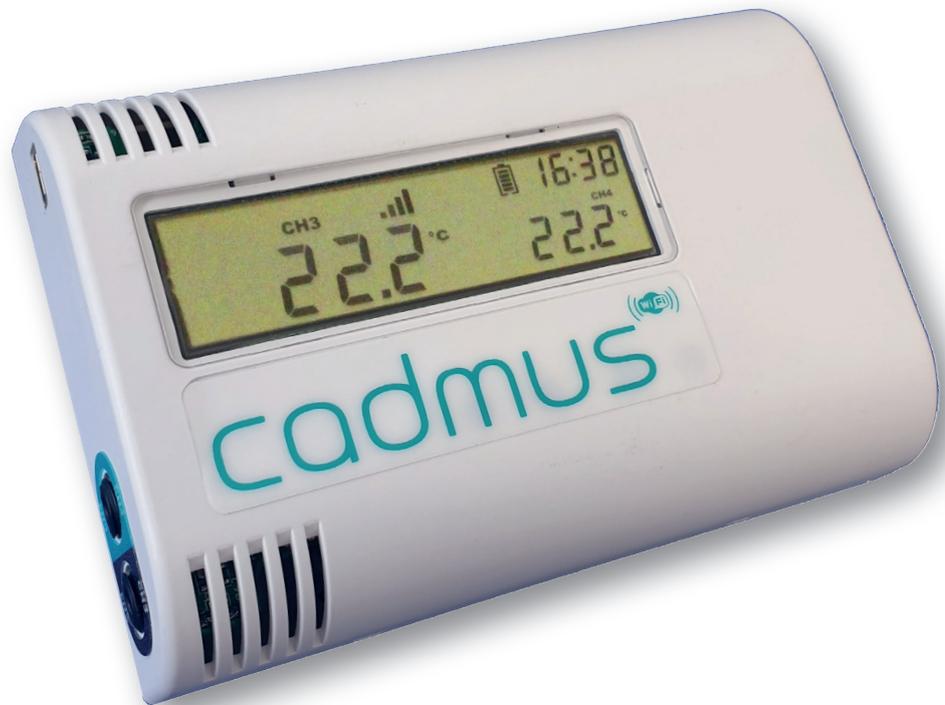


signatrol



cadmus

BATTERY POWERED TEMPERATURE (& HUMIDITY) WI-FI DATA LOGGER

The Cadmus range of Wi-Fi data loggers together with the high security Ratifi-Cloud, enables you to remotely monitor, from anywhere in the world, your temperature, relative humidity & switch status requirements in an infinite number of applications.

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BATTERY POWERED WIRELESS WI-FI DATA LOGGER

The Cadmus device comes with a range of temperature and humidity options offering up to 6 channels. The device is both elegant and compact allowing you to easily retro fit it to your process or application. It is intuitive and simple to use and is fully programmable over your Wi-Fi network in only a few minutes.

Three Simple Steps to Remote Monitoring

- 1 Purchase a Cadmus device
- 2 Create your Ratifi-Cloud Account
- 3 Connect Your Cadmus Device to your Wi-Fi Network

Data hosting packages can be purchased either annually invoiced in advance or 'Pay As You Go'. You are not required to commit to any long-term contract and there are no other hidden costs or fees.

Once set up, the Cadmus device can be located anywhere within your Wi-Fi network. All the data recorded is then sent to the Ratifi-Cloud. You can access this data using any internet browser via a computer/tablet/phone from anywhere in the world.

You can program your Cadmus device with up to 4 alarms per channel. Alarm options include email alerts and local audible alarm. Additional alarms include: low battery, re-calibration due and over-due, loss of internet / late alarm.

Alarms and alerts can be easily configured remotely and instantly from your computer/tablet/phone via the Ratifi-Cloud enabling the Cadmus system to adapt to your business and process requirements. For example, alarms can be sent to different individuals or groups of people working on different days or working on different shifts, providing you with greater flexibility as your business and processes evolve.

