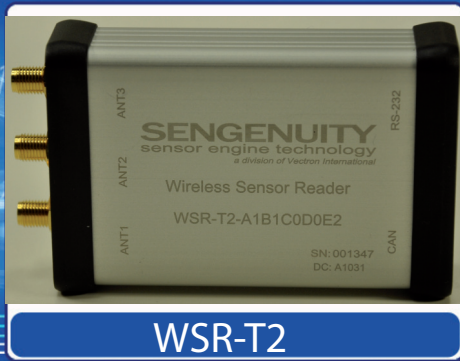


Helping Customers Innovate, Improve & Grow



WSR-T2

The WSR-T2 Reader provides a base for batteryless, non-invasive and low cost temperature measurement solution that is ideally suited for applications ranging from industrial to consumer markets.

The WSR-T2 Reader is a highly sophisticated SAW Sensor interrogation unit. The WSR-T2 is designed to monitor multiple Sensors simultaneously. SenGenuity will work closely with you to adapt the WSR-T2 Reader to meet the specific needs of your application.

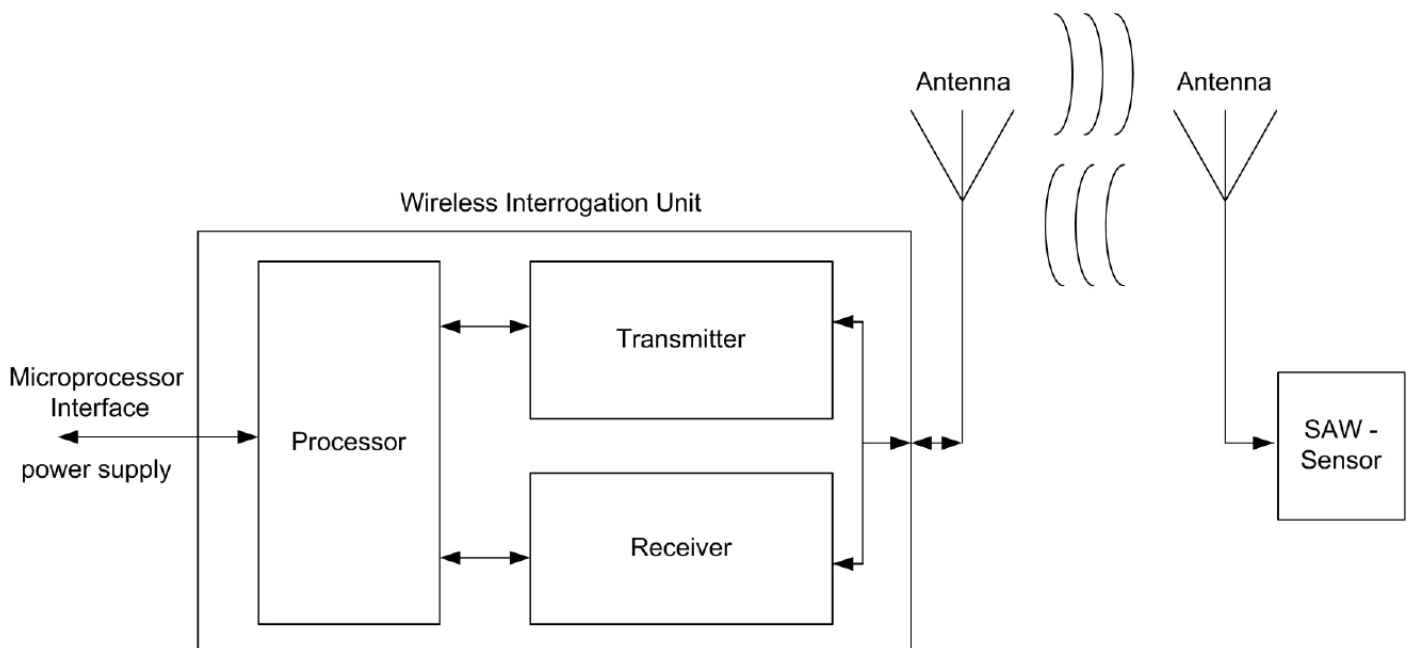
Features

- Batteryless Wireless Temperature Sensors
- Multiple Sensor Tracking Capability
- 2 m Interrogation Distance¹
- Typical Sensor Temperature Range: -10°C up to 120°C (Others on Request)
- Wireless Reader can be powered by Laptop / PC
- User friendly, simple to use interface
- Plug-n-play sensor connectivity and installation

