Influx TECHNOLOGY

K-Series Instrumentation Solutions

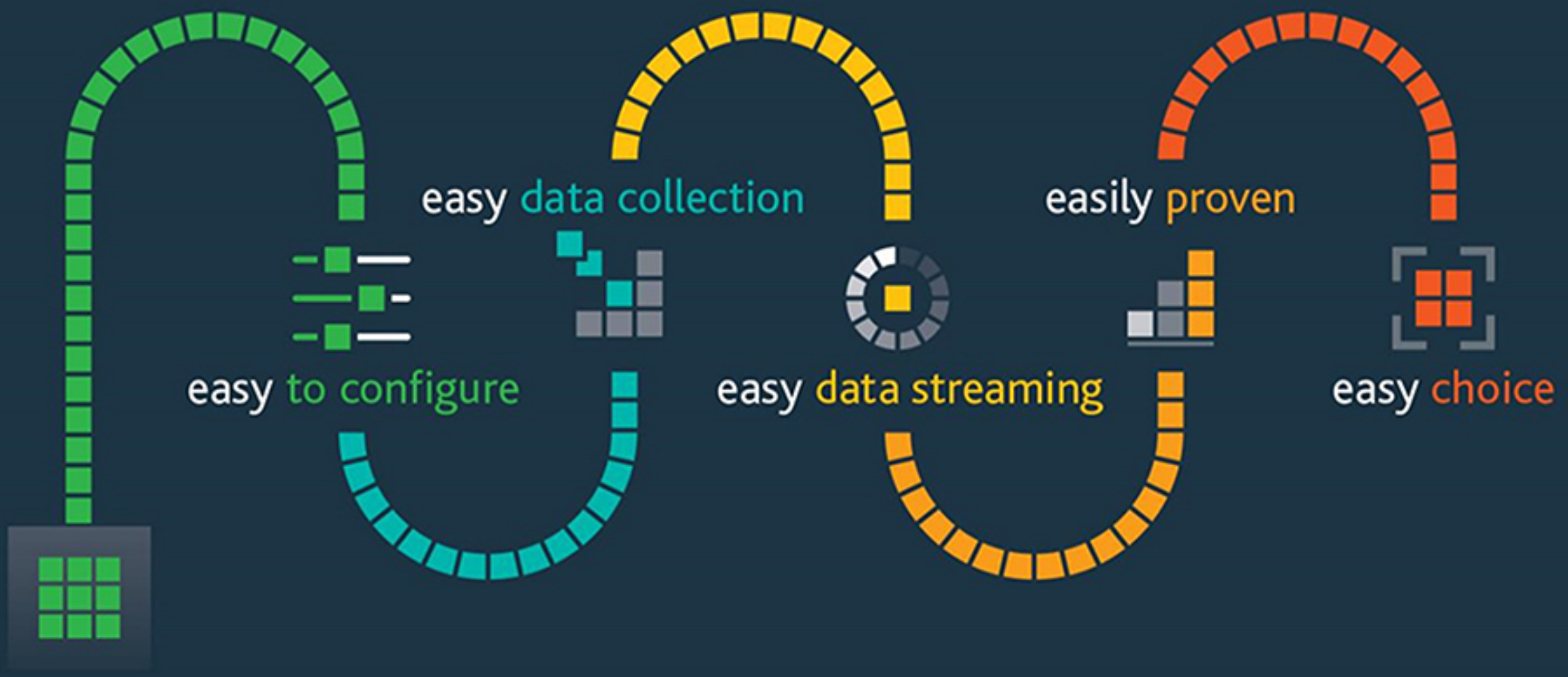
Version 2.0

Influx

K-Series

K-Series Instrumentation

Out the box dataloggers



connect, simply configure and go

Influx

K-Box

Multi DAQ Modules

Influx
K-BOX

P/N: INF2201

CAN Output

K-Box Multi-DAQ Modules

Measuring Thermocouples, Voltages, Currents and P.W.M
The K-Box is simply the most cost effective and flexible method available to measure multiple sensor types. This avoids higher costs, complexity, cables and space. Stackable with all of our K-series instrumentation mo dules,the K-Box includes our unique power down and WakeOnCAN feature, enabling quick installation on long term unattended fleet test vehicles. Accurate sensor measurement data is transmitted periodically on the CAN Bus enabling multiple K-Series modules to be connected together and data recorded via our CAN data loggers.

