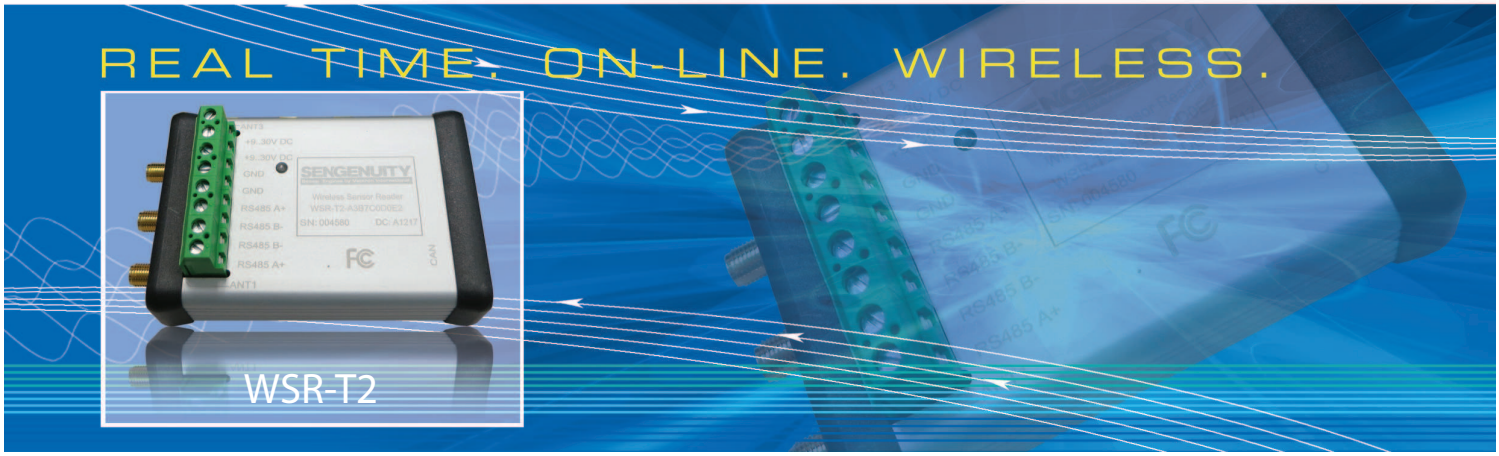
SENGENUITY
Sensor Engines by Vectron International

