D3 Wireless temperature alarm & monitoring system family

tek-troniks

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No server or dedicated pc

No ongoing cloud costs or licencing fees.

Fully web based – no software installation necessary

In built reporting and graphing tools

Long range wire-less sensors

User replaceable 5 year battery

Vast array of sensors types

Battery & data-backup for complete data security*

A new monitoring generation

The D3 family of wireless monitoring systems are used across a broad range of market sectors meeting the most stringent standards to assist customers comply with HACCP, BRC, FDA and MRHA legislative requirements. The systems are standalone and connect direct to your business IT network with no need for any dedicated pc, server or specialist installed software. Data from the base station can be viewed direct on the colour touch screen or via a standard web browser.

The base station allows multiple secure connections and data can be viewed on multiple devices from PC's to tablets to mobile phones though its simple to use and intuitive web based interface.

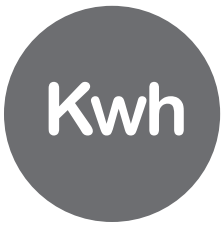
System overview

A typical system comprises of a base station, wireless sensors and where necessary wireless signal repeaters (range extenders). The wireless sensors are paired with the base station to form a secure communication network. If the wireless sensor is not in range of the base station, an optional wireless signal repeater can be added to increase the distance. Multiple repeaters form a mesh network allowing the base station and sensors to communicate over long distances and in complex structures.

Each wireless sensor monitors the sampled factor (e.g. temperature, humidity, pressure) and sends the reading each minute over the wireless network to the base station. The base station reviews the data against pre-set warning and critical alarm parameters as defined by you to generate alarm notifications. All readings are stored in a secure tamperproof format for later review and creation of reports.


Temperature


Humidity



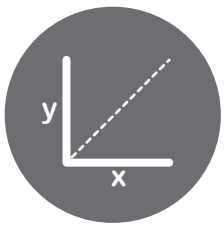
Energy


Door Contact


Pulsed

Concentration (ppm)

Digital Input



Linear (0-10V,4-20mA)

D3 Base Station

The base station collects data from the wireless network. It incorporates a colour touch screen display allowing both real time data and alarm notifications to be viewed. An internal sounder and high brightness LED provide local alarm indication while two configurable volt free contacts provide connections for auto diallers, remote beacons & red care monitored lines.

The base station connects direct to your IT network via a standard CAT 5 Ethernet connection. It's in built barracuda web server interface provides secure controlled access for multiple users across different platforms.

Interface access

The web server interface enables 24/ 7 permission based user access. User management is controlled by one or more system administrators. Each user is automatically allocated a unique electronic signature which along with their details are recorded against each action they make providing total accountability.

The web interface provides access to real time data, alarm notifications, full audit trails, analytical graphing tools and a report generator all via a standard browser.

Monitored devices can be organised into groups. Status page provide real time data together with their operational settings and current status. A tabbed section provides quick view sorted lists enabling the user to quickly highlight potential issues and devices in alarm from a single click.

Alarms and notifications

If the received data falls outside the defined parameters the base station activates an alarm notification. The software can be configured to generate audible warnings, email, SMS text**, trigger beacons and auto diallers and send alarm notifications over IP to 3rd party alarm companies.

Users acknowledge alarms using their passcodes and can add multiple notes to each alarm to detail any actions that have been taken.

All alarm notifications, user acknowledgements and action notes are time stamped and recorded to provide a full audit trail.

Data analysis and reports

A powerful graphing tool allows data from different sensors to be overlaid and viewed over different time periods. Data can also then be printed or exported to a csv file.

In addition to the graphing tool, the system can provide reports to aid with legislative requirements. Reports are created in a PDF format which can be printed and saved.

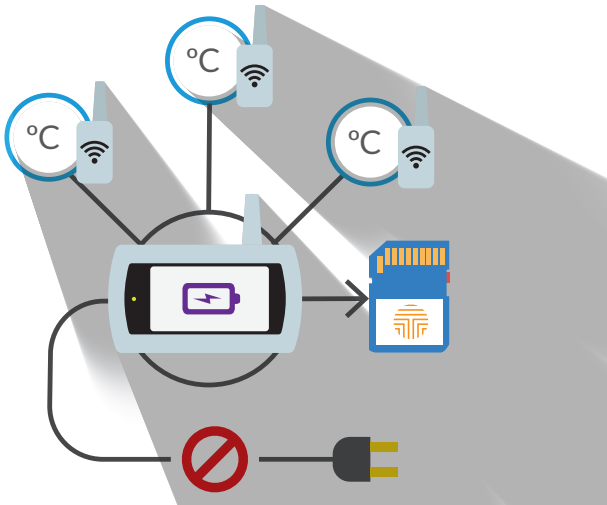
All reports and exported data are date stamped and carry the users name and electronic signature.

