MT Series transcoders are designed for bi-directional remote control applications. Eight status lines can be set up in any combination of inputs and outputs for the transfer of button or contact states. An automatic acknowledgement indicates that the transmission was successfully received. The large, twenty-four bit address size makes transmissions highly unique, minimizing the possibility of conflict between multiple devices. A Serial Interface Engine (SIE) allows configuration and control of the transcoder by an external microprocessor or PC.

**Bi-Directional Remote Control:** The MT Series can be configured to send remote activation commands in both directions. In addition, the receiving side sends an automatic acknowledgement to the transmitting side indicating that it received the command.

**Encoder/Decoder Configuration:** The MT Series is configured by connecting pins to supply or ground. There is no software or programming required for basic operation.

**Serial Interface Engine:** The MT Series includes a Serial Interface Engine (SIE) that allows it to be optionally configured through a 1-wire serial interface. This allows for more advanced functionality than can be realized by hardware lines alone. These features include programming the local address, the learned address list, enabling acknowledgements, targeted transmissions, latched or momentary outputs, and initiating transmissions and monitoring reception on one line instead of using 8 hardware lines.

**Unique Addressing:** The MT Series offers a simple hardware addressing method without the need for software or programming. A 24-bit address is created in the encoder by pressing and holding a button. The address is learned by the decoder with another button press. The 24-bit address provides over 16.7 million addresses, so the chances of adjacent systems activating each other is very small.

**More Buttons:** The MT Series supports up to 8 data lines that can be connected to buttons, contacts or microcontroller lines. This offers more functionality than many similar parts. Additionally, the outputs can be set as latched or momentary by setting the logic state of a single pin.

**Control Permissions:** The MT Series can be configured so that certain encoders can only activate certain outputs on the decoder. This allows the creation of user groups and relationships rather than an all-or-nothing activation.

**Receiver Power Control:** The MT Series can power the receiver on a 10% duty cycle. This allows the receiver to stay asleep 90% of the time, conserving power consumption in applications where power is critical. Likewise, it can power on the transmitter only when it is sending data.

**Transmitter Identification:** The transcoder outputs a binary number identifying the encoder that sent the transmission. This allows access attempts to be logged.

**Low Power:** The MT Series has extremely low power consumption, making it ideal for applications with a limited power supply, such as a coin cell battery.

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**Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Voltage</td>
<td>2.0 to 5.5VDC</td>
</tr>
<tr>
<td>Supply Current</td>
<td>370µA</td>
</tr>
<tr>
<td>Power Down Current</td>
<td>0.1µA</td>
</tr>
<tr>
<td>Response Time</td>
<td>22.5ms</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>–40 to +85°C</td>
</tr>
</tbody>
</table>

**Applications**

- Door and Gate Openers
- Remote Device Control
- Call Systems
- Home / Industrial Automation
- Remote Status Monitoring
- Lighting Control
### Typical Application Circuits

When activated, the encoder encodes the current states of its inputs and its address into a packet and outputs a digital data stream. This data can be sent to a decoder by RF modules, infrared link or even a wire. The decoder checks the received packet to make sure there are no errors and that the received address has been learned. If everything is good, then the decoder replicates the encoder's input states on its outputs. These outputs are connected to whatever circuitry is required by the application. The receiving unit then sends an acknowledgement to indicate that the command was successfully received.

The circuits below show typical applications of the MT Series transcoder.