Advantages

- Combined Voltage, Thermocouple and P.W.M./Digital measurements.
- Software switchable voltage input ranges from ± 80V to ± 10V.
- Very high accuracy-Analog ± 0.0015%, Thermocouples ± 1 Degree C
- Cold junction compensation for accurate thermocouple measurement.
- High input impedance on Analog inputs.
- WakeOnCAN and power down deep sleep mode.

Key Features

- Up to 8 thermocouple connections at up to 10 Hz sampling rate.
- 8 Analog inputs with variable input sampling rates. (8 channels at 1k Hz, 2 channels at 10k Hz).
- PWM: 3 inputs frequency measurements, counters or pulse measurements.
- Outputs: 4 Relay outputs. (Optional)
- Regulated +5V and +24V output power supply for external sensors.
- Supplied with configuration software, Influx K-Cal for Windows® and configurable via a DBC file.
- Instrumentation data time synchronised with recorded vehicle network data via CAN.
- Galvanic isolation between modules (enclosure, power, CAN BUS and Analog input module and thermocouple input module).
- Measurement accuracy: ± 1 degree C, Measurement resolution: .001-degree C.
- Analog channel over-voltage protection ± 150 Volt.

Influx
K-BOX

Stackable instrumentation – acquires sensor data for CAN applications

P/N INF2201

Technical Data

	Thermocouple Inputs
Number of channels	8 J/K/T-type inputs
Accuracy	±1°C accuracy
Measurement Range	Measurement: -200 °C to 1250 °C
Max Sampling Rate	10 Hz (all 8 channels)
Maximum input voltage	±3.3 V
	Digital Input / Output
Number of channels	×4 unipolar single-ended hardware configured as inputs or outputs
Input switching thresholds	Low < 1.5V
	High > 2.0V (up to 12V)
Input leakage current	< 10nA
Output states	(Optional) Open collector - 510 Ohm
Output drive capability (OK): Collector-emitter voltage	45V max
Collector current (DC)	10mA max
Saturation voltage (OK on)	< 0.15V
Equivalent on-resistance	< 510Ohm
Leakage current at OK off	< 5uA
Min-max applied voltage	Digital input -8V to +12V; Digital output 0V to +40V power supply, which limits the current to 10mA
PWM	3 digital input frequency measurements up to 100kHz or pulse measurements. (min 100 Nano sec) (between pulses 10 microseconds)

Influx
K-BOX

Stackable instrumentation – acquires sensor data for CAN applications

P/N INF2201

Technical Data

Technical Data	Description
Power supply	6 to 36V DC.
Interfaces	CAN Bus
PC interfaces	None
Enclosure	Dimension (L115xH46xW105) Weight 450g IP65 ABS
Environmental	-40°C to +85°C Humidity max 90%
Output voltages	5 V sensor supply max current 75mA (total power < 1.8W)
	24 V sensor supply max current 75mA (total power < 1.8W)
	Analog Inputs
Number of channels	8 Bipolar differential inputs
Accuracy	±0.0015%
Software switchable range	±80V, ±40V, ±20V, ±10V
Resolution (ADC)	16 Bit
Max Sampling Rate	1 KHz (all 8 channels), 5 KHz (4Channels), 10 KHz (2 Channels)
Input impedance	> 4 M Ohm
Max input voltage	±75 Analog Ground, ±50 V Analog inputs

Influx
K-BOX

1x Influx Technology K-Box

1x Influx Technology K-Bob

1x Kvaser™ Leaf Light

1x Kvaser™ T-Cannector

1x 9 Way-9 Way Cable

1x 25-Way D-Sub terminal

1x 120 Ohm CAN Bus termination D-Sub

1x Influx carry case

P/N: INF2202

K-Box Kit

This K-Box Kit contains everything needed to get the K-Box set up and tested on a workbench. To help with connecting sensors to the analogue and digital ports, the K-BoB enables easy connection with BNC connectors. Influx K-Cal is easily connected via the Kvaser Leaflight interface and Kvaser T-connector. (Using the Kvaser T-connector to power up the K-Box (at the desk) and terminate the CAN bus).
This kit is supplied in the Influx carry case.