If for any reason you lose your Wi-Fi network, your Cadmus device will continue to log uninterrupted using its own onboard storage capacity of up to 32,768 readings per channel or, 227 days @ 10 min store rate, 113 days @ 5 min store rate or, 22 days @ 1 min store rate. Once your Wi-Fi network has been restored, the Cadmus unit will automatically send the data to the Ratifi-Cloud and simply back fill and update from the last data entry point ensuring that there will be no loss of data.

Ratifi-Cloud

Accessible from anywhere in the world, the Ratifi-Cloud gives you the ability to monitor and manage countless numbers of Cadmus wireless temperature and humidity data loggers located in multiple locations remotely.

It is easy to navigate and provides easy access to each of your remote Cadmus devices giving you access to information such as;

- When data was last uploaded to the cloud
- The device alarm status
- Your process alarm status
- Device health check providing battery strength and re-calibration due date

BATTERY POWERED WIRELESS WI-FI DATA LOGGER

Ratifi-Cloud

All Cadmus devices operate with our high security Ratifi-Cloud based software platform (without a contract).

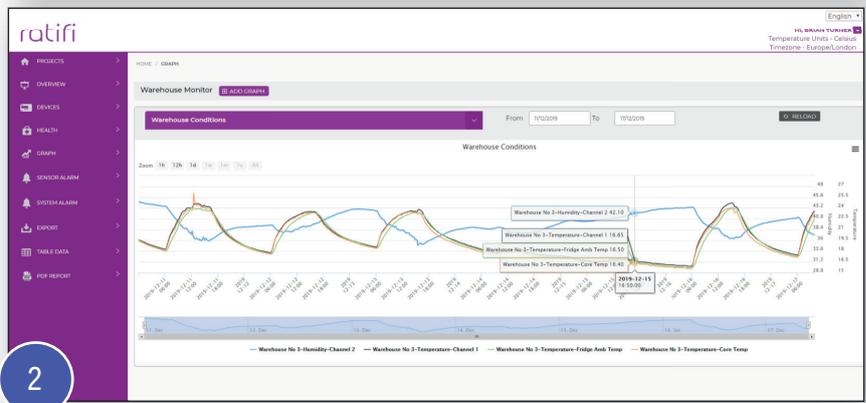
Here are samples of the various screens accessible by an authorised user on the Ratifi-Cloud based platform.

1 - Log in screen

2 - Typical graph

3 - Alarm history screen

4 - Active alarm screen



#	ACKNOWLEDGE	TYPE	LOCATION	CHANNEL	EVENT TIME (SET)	EVENT TIME (CLEAR)	SET POINT	VALUE	ACK USER	ACK COMMENT	SENT TO	ALARM BASED	ACKNOWLEDGED
1	Acknowledge	N	Warehouse No.3	Channel 3	2019-10-09 16:28:08	2019-10-09 16:30:08	40°C	40°C	Brian Turner	Update Firmware	Email, Sent To	2019-10-09 16:28:18	2019-10-09 16:4
2	Acknowledge	N	Warehouse No.3	Channel 4	2019-10-09 18:37:09	2019-10-09 18:40:09	28°C	40°C	Brian Turner	Hookkipoo	Email, Sent To	2019-10-09 18:37:16	2019-10-09 18:3
3	Acknowledge	N	Warehouse No.3	Channel 4	2019-10-09 14:59:37	2019-10-09 18:37:37	24°C	40°C	Brian Turner	Probes unplugged	Email, Sent To	2019-10-09 14:59:43	2019-10-09 18:2
4	Acknowledge	N	Warehouse No.3	Channel 3	2019-10-09 16:44:43	2019-10-09 16:50:43	27°C	30°C	Brian Turner	BT & MW Test Acknowledge	Email, Sent To	2019-10-09 16:45:51	2019-10-09 16:4
5	Acknowledge	N	Warehouse No.3	Channel 3	2019-10-09 16:29:43	2019-10-09 16:34:43	27°C	30°C	Brian Turner	BT acknowledged 2/16	Email, Sent To	2019-10-09 16:30:52	2019-10-09 16:3
6	Acknowledge	N	Warehouse No.3	Channel 3	2019-10-09 16:17:43	2019-10-09 16:24:43	27°C	30°C	Brian Turner	BT Approved	Email, Sent To	2019-10-09 16:20:50	2019-10-09 16:2
7	Acknowledge	N	Warehouse No.3	Channel 3	2019-10-09 14:29:29	2019-10-09 15:17:29	27°C	40°C	Brian Turner	BT Acknowledged	Email, Sent To	2019-10-09 14:35:47	2019-10-09 14:1
8	Acknowledge	N	Warehouse No.3	Channel 3	2019-09-17 17:01:13	2019-09-17 17:09:13	25°C	40°C	Brian Turner	BT Testing	Email, Sent To	2019-09-17 17:01:25	2019-09-17 17:0

