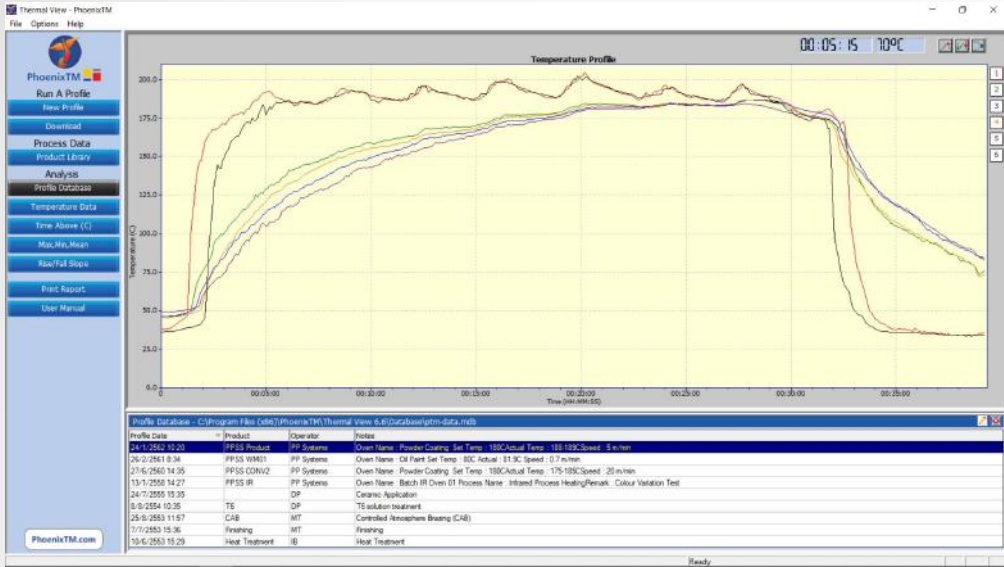


All PhoenixTM thermocouples are manufactured using ANSCI MC96.1 thermocouple wire which has an accuracy of +/-1.1C or +/-04% of the range

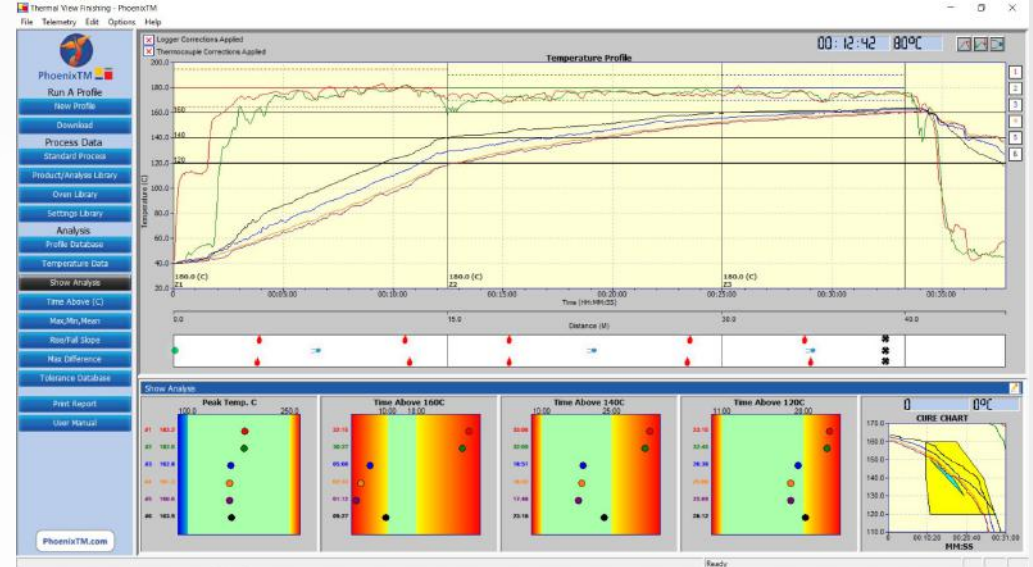




SW05 - Thermal View Software



SW45 - Thermal View Finishing Software



ThermalView Mobile | Android

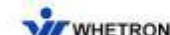
The screenshot shows the ThermalView Mobile app interface on an Android device. The app is titled 'ThermalView Mobile' by PhoenixTM GmbH. It shows device information: Battery Voltage (3.0V), Serial number (2011), Firmware (14.9), Telemetry (YES), and Thermocouples (K). A 'Chart' screen displays a temperature profile graph with multiple curves. A 'Reset Logger' screen shows settings for Sample interval (0.050), Active channels (1-20), Start trigger (Button), Stop trigger (Button), Disable switch (30), and OC Detection (RESET LOGGER).

