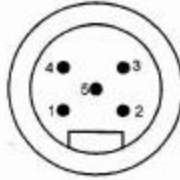


## CAN Bridge Setup and Configuration

### I. Wireless CAN Bridge Connector Diagram



Pin 1 – DRAIN  
Pin 2 – CAN\_H  
Pin 3 – Common  
Pin 4 – +24Vdc (~130mA @24Vdc)  
Pin 5 – CAN\_L

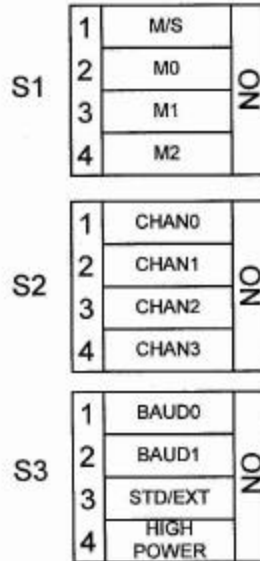
*Male Micro Connector Pinout*

#### **WARNING:**

***For Prototype units only.*** This is not the DeviceNet Standard Pinout. Verify proper wiring before applying power.

## CAN Bridge Setup and Configuration

### II. Wireless CAN Bridge Configuration Switches



*Wireless CAN Bridge Configuration Switch Layout*

The Wireless CAN Bridge has 12 configuration switches arranged in 3 banks S1, S2, and S3. Each bank, contains 4 switches. These switches allow the user to easily customize the Wireless CAN Bridge to fit the desired application. The following paragraphs describe each switch setting in more detail. The format Sb – s, where b is the bank number and s is the switch number within that bank, will be used. The “as shipped” settings are shown with an asterisk “\*”.

*Switch S1 – 1* Selects Node Communication Type. A Master is the initiator of the **Master/Slave pair**.

| Node Communication Type | M/S<br>(S1-1) |
|-------------------------|---------------|
| <del>SLAVE</del> MASTER | OFF*          |
| MASTER <del>SLAVE</del> | ON            |

**Note:** A Radio System must consist of only one master and only one slave per channel. See switches S2 – 1,2,3,4 for channel settings.

*Switches S1 – 2,3, and 4* Selects the Mode (number of retries). The radio will retransmit a “crashed” packet the selected number of retries before discarding the packet.

| Number of Retries | M2<br>(S1-4) | M1<br>(S1-3) | M0<br>(S1-2) |
|-------------------|--------------|--------------|--------------|
| 1                 | ON           | ON           | ON           |
| 2*                | ON*          | ON*          | OFF*         |
| 3                 | ON           | OFF          | ON           |
| 4                 | ON           | OFF          | OFF          |
| 5                 | OFF          | ON           | ON           |
| 6                 | OFF          | ON           | OFF          |
| 7                 | OFF          | OFF          | ON           |
| 8                 | OFF          | OFF          | OFF          |

## CAN Bridge Setup and Configuration

*Switches S2 – 1, 2, 3, and 4 Selects the operating channel. A master/slave pair must be set to the same channel to operate. See switch S1 – 1 for selecting Master/Slave operation.*

| Channel | CH3<br>(S2-4) | CH2<br>(S2-3) | CH1<br>(S2-2) | CH0<br>(S2-1) |
|---------|---------------|---------------|---------------|---------------|
| 0*      | ON*           | ON*           | ON*           | ON*           |
| 1       | ON            | ON            | ON            | OFF           |
| 2       | ON            | ON            | OFF           | ON            |
| 3       | ON            | ON            | OFF           | OFF           |
| 4       | ON            | OFF           | ON            | ON            |
| 5       | ON            | OFF           | ON            | OFF           |
| 6       | ON            | OFF           | OFF           | ON            |
| 7       | ON            | OFF           | OFF           | OFF           |
| 8       | OFF           | ON            | ON            | ON            |
| 9       | OFF           | ON            | ON            | OFF           |
| 10      | OFF           | ON            | OFF           | ON            |
| 11      | OFF           | ON            | OFF           | OFF           |
| 12      | OFF           | OFF           | ON            | ON            |
| 13      | OFF           | OFF           | ON            | OFF           |
| 14      | OFF           | OFF           | OFF           | ON            |
| 15      | OFF           | OFF           | OFF           | OFF           |