#	ACKNOWLEDGE	TYPE	LOCATION	CHANNEL	EVENT TIME (SET)	SET POINT	VALUE	ACK USER	ACK COMMENT	SENT TO	ALARM BASED	ACKNOWLEDGED	GENERAL COMMENT
1	Acknowledge	N	Warehouse No.3	Channel 4	2019-10-17 10:26:28	30°C	30°C			Email, Sent To	2019-10-17 10:26:36		Warehouse Comments

Device Management Made Simple

- Search & locate your Cadmus device easily
- Update device settings instantly & remotely
- Alarm acknowledgement

Data Analysis & Reporting

You can review and analyse your data using our powerful graphing functionality;

- Compare data from multiple devices
- Compare data from any time period
- View data summaries
- Print or export your results in PDF or CSV formats
- Automate your reports and send to multiple addresses

Security & Compliance

Essential to any 21 CFR Part 11 validation system, as part of a hazard analysis & critical control point (HACCP) based food safety programme or, as part of your SALSA food safety certification scheme, the Ratifi-Cloud allows you to add and record any changes you may have made;

- Changes to users, locations and account settings
- Device records, any changes to settings and events

Cadmus is WPA2-Enterprise enabled which is considered the gold standard for wireless network security, delivering over-the-air encryption and ensuring the highest level of security.

By harnessing the power of IoT, automated reports can be set up remotely providing daily, weekly and monthly reports and can then be sent to multiple email addresses. This becomes vital when considering your regulatory compliance and auditable requirements.

Calibration

Each device is available in two versions, the standard which comes with its own automated calibration certificate, and the 'A' version whereby the device goes through a further calibration procedure and adjustment phase to provide enhanced accuracy over a specific range and a more detailed calibration certificate is provided.

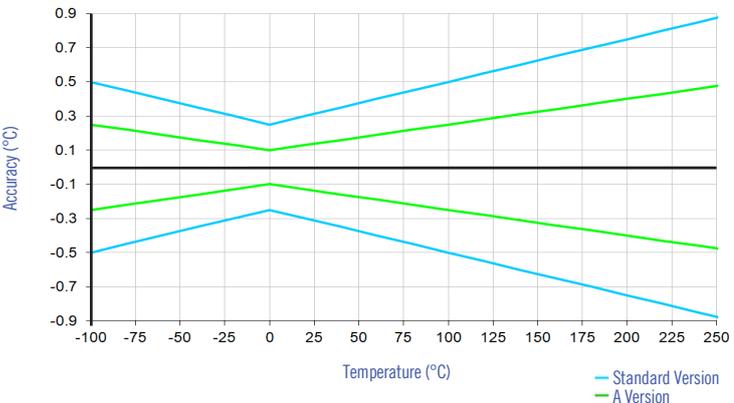
Devices with external sensors can also have a secondary system calibration whereby the device and sensors are calibrated together to again provide class leading accuracy over the specific range of use.

All calibrations are UKAS 17025 traceable.