Highly Recommended for new K-Box users very easy to set up and test on a workbench. For example, when calibrating.

Our versatile multi-DAQ K-Box Kit is a cost-effective solution to measure multiple sensor types within one module. Extremely easy to use and ideal for applications that measure inputs such as temperatures, pressures, voltages, currents (using a current clamp), PWM, currents, RPM, digital counters or IEPE sensors. Multiple K-Series modules can be stacked, connected and configured to work together. All K-Series instrumentation modules allow the measurement of signals and the periodic transmission of sensor measurement data on a CAN 2.0 network

Typical Applications

- Vehicle testing with additional instrumentation requiring a wide range of sensors. For example, voltage, pressure, fuel flow, RPM, event counters, acceleration, temperature etc.).
- Competitor bench testing (reverse engineering). Instrumentation combined with vehicle CAN data. (Collected via our Rebel data loggers).
- Vehicle engineering component testing. (Using K-series add on modules for IEPE, PT100/PT1000 sensors)

Influx

K-AN8

Analogue Modules

Influx

K-AN8

K- AN8 - Analog Modules

P/N: INF2210

Combined Voltages, Current and PWM Signals
Accurate analog and digital sensor measurement data for CAN applications.
The stackable K-AN8 is our cost-effective solution to measuring Analog and digital/P.W.M. sensors together in one module. Extremely easy to use and stackable with all of our other K-series instrumentation modules.
The K-AN8 includes our unique power down and WakeOnCAN feature for quick installation on long term unattended fleet test vehicles.
Accurate sensor measurement data is transmitted perio dically on the CAN Bus enabling multiple K-Series modules to be connected together.
The K-AN8 CAN Bus settings, calibration and sampling rates are all configurable and stored even when not powered.

Advantages

- Combined Voltage, P.W.M./Digital measurements
- Software switchable voltage input ranges from ±80V to ±10V
- Very high accuracy- Analog ±0.0015%.
- High input impedance on Analog inputs.
- WakeOnCAN and power down deep sleep mode.

Key Features

- 8 analog inputs with variable input sampling rates. (8 channels at 1k Hz, 2 channels at 10k Hz)
- PWM: 3 inputs frequency measurements, counters or pulse measurements.
- Outputs: 4 Relay outputs. (Optional)
- Regulated +5V and +24V output power supply for external sensors.
- Supplied with configuration software, Influx K-Cal for Windows® and configurable via a DBC file.
- Instrumentation data time synchronised with recorded vehicle network data via CAN.
- Galvanic isolation between modules (enclosure, power, CAN BUS and analog input module).
- Analog channel over-voltage protection +150 Volt
- Stackable ABS enclosure.

Influx

K-AN8

Stackable Instrumentation, sensor data for CAN applications

P/N INF2210

Technical Data

Technical Data	Description
Power supply	6 to 36V DC.
Interfaces	CAN Bus
PC interfaces	None
Enclosure	Dimension (L115xH46xW105) Weight 450g IP65 ABS
Environmental	-40°C to +85°C Humidity max 90%
Output Voltages	5 V sensor supply max current 75mA (total power < 1.8W)
	24 V sensor supply max current 75mA (total power < 1.8W)
	Analog Inputs
Number of channels	8 Bipolar differential inputs
Accuracy	±0.0015%
Software switchable Range	±80V, ±40V, ±20V, ±10V
Resolution (ADC)	16 Bit
Max Sampling Rate	1 KHz (all 8 channels), 5 KHz (4Channels), 10 KHz (2 Channels)
Input Impedance	> 4 MOhm
Min-Max Applied Voltage	±75 V vs Analog Ground, ±150 V betweenAnalog inputs