The system can produced reports including an overview report which list all the sensors or detailed reports showing each sensor, maximum and minimum values reached, tabular and graphical representation of the data and any alarm notifications for that period.

Data security

For added data security the D3 & D3 Medical have daily automatic data back-up to an integrated industrial grade micro SD card providing 100% data backup. Both normal and backup data can be viewed seamlessly within the system.

In addition both the D3 and D3 Medical have an internal battery back-up as standard to provide up to 12 hours operation in case of a power loss protecting against any loss of data.



Radio transmitters

The D3 wireless sensors cover a comprehensive range of measurements. Our systems supports both our Standard Wireless Temperature sensors and our advanced Intelligent Sensor Ranges. Both types of sensor offer long range operation with user replaceable batteries with excess of 5 years operation.

Standard temperature sensors

Our standard temperature sensor range offers a cost effective option for monitoring temperature. The sensing technology is built into the radio transmitter. Utilising NTC sensors they offer high accuracy with low drift. We offer two sensor types; Radio transmitter with an internal sensor or a radio transmitter with external temperature sensor on a remote cable. Sensors can be supplied with full UKAS calibration certification.

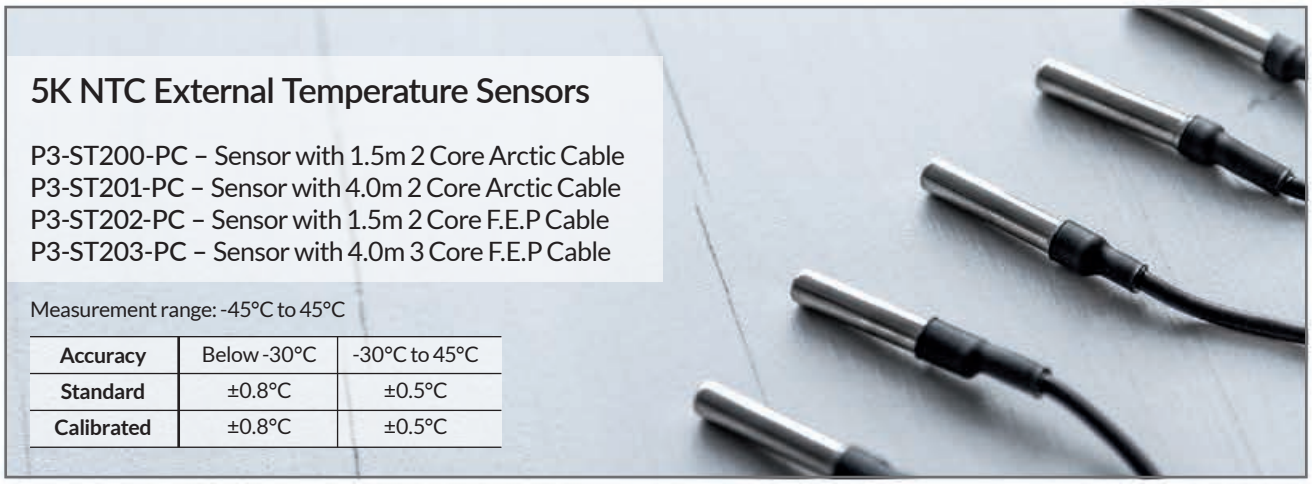
P2-WS100
Internal Temperature Sensor

Measurement range: 0°C to +40°C

P2-WS101
External Temperature Sensor (transmitter)

Radio transmitter with phono connector for use with our Standard External Temperature Probes

Standard External Temperature Probes



5K NTC External Temperature Sensors

P3-ST200-PC – Sensor with 1.5m 2 Core Arctic Cable
P3-ST201-PC – Sensor with 4.0m 2 Core Arctic Cable
P3-ST202-PC – Sensor with 1.5m 2 Core F.E.P Cable
P3-ST203-PC – Sensor with 4.0m 3 Core F.E.P Cable

Measurement range: -45°C to 45°C

Accuracy	Below -30°C	-30°C to 45°C
Standard	±0.8°C	±0.5°C
Calibrated	±0.8°C	±0.5°C

Wireless repeaters

If the wireless transmitter is not in range of the base station an optional wireless signal repeaters can be used to forward the data message.