TempTrackr™ WSR-T2

Wireless Sensor Reader



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

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

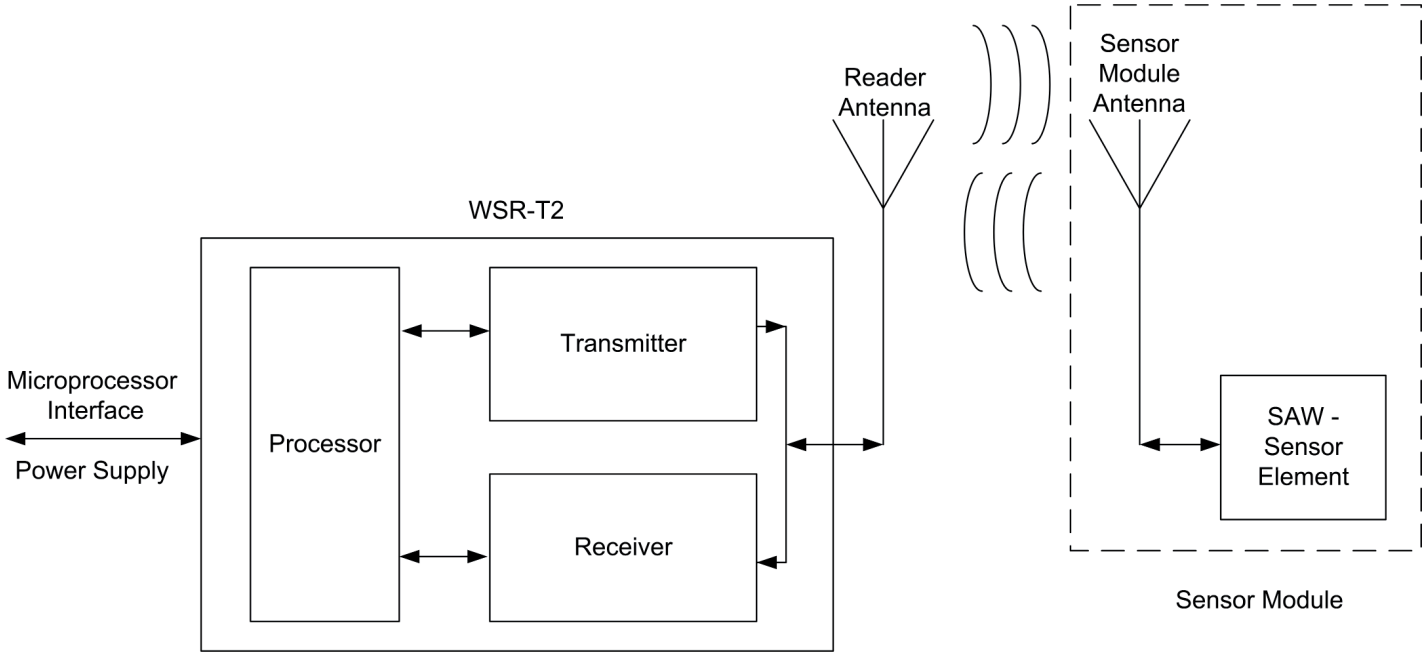
System Features

- Batteryless wireless temperature sensors
- Multiple sensor tracking capability
- 3 m interrogation distance[1]
- Typical sensor temperature range: -20°C to 120°C
- Multiple interfaces available
- Different antenna types available

System Applications

- Batteryless wireless temperature measurement for
  - Electric Power grid
  - Rotating and reciprocating parts
  - Culinary (ovens, rotisseries,etc.)
  - High temperature industrial

Block Diagram System



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Performance Specifications

Parameter	Min	Typical	Max	Units	Condition
Frequency range [2]	428		439.5	MHz	Refer to FCC/CE Certification detail in Notes
Maximum output power [2]	+6	+10	+13	dBm	power can be reduced by software settings
Receiver input sensitivity		-95		dBm	
Operating temperature range	-20		+70	°C	for WSR-T2
Resolution	-32		+32	Hz	
Initial accuracy	-1.5		+1.5	kHz	@25°C and -75 dBm input power at time of shipment
Accuracy referenced to +25°C	-0.5		+0.5	kHz	vs. operating temperature range
Accuracy referenced to time of shipment	-1.5		+1.5	kHz	vs. aging / 5 years
Measurement time		50		ms	depends on settings and number of interrogations per measurement
Number of sensors	1		32	pieces	6 Sensor System: 6 sensors per antenna 12 Sensor System: 2x 12 and 1x 8 sensors
Power Supply					
Supply voltage	+3.8	+5.0	+5.25	VDC	Option A1
Supply voltage	+9	+24	+30	VDC	Option A2 and A3
Power consumption	1.1	1.5	2.5	W	
Mechanical Specifications Reader unit					
Length Height Width		91 10 50		mm mm mm	Option A1 and E0
Weight		30	50	g	Option A1 and E0
Length Height Width		96 35 57		mm mm mm	Option A1 and E2
Weight		110	130	g	Option A1 and E2
Length Height Width		96 45 57		mm mm mm	Options A2, A3 and E2
Weight		140	160	g	Options A2, A3 and E2
Pinning and connectors					
Interface connector	CAN				Additional Interfaces see Options
Antenna connector	3 x SMA				
Power connector	DC Power connected through CAN interface				Option A1
Power connector	Screw Terminals				Option A2 and A3
Power connector	DC Power connected through USB Mini				Option B6

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Absolute Maximum Ratings

Parameter	Min	Typical	Max	Units	Condition
Humidity			80	%	Non condensation
Operable Temperature Range	-30		+70	°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	-60		+60	V	Option B5; These devices are designed to operate in „hot swap“ or „hot pluggable“ applications
RS485 Interface Pin S3/4	-60		+60	V	Option B5; These devices are designed to operate in „hot swap“ or „hot pluggable“ applications
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	-60		+60	V	Option B7 and B4 These devices are designed to operate in „hot swap“ or „hot pluggable“ applications
Screw Terminal RS485 B	-60		+60	V	Option B7 and B4 These devices are designed to operate in „hot swap“ or „hot pluggable“ applications
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