Influx

K-AN8

Stackable Instrumentation, sensor data for CAN applications

P/N INF2210

Technical Data

	Digital Input / Output
Number of channels	×4 unipolar single-end hardware configured as input or output.
Input switching thresholds	Low < 1.5V
	High > 2.0V (up to 12V)
Input leakage current	< 10nA
Output states	(Optional) Open collector & 510Ohm
Output drive capability	45V max
Collector current (DC)	10mA max
Saturation voltage (OK on)	< 0.15V
Equivalent on-resistance	< 510Ohm
Leakage current at OK off	< 5uA
Min-Max applied voltage	Digital input -8V to +12V; Digital output 0V to +40V power supply, which limits the current to 10mA
PWM	3 digital inputs frequency measurements up to 100KHz or pulse measurements. (min 100 Nano seconds, min time between pulses 10 microseconds)

Influx

K-AN8

1x Influx Technology K-AN8

1x Influx Technology K-Bob

1x Kvaser™ Leaf Light

1x Kvaser™ T-Cannector

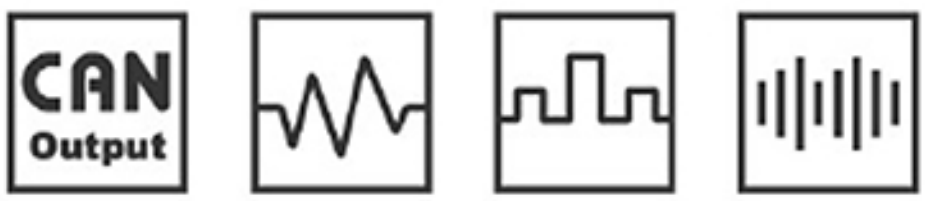
1 x 9 Way-9 Way Cable

1x 25-Way D-Sub terminal

1x 120 Ohm CAN Bus termination D-Sub

1x Influx carry case

P/N: INF2211



K-AN8 Kit

This K-AN8 (8 analog + 4 digital input) kit contains everything needed to get the K-AN8 setup and tested on a work bench. To help with connecting sensors to the analogue and digital ports the K-BoB enables easy connection with BNC connectors. Influx K-Cal is easily connected via the Kvaser Leaflight interface and Kvaser T-CANnector. {Using the Kvaser T-CANnector to power up the K-AN8 (at the desk) and terminate the CAN bus)
This kit is supplied in the Influx carry case.

Highly Recommended if new K-AN8 user -very easy to set up and test on a workbench
For example, when calibrating.

Our K-AN8 Kit is a cost-effective solution to measure multiple sensor types within one module. Extremely easy to use and ideal for applications that will measure inputs such as pressures, voltages, currents {using a current clamp), PWM, currents, RPM, digital counters or IEPE sensors. Multiple K-Series modules can be stacked, connected and configured to work together. All K-Series instrumentation modules allow the measurement of signals and the periodic transmission of sensor measurement data on a CAN 2.0 network.

Typical Applications

- Vehicle testing with additional instrumentation requiring a wide range of sensors. For example, voltage, pressure, fuel flow, RPM, event counters, acceleration etc.).
- Competitor bench testing (reverse engineering). Instrumentation combined with vehicle CAN data. (Collected via our Rebel data loggers).
- Vehicle engineering component testing. (Using K-series add on modules for IEPE, PT100/PT1000 sensors)

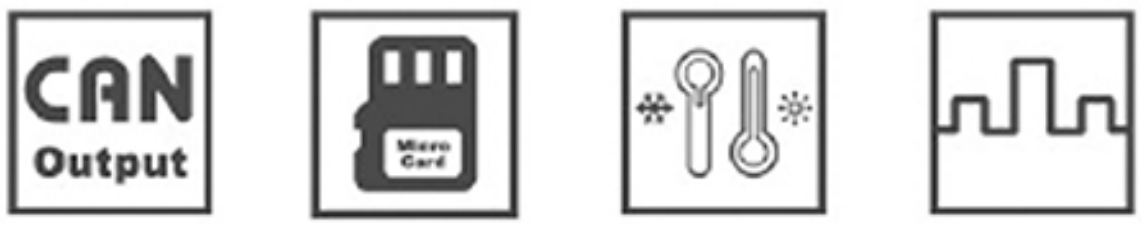
Influx

K-TC RANGE

Measuring Temperature

Influx
K-TC RANGE

P/N: INF2204 P/N: INF2205 P/N: INF2206



K-TC RANGE

Measuring Temperatures

Stackable fast, accurate and reliable temperature measurement.