Applications

- Temperature measurement
- High cycle rate applications (i.e. reciprocating machinery)
- Measurement on rotating parts
- Measurement in harsh environment
- Highly constricted space for sensor
- Measurement where power to the sensor is not possible

Block Diagram



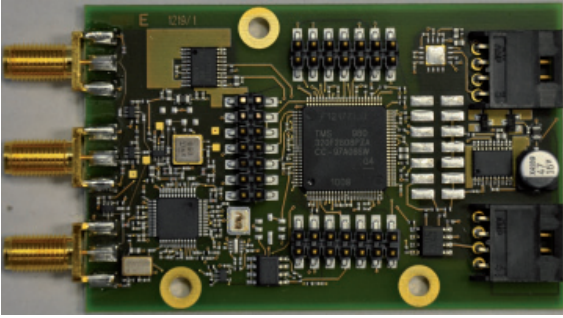
Performance Specifications Interrogation unit

Standard measurement: Temperature (other measurands please contact factory)					
Parameter	Min	Typical	Max	Units	Condition
Frequency range ²	429		438	MHz	Refer to FCC/CE Certification detail in Notes
Maximum output power ²	+6	+10	+13	dBm	power can be reduced by software settings
Input power	-95	-50	0	dBm	per sensor
Operating temperature range	-20		+60	°C	operating temperature range for reader unit
Resolution	-32		+32	Hz	Reader
Initial accuracy	-1.5		+1.5	kHz	@25°C and -75 dBm input power at time of shipment
Accuracy vs. operating temperature range (referenced to +25°C)	-0.5		+0.5	kHz	-20 to +60°C
Accuracy vs. aging / 5 years	-1.5		+1.5	kHz	
Measurement time		50		ms	depends on settings and number of interrogations per measurement
Number of sensors	1		18	pieces	6 Sensors per antenna
Power Supply					
Supply voltage	+3.8	+5.0	+5.25	VDC	Reader Option A1
Supply voltage	+9	+24	+30	VDC	Reader Option A2 and A3
Power consumption	1.1	1.5	2.2	W	
Mechanical Specifications Reader unit					
Length		91		mm	Reader Option A1 and E0
Height		10		mm	
Width		50		mm	
Weight		30	50	g	Reader Option A1 and E0
Length		96		mm	Reader Option A1 and E2
Height		35		mm	
Width		57		mm	
Weight		110	130	g	Reader Option A1 and E2
Length		96		mm	Reader Options A2, A3 and E2
Height		45		mm	
Width		57		mm	
Weight		140	160	g	Reader Options A2, A3 and E2
Pinning and connectos					
Interface connector	CAN				Additional Interfaces see Options
Antenna connector	3 x SMA				
Power connector	DC Power connected through CAN interface				Reader Option A1
Power connector	Screw Terminals				Reader Option A2 and A3
Power connector	DC Power connected through USB Mini				Reader Option B6

