SERIES 2000 READER S251B

FEATURES

- **Best in Class Performance Through Patented HDX Technology**
- **Automatic Antenna Tuning**
- **High Power Output**
- **Proven in Harsh Industrial Environments**
- **Easy to Install and Use**

APPLICATIONS

- **Access Control**
- **Vehicle Identification**
- **Container Tracking**
- **Asset Management**
- **Waste Management**

DESCRIPTION

The Texas Instruments' low-frequency (LF) reader provides all the functionality required to communicate with Texas Instruments 134.2 kHz LF transponders which are available in a variety of form factors. The RI-STU-251B Reader/Writer is capable driving a variety of antennas with inductance ranges from 26.0µH to 27.9µH including TI standard antennas RI-ANT-G01E, RI-ANT-G02E, RI-ANT-G04E gate antennas as well as RI-ANT-S01C and RI-ANT-S02C stick antennas. The RI-STU-251B includes an automatic antenna resonance tuning feature which further reduces the need for maintenance and simplifies installation. It also supports both RS232 and RS422/485 interface standards.

The RI-STU-251B is well suited for usage in a broad range of applications including, but not limited to, access control, vehicle identification, container tracking, asset management and waste management applications.

The Series 2000 Reader S251B provides all RF and Control Functions to communicate with 134.2 kHz HDX/FSK transponders. It sends an energizing signal to the transponder, modulates the RF signal to send data to the transponder, decodes and checks the received transponder data and transmits it via a standard serial interface (RS232, RS422/485). The reader includes a Dynamic Auto Tuning (DAT) function that automatically tunes a standard antenna to resonance and keeps it tuned during operation.

ABSOLUTE MAXIMUM RATINGS(1)

over operating free-air temperature range (unless otherwise noted)

	RI-STU-251B	UNIT
Operating Temperature	–20 to +70 (depending on power consumption)	°C
Storage Temperature	–40 to +85	°C

(1) Stresses beyond those listed under *Absolute Maximum Ratings* may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under *Recommended Operating Conditions* is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

RECOMMENDED OPERATING CONDITIONS

over operating free-air temperature range (unless otherwise noted)

	RI-STU-251B
Power Supply	10 to 24 Vdc, regulated

OPERATING CHARACTERISTICS

over operating free-air temperature range (unless otherwise noted)

PARAMETER	PART NUMBER	UNIT
	RI-STU-251B	
Relative Humidity	<97% non-condensing, IEC 68-2-30 Test Db, 21 cycles	
RF Transmit Frequency	134.2	kHz
Memory	64 kByte EPROM for Firmware 1kBit EEPROM for Configuration 32 kByte RAM for Data	
Data Storage	909 ID Codes (each 64bit)	
Communications Interface	RS232, RS422/485	
System Architecture	Point-to-point and point-to-multipoint	
Communications Parameters	600 - 57600 baud, 7/8 data bits, even/odd parity	
Communications Protocol	ASCII with Xon/Xoff handshake, TIRIS™ Bus Protocol	
Inputs/Outputs	8 configurable digital I/Os, 2 open collector outputs	
Antenna Tuning Range	26 to 27.9 µH (Dynamic Auto Tuning)	
Antenna Resonance Voltage	Max. 380 Vpeak	
Transponder Types	134.2 kHz HDX/FSK	
Dimensions (L × W × H)	(200 mm × 120mm × 120 mm) ± 1.5 mm	
Weight	900	g
Mounting	DIN rail TS35	

PACKAGING INFORMATION

Orderable Device	Status [1]	Package Type	Package Drawing	Pins	Package Qty	Eco Plan [2]	Lead/Ball Finish	MSL Peak Temp [3]
RI-STU-251B-01	ACTIVE			1		TBD	Call TI	Call TI
RI-STU-251B-30	ACTIVE			0	1	TBD	Call TI	Call TI

[1] The marketing status values are defined as follows:
ACTIVE: Product device recommended for new designs.
LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
PREVIEW: Device has been announced but is not in production. Samples may or may not be available.
OBSOLETE: TI has discontinued the production of the device.

[2] Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.
TBD: The Pb-Free/Green conversion plan has not been defined.
Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.
Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.
Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

[3] MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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