The K-TC modules belong to the Influx K-series instrumentation range for CAN applications.

The stackable K-TC is ideal for those applications that require a large number of thermocouples for example vehicle durability, winter and summer testing.

The K-TC modules CAN Bus settings, calibration and sampling rates are all easily configurable and stored in the K-TC module even when not powered.

The input calibration and set-up of the K-TC module is easily configurable via Influx K-Cal software, a freely distributable Windows pc application

Logs and stores data to an inbuilt memory card, independently (without the support of any other data logger).

Key Features

- Each K-TC unit has up to 8, 16 or 32 thermocouple connections at 10Hz sampling rate.
- Supports K, J and T type thermocouples.
- Simple signal configuration using a DBC file.
- Supports logging of timestamped temperature data inside the SD card (up to 32 GB).
- Supplied with configuration software Influx K-Cal for Windows® and configurable via a DBC file.
- Device drivers available for Windows® applications (32/64-bit).
- Configuration and programming via CAN or USB interface.
- WakeOnCAN enables K-TC modules to power up and power down in deep sleep mode.
- Measurement accuracy: ±1 degree C, Measurement resolution: 0.001 degree C.
- Instrumentation data time synchronised with recorded vehicle network data via CAN.
- Galvanic isolation (enclosure, power, CAN BUS and each module of 8 thermocouple inputs).
- Free TC Logger software provided to manage the data logging functions.
- Stackable ABS enclosure.

Influx

K-TC8, K-TC16 & K-TC32

P/N INF2209 P/N INF2205 P/N INF2206

Stackable instrumentation, fast and accurate temperature acquisition.

Technical Data

Technical Data	Description
Power supply	4.5 to 36V DC
Power consumption	Normal operation 150mA to 350mA at 12V
	Power down standby mode approx. 3mA at 12V
Configuration	via CAN bus with K-Cal for calibration. via USB with TC Logger SW for logging.
	output control settings and configurations stored in the device
Interfaces	CAN bus (max 1000 kbps), USB 2.0
PC Interfaces	Power by USB2.0 Type B (isolated)
Enclosure	Dimension (L115xH46xW105)
	Weight 450g
	IP65
	ABS
Environmental	-40°C to +85°C
	Humidity max 90%
Thermocouple Inputs	K, J, T-type
	Accuracy ± 1°C
	Measurement: -200 °C to 1250 °C
Connection type	Thermocouples: mini K, J ,T-Type
Thermocouple Inputs	
Number of channels	16 K, J, T-type inputs (K-TC8), 16 K, J, T-type inputs(K-TC16), 32 K, J ,T-type inputs (K-TC32)
Measurement Range	ABS
Max Sampling Rate	10 Hz per channel
Max applied voltage	± 3.3 V

Influx

K-IEPE AND K-PT

Handling IEPE and PT sensors

Influx
K-IEPE

P/N: INF2213

K-IEPE
Measuring IEPE Sensors

Our K-IEPE module is designed to connect IEPE sensors to a K-Box or K-AN8 voltage measurement device that normally cannot support IEPE sensors.

The powered K-IEPE module simply enables IEPE sensors to be connected via the BNC terminals and will output the signal voltages to Analog measurement device.

Calibration and sampling rates can be configured using the freely distributed K-Cal software.

Advantages

- Wide frequency range.
- Linear amplitude characteristics in wide dynamic range.
- Ability to operate in severe ambient conditions (temperature, humidity, rediation and megnatic fields).
- High mechanical reliability and durability at expense of moving parts in the sensor.
- High vibration and shock resistance.
- No need of other power supply for sensors.
- Compact structure and a large ratio of senstivity to mass.