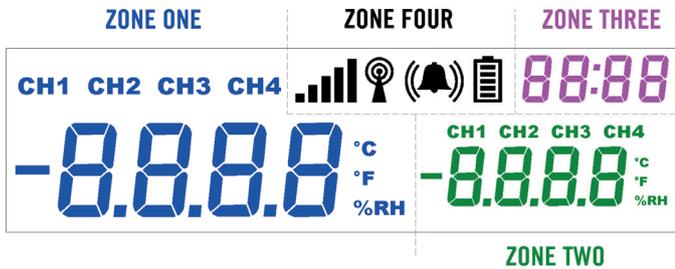
CADMUS DATA LOGGER SPECIFICATION

MODEL NUMBER	CTX-203	CTX-213
COMMUNICATION	Connection Type: Wireless Lan Standards: Supported Encryption Methods: Supported Enterprise Networks: Data Packet	Wi-Fi 2.4GHz, Station Mode IEEE 802.11 b/g/n & IEEE 802.1X WEP/WPA/WPA2/WPA2 Enterprise EAP-TLS/EAP-TTLS-TLS/EAP-TTLS-MSCHAPv2/EAP-TTLS-PSK/EAP-PEAP0-TLS/EAP-PEAP0-MSCHAPv2/EAP-PEAP0-PSK/EAP-PEAP1-TLS/EAP-PEAP1-MSCHAPv2/EAP-PEAP1-PSK UDP, Port 49152 (Bi-directional)
AMBIENT OPERATING RANGE	0 to +50°C, 5 to 95% RH (non-condensing)	
TEMPERATURE CHANNELS	3 (1 Internal, 2 External)	
HUMIDITY CHANNEL	No	Yes
COUNTER/DOOR SWITCH CHANNELS	2	
INTERNAL TEMPERATURE ACCURACY: RANGE 0°C to +50°C	<p style="text-align: center;">INTERNAL TEMPERATURE SYSTEM ACCURACY</p> <p style="text-align: right;"> — Standard Version — A Version </p> <p>Standard Version: $\pm 0.3^{\circ}\text{C}$ (Meets EN12830: 2018 Class 0.5) A Version: $\pm 0.2^{\circ}\text{C}$ (Meets EN12830: 2018 Class 0.2)</p>	
INTERNAL HUMIDITY ACCURACY: RANGE 0 to 100% RH	<p style="text-align: center;">INTERNAL HUMIDITY SYSTEM ACCURACY</p> <p style="text-align: right;"> — Standard Version — A Version </p> <p>Standard Version: $\pm 3.5\% \text{ RH}$ A Version: $\pm 2.0\% \text{ RH}$</p>	

CADMUS DATA LOGGER SPECIFICATION

EXTERNAL TEMPERATURE ACCURACY: RANGE -200° C to +400° C	$\pm 0.1^{\circ}\text{C} \pm 0.05\%$ of Reading (Electronics Only)
EXTERNAL TEMPERATURE SYSTEM ACCURACY	<p style="text-align: center;">EXTERNAL TEMPERATURE SYSTEM ACCURACY inc Pt1000 Class A Sensor</p>  <p style="text-align: right;"> — Standard Version — A Version </p> <p> SYSTEM ACCURACY STANDARD $\pm 0.25^{\circ}\text{C} \pm 0.25\%$ of Reading (Meets EN12830: 2018 Class 0.5) </p> <p> SYSTEM ACCURACY A VERSION $\pm 0.1^{\circ}\text{C} \pm 0.15\%$ of Reading (Meets EN12830: 2018 Class 0.2) </p>
RESOLUTION (TEMPERATURE & HUMIDITY)	0.1°C or 0.1% RH
COUNTER INPUT	Frequency Maximum: 1kHz Counter Maximum: 65535 / Store Rate Period Minimum Pulse Width: 100 micro Seconds Dry Contact Compatible: Yes TTL Compatible: Yes Maximum Voltage: 35Vdc Input Voltage (Lo) < 0.7 Volts (provisional) Input Voltage (Hi) > 1.5 Volts (provisional) Trigger Negative Edge
INTERRUPT INPUT (DOOR CONTACT)	Digital Pulse forces instant sensor measurement and upload. Cloud configurable Positive or Negative Edge Triggered. Electrical characteristics are the same as counter input.
AUDIO ALARM / BLEEPER	Yes
ALARMS	Ratifi-Cloud Configured Alarms (4 per Channel: Hi Hi, Hi, Lo, Lo Lo) Alarms are raised within 1 minute of occurring, irrespective of store rate or upload rate.
DEVICE STORAGE CAPACITY	Total number of readings - 32,768 readings per channel. 22 days @ 1 minute store rate 113 days @ 5 minute store rate 227 days @ 10 minute store rate
DEVICE ALARM STORAGE CAPACITY	Total number of alarms - 2048
READ RATE	1 Minute (Fixed)
STORE RATE	Fully programmable via Ratifi-Cloud - from 1 minute to 60 minutes (Recommended: 10 Min)
UPLOAD RATE	Fully programmable via Ratifi-Cloud - from 5 minutes to 24 hours (Recommended: 60 Min)
TYPICAL BATTERY LIFE @ 20°C	24 Months @ 10 Minute Store Rate & 60 Minute Upload Rate. 14 Months @ 5 Minute Store & 30 Minute Upload Rate

