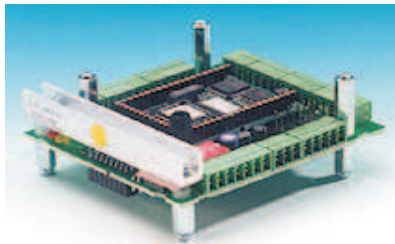

SERIES 2000 CONTROL MODULE

FEATURES

- **Best in Class Performance Through Patented HDX Technology**
- **RS232 Interface**
- **Multi Purpose I/Os**
- **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 Series 2000 Control Module (CTL) is the interface between a TI-RFid™ Radio Frequency Module and a controlling host. The CTL controls the transmitting and receiving functions of an RFM module such as the RI-RFM-003B, RI-RFM-007B or RI-RFM-008B according to the commands from the host to send signals to and receive data from a TI-RFid™ LF transponder. It converts the received RF signals to the transponder's identification number, checks the validity and handles the conversion to the standard RS232 (RI-CTL-MB2A) or the RS422/485 (RI-CTL-MB6A) serial interface protocol.

The CTL in combination with an RFM module 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



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

TI-RFid is a trademark of Texas Instruments.

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

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

| | RI-CTL-MB2A | RI-CTL-MB6A | UNIT |
|-----------------------|-------------|-------------|------|
| Operating Temperature | 0 to +70 | | °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-CTL-MB2A, RI-CTL-MB6A |
|--------------|--------------------------|
| Power Supply | 7 to 25 Vdc, regulated |

OPERATING CHARACTERISTICS

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

| PARAMETER | PART NUMBER | |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| | RI-CTL-MB2A | RI-CTL-MB6A |
| Memory | 64 kbyte PROM for Code 1 kbit EEPROM for Configuration 32 kByte RAM for Data | |
| Data Storage (ID Codes) | 909 | |
| Communication Interface | RS232 | RS422/485 |
| System Architecture | Point-to-point | Point-to-multipoint |
| Communication Protocols | ASCII with Xon/Xoff handshake; TI-RFid™ Bus Protocol | |
| Communication Parameters | 600 – 57600 Baud, 7/8 data bits, even/odd parity | |
| Input / Output | 8 configurable digital I/O's, 2 open collector outputs | |
| Connector Type | Standard connector 'Combicon Type' from Phoenix Contact | |
| Operation with | Series 2000 Standard RFM (RI-RFM-104B) Series 2000 High Performance RFM (RI-RFM-007B) Series 2000 Remote Antenna RFM (RI-RFM-008B) | |
| Reference Documentation | 11-06-21-037 Reference Guide Series 2000 Control Module RI-CTL-MB2A 11-06-21-056 Reference Guide Series 2000 Standard Reader RI-STU-MB2A/MB6A 11-06-21-042 (SCBU022) Reference Guide Series 2000 High Performance RFM RI-RFM-007B 11-06-21-047 (SCBU023) Reference Guide Series 2000 Remote Antenna RFM RI-RFM-008B | |
| Dimensions | 93 mm × 82 mm × 33 mm ± 1.5mm | |
| Weight | approx. 90g | |
| Approval | CE | |

PACKAGING INFORMATION

| Orderable Device | Status ⁽¹⁾ | Package Type | Package Drawing | Pins | Package Qty | Eco Plan ⁽²⁾ | Lead/Ball Finish | MSL Peak Temp ⁽³⁾ |
|------------------|-----------------------|--------------|-----------------|------|-------------|-------------------------|------------------|------------------------------|
| RI-CTL-MB2A-03 | ACTIVE | | | 1 | 1 | TBD | Call TI | Call TI |
| RI-CTL-MB6A-03 | ACTIVE | | | 1 | 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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