Key Features

- Connects to the K-Series K-Box/K-AN8 via the Analog inputs.
- Refresh rates achievable (4 channels 1 kHz)
- ABS enclosure

Influx
K-IEPE

Technical Data

Technical Data	Description
Measurement inputs	4
Type of measured sensors	PT100/1000
Measurement range	-200degC to +850degC
Linearization	Standard tables for different types of ALPHA
Internal resolution	18 Bit
Internal sampling rate per channel.	6.25kHz
Measurement data rate per channel.	1, 2, 5, 10, 20 Hz
HW HW input filter	Input filter common mode; Output filter on the amplifier; Differential-Mode Corner Frequency 7.6Hz, Common-Mode Corner Frequency: 159Hz
SW input filter	A digital filter in the ADC module is automatically adjusted to the sampling rate. With the current setting (sampling at 6.25kHz), the filter has a frequency of 3kHz
Broken sensor detection	Yes
Measurement current	The current changes, depending on the resistance of the sensor, within the range: 212-224µA

Technical Data	Description
Gain error at 25degC	± 0.1% of measured value
Offset and scaling error	±1K
Gain drift	±10ppm/K of measured value
Zero drift	±5 mK/K
CAN channel Isolation	1000VDC minimum
CAN power supply Isolation	CAN and Power are galvanically connected
CAN interface	CAN 2.0B, up to 1Mbit/s
Configuration	Configuration with K-Box Cal application by company protocol
Power supply	4.5V to 36V DC.
Power consumption	Typ. 1.9W
Designation housing	ABS
Protection class	IP65
Weight	450g
Dimensions	115x46x105mm
CAN power supply	Two 9 pin D-type connectors with duplicate signals
Signal inputs	Two channels are integrated into a 9 pin D-type connector
Operation temperature range	-40degC to +85degC

Influx
K-PT

K-Pt 100/1000

Measuring PT Sensors

P/N: INF2212

Our K-PT module is designed to connect PT100/1000 sensors to a K-Box or K-AN8 voltage measurement device that normally cannot support these sensors. The powered K-PT module simply enables PT100/1000 sensors to be connected via the DSub 9 terminals and will output the signal voltages to an Analog measurement device

Calibration and sampling rates can be configured using the freely distributed K-Cal software.

Advantages

- Accuracy, excellent stability and repeatability
- Relatively immune to electric noise
- Well suited and widely used for temperature measurements in industrial environments. Especially around motors, generators and other high voltage equipment.
- Easily configurable software.. .

Key Features

- Connects up to 4 RTD sensors to the K-Series K-Box/K-AN8 via the Analog inputs
- Simple signal configuration using a DBC file.
- Supplied with configuration software Influx K-Cal for Windows®
- Refresh rates achievable (4 channels 20 Hz)
- ABS enclosure

Influx
K-PT

Technical Data

Technical Data	Description
Measurement inputs	4
Internal resolution	18 bit
Internal sampling rate per ch.	6.25kHz
Measurement data rate per ch.	4 channels: 1kHz. CAN bus: 1Mbit/s
SW input filter	A digital filter in the ADC module is automatically adjusted to the sampling rate
High pass filter	13.8Hz
Bandwidth	21.8Hz
Operational safety	-0.7V to +24V permanent, additional
Device safety	-0.7V to +24V permanent, additional ESD protection
Input impedance	>10K
Broken sensor detection	Yes
Typical SNR @ 30kHz Band Width	Sampling @6.25Hz: 102dB
Linearity	ADC ±0.75 LSB
Current source	5.1mA ± 2%
Voltage	24V
Output power	Maximum total (for 4 channel) current: 60mA
Channel/ power supply Isolation	1000 VDC minimum
Sensor excitation/ power supply Isolation	1000 VDC minimum
CAN channel Isolation	1000 VDC minimum
CAN power supply Isolation	CAN and power are galvanically connected
Configuration	Configuration with K-Box Cal application by company protocol
Power supply	4.5V to 36V DC.
Power consumption	Typ. 2.6W
Housing	ABS
Dimensions/ Weight/ Protection Class	D: (128x46x105mm); W: 450g; PC: IP65
CAN/ Power supply	Two 9-pin D-Type connections with duplicate signals
Signal Inputs	BNC Connector
Operating temperature range	-40degC to +85degC

Influx Technology Ltd

sales@influxtechnology.com
www.influxtechnology.com

K-Series Instrumentation Solution

Influx TECHNOLOGY