CADMUS DATA LOGGER SPECIFICATION

REAL TIME CLOCK	Automatic synchronisation with cloud time sync service on each connection. When Wi-Fi connection not available, internal clock drift < 60 seconds / month	
BATTERY TYPE	2 x (3.6V @ 2.2Ah) AA Size Lithium Thionyl Chloride Battery (User Replaceable)	
LOCAL CONFIGURATION	Connector type: USB Mini-B	Function: Required to set device clock, Wi-Fi credentials, enterprise certificates (if required), battery reset & cable compensation.
SENSOR CONNECTIONS	Side mounted 3.5mm jacks Internal 9 way terminal	External temperature channel connection. Connections mirrored with internal 9 way connector. Base mounted so device can be removed without having to disconnect any wiring. Mirrored connections for external temperature. Counter/door switch inputs. External power supply connection.
LCD DISPLAY	<p>Multiple area display</p>  <p>Zone one and zone two can display temperature and humidity channels. The device will automatically scan the selected channels if more than one channel is selected for an area. Temperature displayed as °C or °F.</p> <p>Zone three can display either the local time or the HH:MM to the next upload</p>	
POWERED OPTION	9 to 24 VDC (optional)	
ENCLOSURE	Self-extinguishing ABS	
IP RATING	IP40	
DIMENSIONS	120 x 80 x 35mm	
WEIGHT	170 grams	
WARRANTY	2 years (excluding batteries)	

INTERNAL SENSORS

Both Cadmus CTX devices have an internal temperature sensor fitted as standard. Model CTX-213 also has a humidity sensor. Both the internal temperature and internal humidity sensors are located under the vents in the enclosure face.

EXTERNAL SENSORS

External probe input specification

Both Cadmus CTX devices can accept up to 2 further external temperature sensors. The external sensors are Platinum Thermometer type Pt1000. The connection configuration is 2-wire, and lead compensation can be carried out via the USB connection if required. The maximum measurement range for the external sensor is -200°C to +400°C. The actual temperature measurement range is limited by the external sensor construction and materials. Please contact our sales office for advice if none of our stock sensors match your requirements.

Standard sensors available from stock

Many other temperature sensor specifications are available upon request. Please contact our sales office: sales@signatrol.com with your specific requirements.

PART NUMBER	CADMUS-PROBE-01
SENSOR TYPE	Platinum thermometer Pt1000, Class A
TEMPERATURE RANGE	-50°C to +105°C
PROBE MATERIAL	Stainless steel 304
LENGTH OF PROBE	75mm
DIAMETER OF PROBE	6mm
INGRESS PROTECTION (IP)	IP68
CABLE LENGTH	3000mm
CABLE MATERIAL	TPE 3.5mm diameter
CONNECTOR	3.5mm mono jack
RESPONSE TIME IN WATER	T ₆₃ = 20 seconds T ₁₀₋₉₀ = 35 seconds
USAGE	General purpose and continuous submersion