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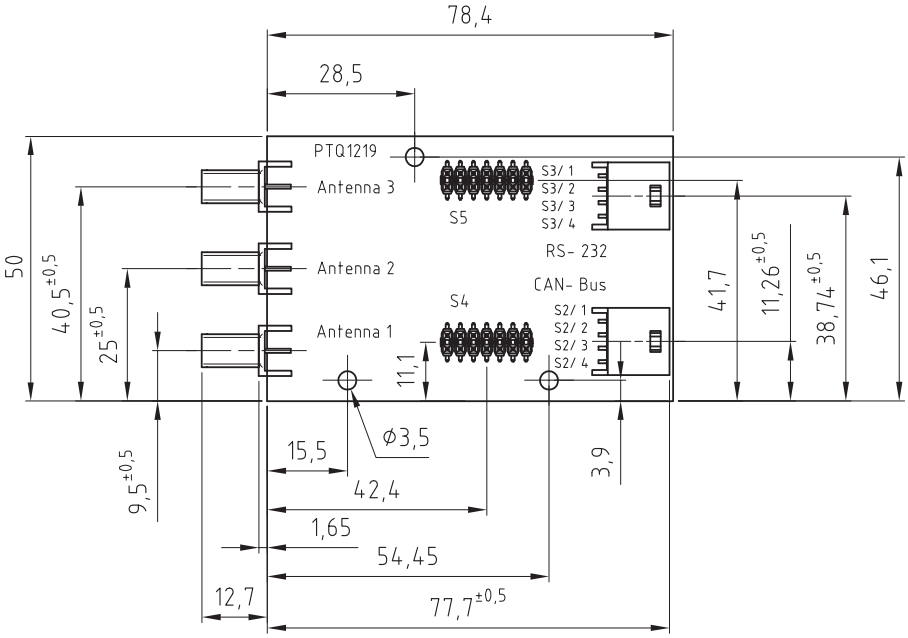
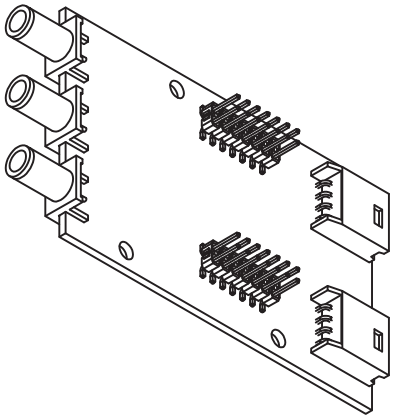
Outline Drawing / Enclosure Option A1 and E0