Absolute Maximum Ratings

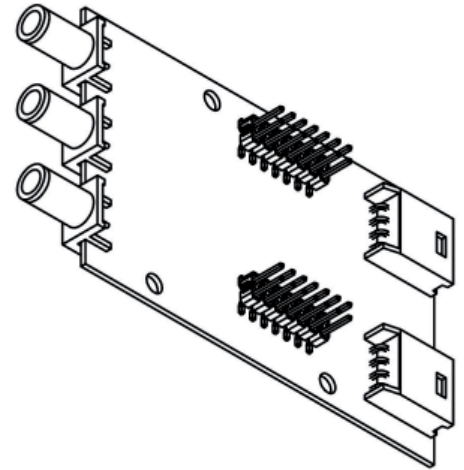
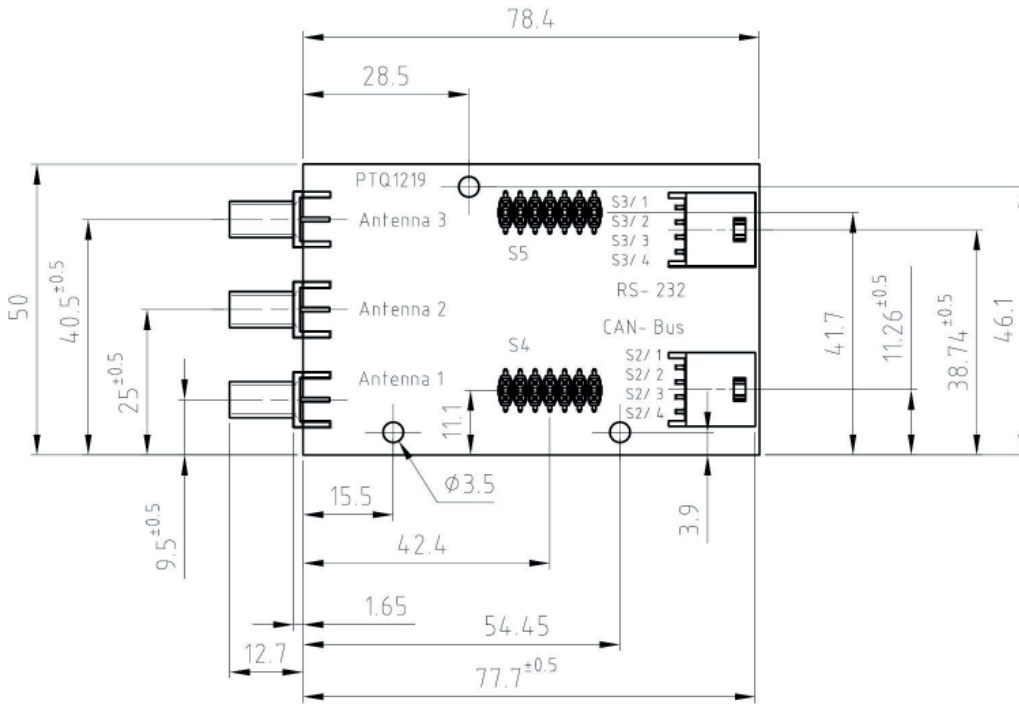
Humidity			80	%	without condensation
Operable Temperature Range	-30		+60	°C	
Storage Temperature Range	-40		+70	°C	
CAN Interface Pin S2/1	0		+7	V	Option A1, Supply
CAN Interface Pin S2/2		NA			GND
CAN Interface Pin S2/3	-6		+15	V	CANL
CAN Interface Pin S2/4	-6		+15	V	CANH
RS232 Interface Pin S3/1	0		+7	V	Option B1, Supply
RS232 Interface Pin S3/2		NA			Option B1
RS232 Interface Pin S3/3	-13		+13	V	Option B1
RS232 Interface Pin S3/4	-24		+24	V	Option B1
RS485 Interface Pin S3/1	0		+7	V	Option B5, Supply
RS485 Interface Pin S3/2		NA			Option B5
RS485 Interface Pin S3/3	-8		+13	V	Option B5
RS485 Interface Pin S3/4	-8		+13	V	Option B5
Screw Terminal +9..30V DC	0		+30	V	Option A2 and A3, Supply
Screw Terminal GND		NA			Option A2 and A3
Screw Terminal RS485 A	-8		+13	V	Option B2, B3, and B4
Screw Terminal RS485 B	-8		+13	V	Option B2, B3, and B4
Screw Terminal 4-20mA	0		Supply	V	Option C1
Screw Terminal 0.5..5V Out	0		+7	V	Option C2
Screw Terminal 0..3V Out	0		+3.3	V	Option C3
Antenna Connectors					No DC Voltage allowed
Pin 1	0		+5.5	V	Option B6, Supply
Pin 2	0		+3.8	V	Option B6
Pin 3	0		+3.8	V	Option B6
Pin 4		NA		V	Option B6
Pin 5		NA		V	Option B6