Software & Application

Oven Customers

Distribution period 2012 - 2019 | Thailand

Low temperature profile system is one of the most popular model. More than hundred Thai customers have proofed that thru-process temperature profile data of air and products combined Phoenix™ engineered analysis software make huge changes such as confirm paint curing, oven cold-spot surveying, preventive maintenance program, oven fault finding, production planing, researches and ect.





Product information



Calibration service



Software training center



Hardware training center



Knowledge base application story

www.ppsystems.co.th

Line official @ppss

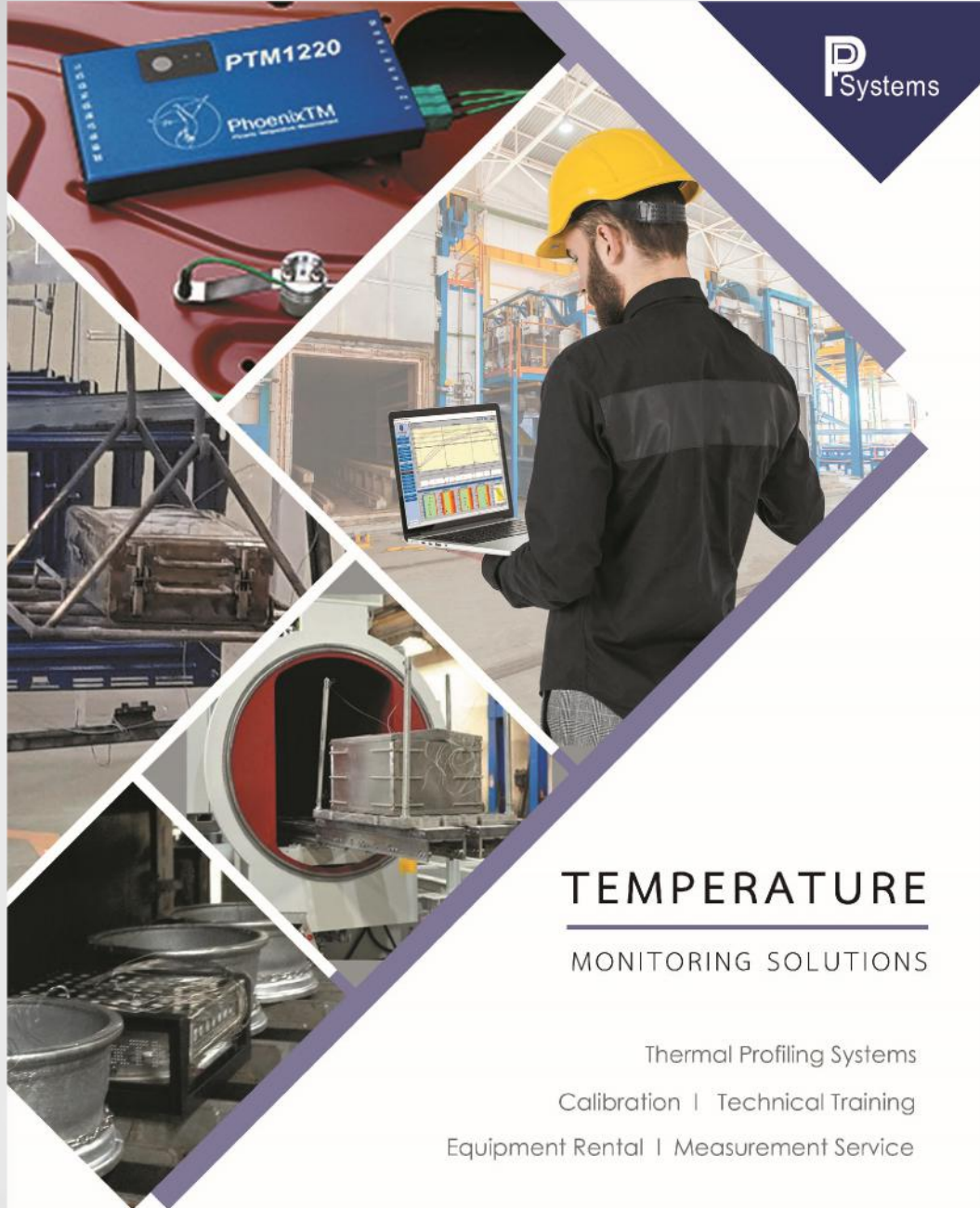


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Thermal Profiling Systems
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Equipment Rental | Measurement Service



Over 30 years' experienced TEMPERATURE PROFILE SYSTEM. We have the know-how you need.



TEMPERATURE

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Product information



Calibration service



Software training center



Hardware training center



Knowledge base application story

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