EXTERNAL SENSORS

PART NUMBER	CADMUS-PROBE-02
SENSOR TYPE	Platinum thermometer Pt1000, Class A
TEMPERATURE RANGE	-50°C to +200°C
PROBE MATERIAL	Stainless steel 316
LENGTH OF PROBE	75mm
DIAMETER OF PROBE	6mm
INGRESS PROTECTION (IP)	IP67
CABLE LENGTH	3000mm
CABLE MATERIAL	FEP flat ribbon 0.8mm thick
CONNECTOR	3.5mm mono jack
RESPONSE TIME IN WATER	T ₆₃ = 20 seconds T ₁₀₋₉₀ = 35 seconds
USAGE	Suitable for passing through a fridge door seal

LOAD BOTTLES



Load bottles are available to accurately mirror the response time of various products, including vaccines, blood and food products. Both products below are supplied with food grade mono-propylene glycol mixed for temperatures down to -40°C. The load bottle is normally used in conjunction with the second external temperature sensor. The first external sensor can be used to monitor the air temperature of a fridge/freezer to provide immediate notification of a potential failure, and the second external sensor, placed inside the bottle to represent the actual product temperature.

PART NUMBER:	CADMUS-ACC-03	CADMUS-ACC-04
DESCRIPTION	50ml Load Bottle	200ml Load Bottle
TEMPERATURE RANGE	-40°C to +80°C	
BOTTLE & LID MATERIAL	LDPE (Low-density polyethylene)	
SENSOR GLAND MATERIAL	Nylon 6.6	
GLAND ACCEPTANCE RANGE	3.0 to 6.5mm	
INGRESS PROTECTION (IP)	IP68	
HEIGHT	98mm (inc gland) 78mm (ext gland)	135mm (inc gland) 115mm (ext gland)
DIAMETER	38.5mm	58.0mm
ANTI-FREEZE	Food Grade Mono-propylene Glycol 55% solution	
RESPONSE TIME (AIR)	T ₁₀₋₉₀ = 10 mins	T ₁₀₋₉₀ = 20 mins
USAGE	Vaccine monitoring	Blood monitoring

About Mono-Propylene Glycol

Mono-Propylene Glycol is a viscous, colourless and odourless liquid. It carries hygroscopic properties (readily attracts moisture from the air) and is miscible in all ratios with water, alcohols, esters, ketones and amines. Signatrol uses only food grade Mono-Propylene Glycol.

ORDERING CODES

CADMUS DEVICES	Description	INTERNAL TEMP	INTERNAL HUMIDITY	EXTERNAL TEMP	COUNTER DOOR SWITCH
CTX-203	Cadmus device	Yes	No	Yes	Yes
CTX-203A	As CTX-203 but with 3-point UKAS traceable calibration certificate for the internal temperature channel. <i>Default temperature calibration points are -20°C, +4°C and +25°C. Alternative calibration points are available on request. External probes can be calibrated at the same points if ordered at the same time, please advise with order.</i>	Yes	No	Yes	Yes
CTX-213	Cadmus device	Yes	Yes	Yes	Yes
CTX-213A	As CTX-213 but with 3-point UKAS traceable calibration certificate for the internal temperature and internal humidity channels. <i>Default temperature calibration points are -20°C, +4°C, +25°C and 11%, 43% and 75% RH. Alternative calibration points are available on request. External probes can be calibrated at the same points if ordered at the same time, please advise with order.</i>	Yes	Yes	Yes	Yes
ALL CADMUS DEVICES ARE SUPPLIED WITH BATTERIES.					

CADMUS ACCESSORIES	
CADMUS-CONFIG	Cadmus USB configuration software with USB lead
CADMUS-ACC-01	2 replacement AA 3.6v lithium batteries
CADMUS-ACC-02	12 VDC power supply for powering Cadmus devices
CADMUS-ACC-03	50ml load bottle (supplied complete with 55% Mono-Propylene Glycol solution)
CADMUS-ACC-04	200ml load bottle (supplied complete with 55% Mono-Propylene Glycol solution)

CADMUS TEMPERATURE PROBES	
CADMUS-PROBE-01	IP68 temperature sensor
CADMUS-PROBE-02	IP67 temperature sensor with flat ribbon cable, ideal for passing through door seals

Every effort has been taken to ensure the accuracy of this specification and we reserve the right of amendment without prior notice.

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