Repeaters form a mesh to the communication network allowing the base station and sensors to communicate over long distances and in complex structures.

P2-WS104
Wireless Repeater Module

P2-WS105
Wireless Repeater Module with 12hr battery back-up

Intelligent Sensors

These high accuracy sensor perform the necessary conversion from the measured factor to digital data which is then sent by the radio transmitter. Each intelligent sensor has its own unique id and contains multipoint calibration data including the date it was last calibrated and certificate number.

Intelligent temperature and humidity sensor can be provided with factory calibration to UKAS standard.

Intelligent sensors attach directly to single or dual input transmitters.

P2-WS102

Intelligent Sensor Wireless Transmitter

P2-WS103

Intelligent Sensor Wireless Transmitter
Dual Inputs

Intelligent sensor range

P3-DS300-HR
5K NTC Stub Temperature Probe

Measurement range -20°C to 45°C

Accuracy	-20°C to 40°C
Standard	±0.5°C
Calibrated	±0.2°C

5K NTC External Temperature Sensor

P3-DS301-HR
Sensor with 1.5m 2 Core FEP Cable

P3-DS302-HR
Sensor with 4.0m 2 Core FEP Cable

Measurement range: -50°C to 70°C

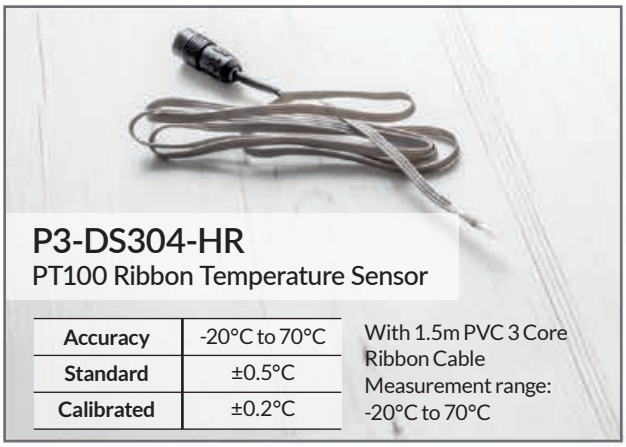
Accuracy	Below -30°C	-30°C to 70°C
Standard	±0.8°C	±0.5°C
Calibrated	±0.5°C*	±0.2°C

P3-DS303-HR
PT100 High Accuracy Temperature Sensor

With on 1.5m 3 Core FEP Cable, measurement range: -30°C to 70°C

Accuracy	-30°C to 70°C
Standard	±0.1°C
Calibrated	±0.1°C

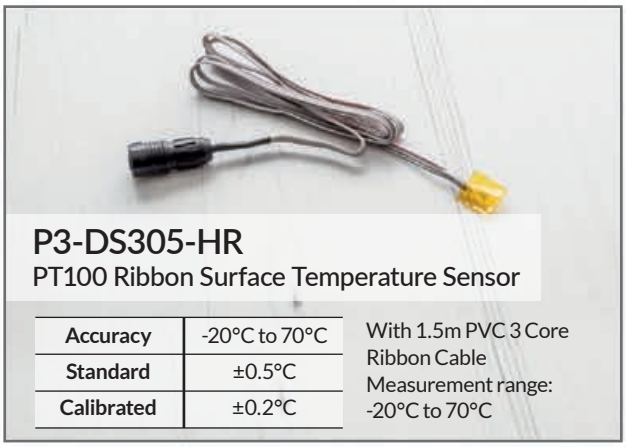
** ±0.8°C Below -45°C*



P3-DS304-HR
PT100 Ribbon Temperature Sensor

Accuracy	-20°C to 70°C
Standard	±0.5°C
Calibrated	±0.2°C

With 1.5m PVC 3 Core Ribbon Cable
Measurement range: -20°C to 70°C



P3-DS305-HR
PT100 Ribbon Surface Temperature Sensor

Accuracy	-20°C to 70°C
Standard	±0.5°C
Calibrated	±0.2°C

With 1.5m PVC 3 Core Ribbon Cable
Measurement range: -20°C to 70°C

PT1000 Standard Temperature Sensors

P3-DS306-HR
Sensor with 1.5m 2 Core FEP Cable

P3-DS307-HR
Sensor with 4.0m 2 Core FEP Cable

Measurement range: -45°C to 100°C

Accuracy	Below -40°C	-20°C to 70°C	70°C to 100°C
Standard	±1.0°C	±0.5°C	±1.2°C
Calibrated	±0.5°C	±0.2°C	±0.8°C