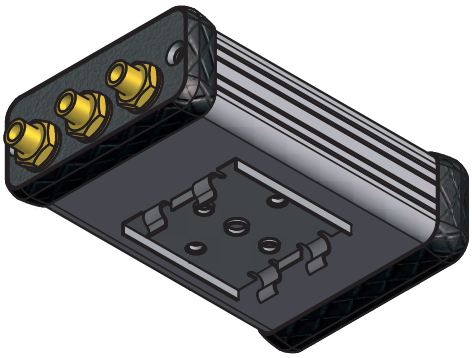


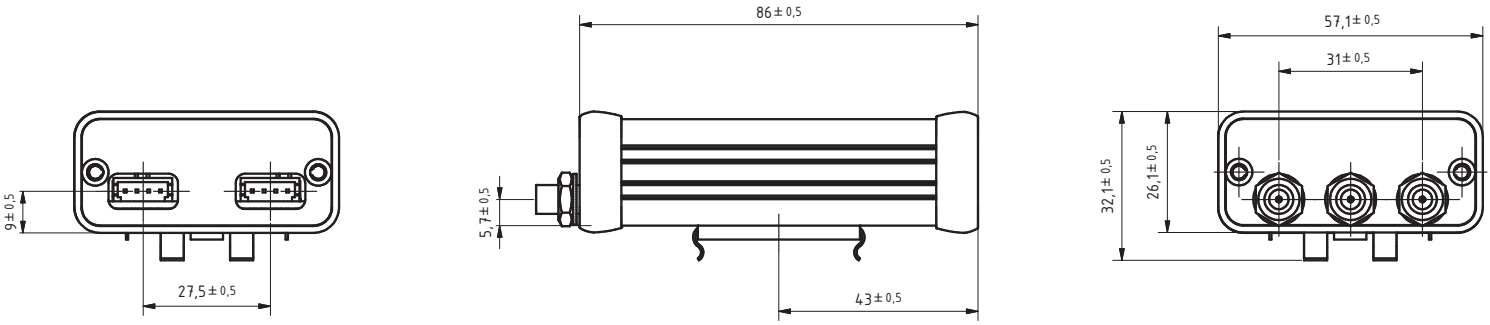


Pin Connections			
Pin	S2	Option B1 S3	Option B5 S3
1	+ 5 V	+ 5 V	+ 5 V
2	GND	GND	GND
3	CANL	RS232_TX#	RS485B-
4	CANH	RS232_RX#	RS485A+

Lines must be crossed
when connected to other devices

Outline Drawing / Enclosure Options A1 and E2





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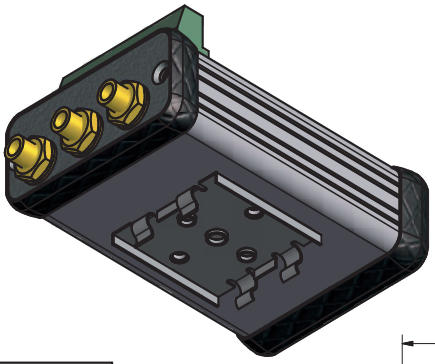
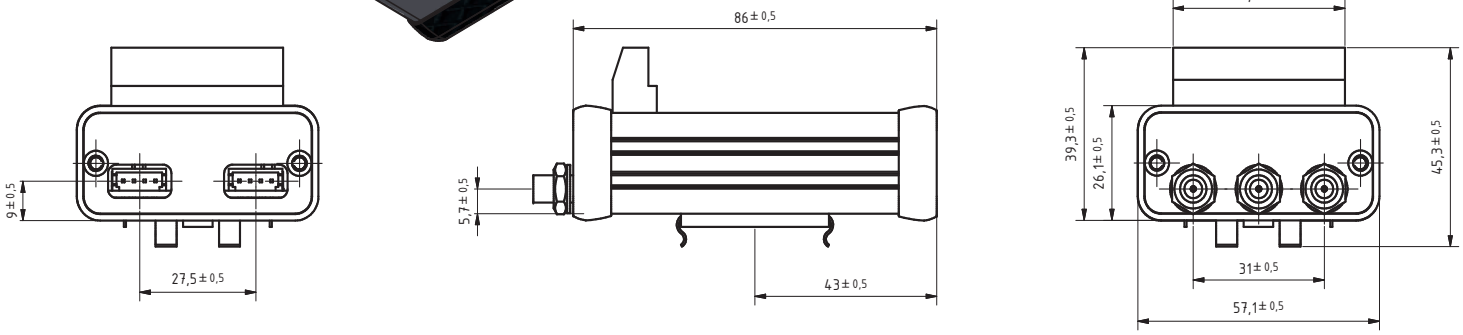
Outline Drawing / Enclosure Options A2, A3 and E2





Ordering Information[3]

WSR - T2 - A1 B1 C1 D0 E2

Product Family
WSR: Wireless Sensor Reader

WSR -Version
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
B4: RS485 Half duplex 1 Terminal per signal, Isolated (±60V)
B5: RS485 Half duplex 1 Terminal per signal, Non Isolated (±60V)
B6: USB Mini
B7: RS485 Half duplex 2 Terminals per signal, Isolated (±60V)

Analog Outputs
C0: No analog output
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

Display Connector
D0: available option

Package
E0: without housing
E2: with housing and Clip for TS-35

Options within one Letter code can not be combined

Options A2, A3, B4, B7, 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

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.