Outline Drawing / Enclosure Option A1 and E0

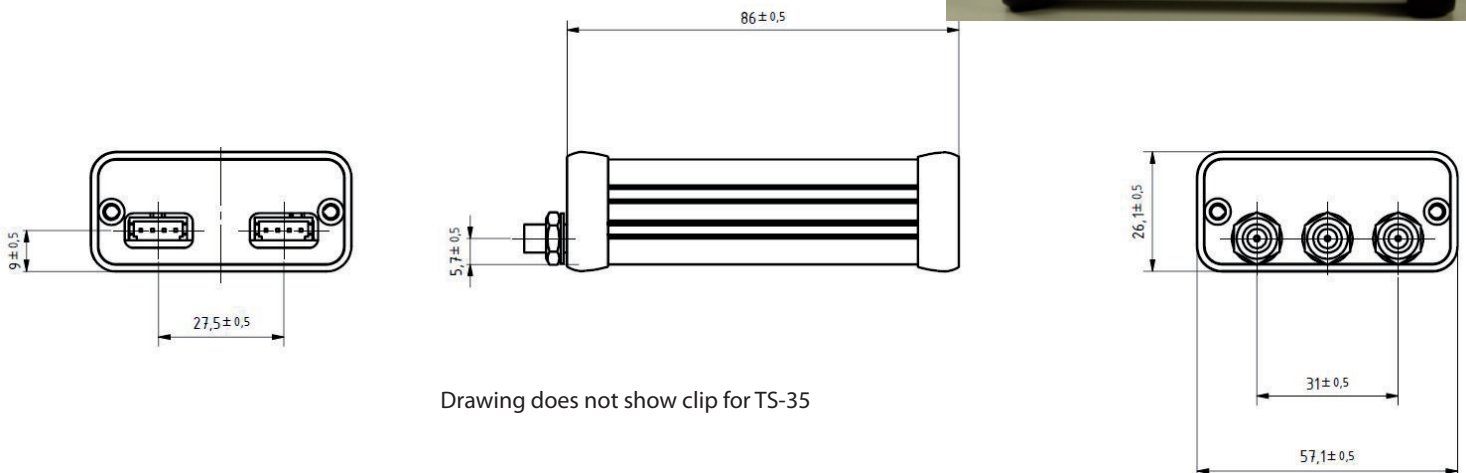
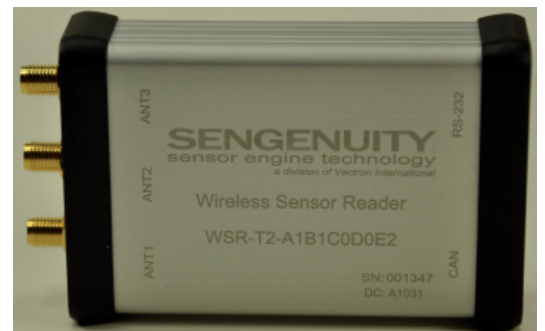


Pin Connections			
Pin	S2	Option B1 S3	Option B5 S3
1	+ 5 V	+ 5 V	+ 5 V
2	GND	GND	GND
3	CANL	RS232_TX#	RS485B-
4	CANH	RS232_RX#	RS485A+

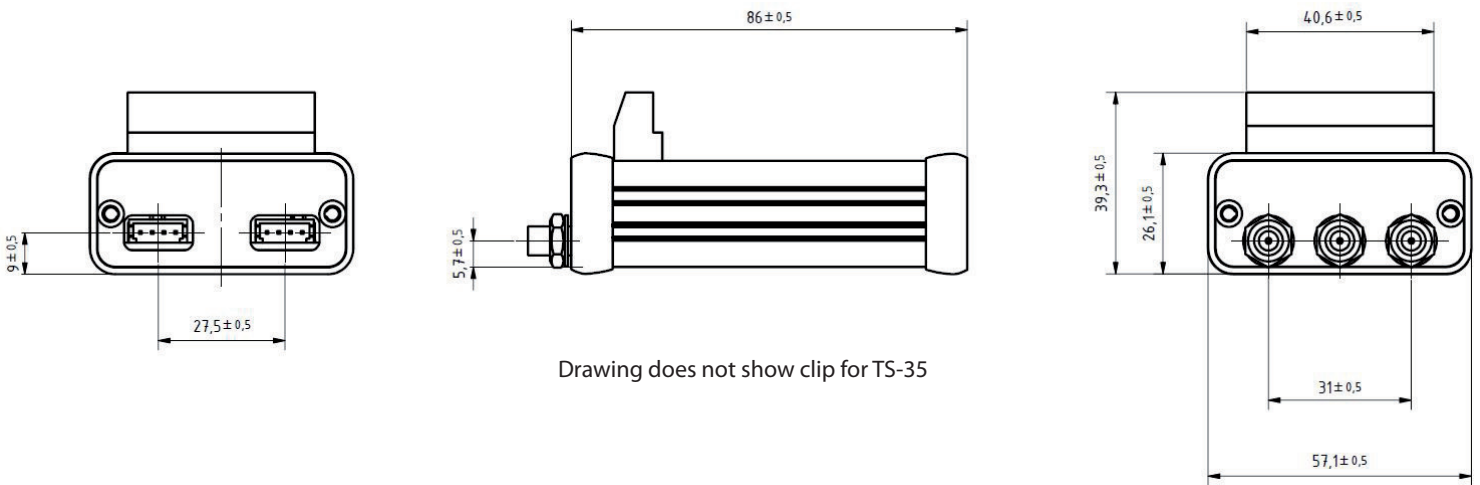
Lines must be crossed when connected to other devices



Outline Drawing / Enclosure Options A1 and E2



Drawing does not show clip for TS-35



WSR-T2- Contents

- One Wireless Sensor Reader with selected Options see ordering Information.