P3-DS308-HR
PT1000 Extended Range Temperature Sensor

With 1.5m 2 Core FEP Cable, measurement range: -100°C to 200°C

Accuracy	@-100°C	@0°C	@100°C	@200°C
Standard	±1.0°C	±0.5°C	±1.0°C	±1.0°C
Calibrated	±0.5°C*	±0.2°C	±0.5°C	±0.5°C*

**Maximum calibibration range from factory is -45°C to +140°C*

P3-DS309-HR
PT1000 Flexible Extreme Range Temperature Sensor

With 1.5m Flexible Mineral Insulated Cable & 1.5m 2 Core FEP Cable, measurement range -200°C to 200°C

Accuracy	@-100°C	@0°C	@100°C	@200°C
Standard	±1.0°C	±0.5°C	±1.0°C	±1.0°C
Calibrated	±0.5°C	±0.2°C	±0.5°C	±0.5°C

P3-DS310-HR
PT1000 Stiff Extreme Range Temperature Sensor

With 300mm Stiff Mineral Insulated Cable & 1.5m 2 Core FEP Cable, measurement range -200°C to 200°C

Accuracy	@-100°C	@0°C	@100°C	@200°C
Standard	±1.0°C	±0.5°C	±1.0°C	±1.0°C
Calibrated	±0.5°C	±0.2°C	±0.5°C	±0.5°C

P3-DS311-HR
%RH Humidity Sensor – Stub Mount

Measurement range: 0-95 %RH
P7-SA1010 – 4m Intelligent Sensor Remote Mount Extension Cable available as option

Accuracy @23°C	5 to 25%RH	25 to 75%RH	75 to 95%RH
Standard	±2.5%RH	±2.5%RH	±3%RH
Calibrated	±1.5%RH	±2.2%RH	±2.3%RH

Linear Input Sensors

P3-DS312-HR – 0-25mA Signal Input
P3-DS313-HR – 0-200mV Signal Input
P3-DS314-HR – 0-2V Signal Input
P3-DS315-HR – 0-5V Signal Input
P3-DS316-HR – 0-10V Signal Input
P3-DS317-HR – 0-10K Ω Signal Input

With 1.5m Arctic Cable. Measurement range: as defined above

Accuracy	± 1% over the full scale

P3-DS317-HR
Pulse Counting Sensor

With 1.5m Arctic Cable
Minimum pulse requirements – Pulse Length >50ms, Pulse Interval >50ms

P3-DS318-HR
Digital Input Sensor

With 1.5m Arctic Cable
Minimum measurement period – 1 minute

	D3 Medical P1-D3103	D3 P1-D3102	D3 LITE P1-D3101
Software designed compliancy standard	FDA 21 CRF Part 11 requirements for electronics records[1]	BRC, HACCP & GMP monitoring system requirements	HACCP monitoring requirements

Data & Data Storage

Internal Memory Storage Period	150 sensors 6 months 75 sensors 1 year 30 sensors° 2 years	150 sensors 6 months 75 sensors 1 year 30 sensors° 2 years	20 sensors° 4 years
Data Back-Up Media	Integral – 8Gb Micro Industrial HD MMC	Integral – 4Gb Micro Industrial HD MMC	Integral - 4Gb Micro Industrial HD MMC
Back-Up Memory Storage Period	150 sensors 4 years 75 sensors 8 years 30 sensors° 10 years+	150 sensors 2 years 75 sensors 4 years 30 sensors° 8 years	2 years
Back-Up Frequency	Automatic - daily	Automatic - daily	Automatic daily
Manual Back-Up	Manual back-up of MMC to PC/server	Manual back-up of MMC to PC/server	Manual back-up of MMC to PC/server
Battery Back-Up	Yes	Yes	No
Operating Time on Battery Back-Up	Up to 12 hours during normal system operation	Up to 12 hours during normal system operation	-
Display - Colour TFT with Resistive Touch Screen	Yes	Yes	Yes
Maximum Number of Sensor Inputs	150 wireless sensors per base station[***]	150 wireless sensors per base station[***]	20 wireless sensors per base station[***]
Resolution of the Sensor Readings	Integer to 3 decimal places as required	Integer to 3 decimal places as required	Integer to 1 decimal place as required

Wireless Frequency

433Mhz & 868Mhz (Europe)	Yes	Yes	Yes
2.4Ghz (ROW)	Yes	Yes	Yes

Wireless Transmission Distance (open field)

433Mhz & 868Mhz	1km (typically 250 meters in buildings)	1km (typically 250 meters in buildings)	500m (typically 100 meters in buildings)
2.4Ghz	100m (typically 30-50 meters in buildings)	100m (typically 30-50 meters in buildings)	100m (typically 30-50 meters in buildings)
Range Extender available	Yes	Yes	Yes

Users & Security

Max Number of Users	30	30	5
Network Connectivity	Yes	Yes	Yes

Security	D3 Medical P1-D3103	D3 P1-D3102	D3 LITE P1-D3101
Username & Passcodes	Yes	Yes	Yes
Passcode Expiry	Yes	Yes	Yes
Multiple User Levels	Yes	Yes	Yes
Data Storage Rate	Automatic - daily	Automatic - daily	Automatic - daily
Browser Security	HTTPS Capable	HTTPS Capable	HTTP Capable
Email	SSL Encryption Capable	SSL Encryption Capable	SSL Encryption Capable

System Alarms

Set Points	Upper & Lower Warning & Critical Alarm Set Points	Upper & Lower Warning & Critical Alarm Set Points	Upper & Lower Warning & Critical Alarm Set Points
Alarm Delays	User Defined	User Defined	User Defined
Audible Alarm	Yes	Yes	Yes
Alarm Email	Yes	Yes	Yes
Alarm Acknowledge	Yes	Yes	Yes
Alarm Notes	20 notes per alarm	20 notes per alarm	5 notes per alarm
Relay Outputs	2	2	2
Alarms over IP	Up to 3 IP Address	Up to 3 IP Address	Up to 3 IP Address

Inputs / Outputs

Micro USB Output	Yes	Yes	Yes
Mini Din Input for External Hard-wired Hardware	Yes	Yes	Yes
Universal 5v DC power adaptor - 110 to 240v Power Supply	Yes	Yes	Yes

* Sensors, wireless transmitters & hardwired connectors available separately

** Existing Tek Troniks 433Mhz DataCentre sensors are compatible with all 433Mhz D3 Base Stations

[1] Meets the standard for storage and review of data when used in conjunction with user defined procedures for FDA21 CRF Part 11 requirements. ° Based on the average volume of sensors per system version sold in 2020

Technical Specification	D3 Medical P1-D3103	D3 P1-D3102	D3 LITE P1-D3101
Height, Width, Depth	175mm (max), 157mm, 40mm (including wall plate)		
Weight	317 grams (including wall plate & battery back-up)		271 grams (including wall plate)
Operating Temperature	0°C to +40°C		
Storage Temperature	0°C to +50°C		
Power Supply	5V dc via an external universal power brick (supplied), descrete push button on/off fuction on base station		
Operating System	Embedded		
Internal Storage	1Gb high speed data flash		
Back-up Storage Media	8Gb industrial grade micro MMC	4Gb industrial grade micro MMC	4Gb industrial grade micro MMC
Display	Full Colour 480 x 272 Resistive Touch Screen		
LED	Solid Green (main power, no alarms), Solid Red (mains power, with alarms), Flashing Green or Red (on battery back-up, with or without alarms)		Solid Green (main power, no alarms), Solid Red (mains power, with alarms)
Sounder	Built-in buzzer (can be switched off in software)		
USB	Micro USB 2.0 (for maintenance purposes only)		
Ethernet	Built-in (2 meter cable supplied with unit)		
Relay Outputs	Relay 1: Volt free relay output providing NO & NC contacts Relay 2: Mossfet Switch		
Mini Din Socket	For connection to proprietary external hardware		
Low Power Radio Module	Yes		
Frequency	433Mhz & 868Mhz (UK/Europe), 2.4Ghz (ROW) – licence free bands		
Power	10mW maximum (433Mhz), 14dbm maximum (868Mhz) & 14dbm maximum (2.4Ghz)		
Communications	Bi-directional		
Protocol	Proprietary (433Mhz), 802.15.4 Proprietary (868Mhz) & 802.15.4 Proprietary (2.4Ghz)		
Battery Back-Up	Yes		No
Type	Plug connection lithium ion rechargeable		-
Power Voltage	3.7V		-
Capacity	2050mA		-
Recharge Time	2.5 hours (from flat)		-
Test Cycle	Advise monthly by removing system power		-

If you have any questions or comments, or want to know how Tek-troniks can help you and your business, please contact us:

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