If additional components, like:

- Reader antennae,
 - PC interface
 - Software
 - User Manual
 - Sensor Modules
 - Power Supply
- are required please ask for a Kit

WSR-T2 Reader Options³

Option	Options see ordering code ³	Condition
A1	Supply Voltage 5 V	No Daughtercard required
A2	Supply voltage 9..30 V, no DC Isolation	Daughtercard stacked on reader
A3 ⁴	Supply Voltage 9..30 V, DC Isolation	Daughtercard stacked on reader
B1	RS232 Output	Default Option
B2	RS485 - Full Duplex Isolated	Option not available with Option A1
B3	RS485 - Half Duplex, 2 Terminals per signal, Isolated	Option not available with Option A1
B4	RS485 - Half Duplex , 1 Terminal per signal, Isolated	Option not available with Option A1
B5	RS485 - Half Duplex , 1 Terminal per signal, Not Isolated	
B6	USB Mini	
C1	Isolated Analog Outputs 2 x 4-20 mA self powered	Option not available with Option A1, B2 and B3
C2	Isolated Analog Outputs 2 x 0.5..5 V	Option not available with Option A1, B2 and B3
C3	Unisolated Analog Outputs 2 x 0.0..3.0 V	Option not available with Option A1, B2 and B3
E2	With Housing and Clip for TS-35	package Option is recommended for A2, A3

Ordering Information³

WSR - T2 - A1 B1 C1 D0 E2

WSR - T2 _____

Supply Voltage Required Option _____

A1: 5 V

A2: 9..30 V, no DC Isolation

A3: 9..30 V, DC Isolation

Additional interface _____

B1: RS232 Output Default Option

B2: RS485 Full duplex, Isolated

B3: RS485 Half duplex 2 Terminals per signal, Isolated

B4: RS485 Half duplex 1 Terminal per signal, Isolated

B5: RS485 Half duplex 1 Terminal per signal,
Non Isolated

B6: USB

Analog Outputs _____

C1: Isolated 2 x 4-20 mA self powered

C2: Isolated 2 x 0.5..5 V

C3: Unisolated 2 x 0.0..3.0 V

C0: if not required

Display Connector _____

D0: available option

Package _____

E2: with housing and Clip for TS-35

E0: if not required

Note: Options within one Letter code can not be combined

Options A2, A3, B2, B3, B4, C1, C2, C3 are connected via screw terminals

Notes:

- 1) Dependent on RF environment.
- 2) FCC/CE Certification refer to: ADVISORY for COMPLIANCE to COUNTRY DIRECTIVE(S)
- 3) Not all combinations are available, please contact factory for availability.
- 4) Power Supply must be able to provide 500mA Start-Up-Current with Option A3

Product status and specifications are subject to change.

DISCLAIMER

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Rev: 11/2011

Advisory for Compliance to Country Directive(s)/Regulations

Vectron International readers and/or kits are considered electrical apparatus that may require compliance to specific country Directive(s)/regulations when put in service for end-use. Vectron offers certain WSR products (typically as “kits”) that have been tested and certified to be fully compliant to such directives/regulations and marked accordingly with the required markings such as FCC logo or CE markings. Product with FCC/CE markings when shipped by Vectron, must be used in accordance with the requirements of the standards that the product has been tested to comply with (Refer to the User Manual/Instructions and safety precautions). A declaration of conformity can be provided upon request or obtained from Vectron’s web site:

www.sengenuity.com

Vectron may also offer un-marked product sold as a “component” or “sub- assembly”. Stand-alone WSR reader boards/sub-assemblies which function as described in this data-sheet for example, may be shipped without such markings as permitted by the regulations. Such un-marked product is intended for further processing and assembly by customers into their own products with a view to putting such product on the market for service or end-use under their own name. When Vectron ships unmarked product (e.g. without CE marking), customers are advised and cautioned that, as the “manufacturer” of the product, they should review the directives/standards for their country for EMC (e.g. 2004/108/EC for EU Community) and/or other directives as applicable, to ensure compliance to these directives when they put their end-product incorporating the Vectron component on the market.

For further guidance for EU use on this subject, please refer to :

http://ec.europa.eu/enterprise/policies/single-market-goods/files/blue-guide/guidepublic_en.pdf

Details of Operating Instructions/User Manual including the criteria or set of operating conditions/commands that can affect EMC compliance are provided in:

http://www.sengenuity.com/prods_spec_sheets.html/xxx

Note: The set of conditions that can render the product compliant or non-compliant is being provided for guidance only, and is not intended to assurance of such compliance or non-compliance which will be influenced by the actual customer applications and use environment. Customers are ultimately responsible for the assessment of any compliance.