*Switches S3 – 1 and 2 Selects the CAN Bit Rate.*

| Bit Rate (Bits/Sec.) | BAUD1<br>(S3-2) | BAUD0<br>(S3-1) |
|----------------------|-----------------|-----------------|
| 125K*                | ON*             | ON*             |
| 250K                 | ON              | OFF             |
| 500K                 | OFF             | ON              |
| 125K                 | OFF             | OFF             |

*Switch S3 – 3 Selects Standard or Extended CAN framing.*

| CAN Type               | STD/EXT<br>(S3-3) |
|------------------------|-------------------|
| 11 bit (Standard CAN)* | ON*               |
| 29 bit (Extended CAN)  | OFF               |

*Switch S3 – 4 Enables RF High Output Power.*

| High RF Power | HIGH POWER<br>(S3-4) |
|---------------|----------------------|
| Enabled*      | ON*                  |
| Disabled      | OFF                  |

## CAN Bridge Setup and Configuration

### III. Wireless CAN Bridge Diagnostic Indicators

#### General Description –

The Wireless CAN Bridge provides three separate groups of diagnostic L.E.D. indicators. The groups are labeled "Signal", "Loading", and "Data Loss Cause." In addition to these groups, a power indication L.E.D. is also provided. The L.E.D. groups are updated once per second and have an "on-time" of not less than one second. The power indicator is directly connected to the power supply and will illuminate when power is applied to the unit.

#### Signal Indicators –

The signal indicators provide information about the integrity and robustness of the RF Signal. Three levels are indicated, *strong*, *poor* and *weak*. The three levels may be described as a function of data throughput.

|                      |                                                                   |
|----------------------|-------------------------------------------------------------------|
| <b>Strong</b>        | Indicates a good signal throughput. Best Data Rate                |
| <b>Poor</b>          | Many Packet Errors. Reduced Data Rate                             |
| <b>Weak</b>          | Very few data packets are getting through. Data rate almost zero. |
| <b>No Indicators</b> | Data rate is zero. No RF link established.                        |

#### Loading Indicators –

The loading indicators provide information about the number of CAN packets that are being transferred across the RF link. Four levels are indicated, *heavy*, *moderate*, *normal*, and *light*. The four levels may be described as a function of bandwidth usage by CAN packets.

|                      |                                                                             |
|----------------------|-----------------------------------------------------------------------------|
| <b>Heavy</b>         | 50 % - 100 % of the available bandwidth is being utilized for CAN messages. |
| <b>Moderate</b>      | 35 % - <50 % of the available bandwidth is being utilized for CAN messages. |
| <b>Normal</b>        | 10 % - <35 % of the available bandwidth is being utilized for CAN messages. |
| <b>Light</b>         | 0 % - <10 % of the available bandwidth is being utilized for CAN messages.  |
| <b>No Indicators</b> | No CAN messages transferred.                                                |

#### Data Loss Cause Indicators –

The data loss cause indicators provide information about failed or "crashed" packets. Two indications are provided, *Buffer Overrun* and *Retry Exhausted*.

|                        |                                                                                                                                                          |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Buffer Overrun</b>  | CAN packets have overrun the capability of the RF link. One or more CAN message(s) is(are) discarded.                                                    |
| <b>Retry Exhausted</b> | The configured number of link retries has been reached. One or more RF data packet(s) is(are) discarded. Note: RF data packets may contain CAN messages. |
| <b>No Indicators</b>   | No Data Errors.                                                                                                                                          |

#### Power Indicator –

The power indicator provides information about the presence of electrical power.

|                        |                  |
|------------------------|------------------|
| <b>Power LED On</b>    | DC Power is On.  |
| <b>No Illumination</b> | DC Power is Off. |

## CAN Bridge Setup and Configuration

### **IV. Direct Sequence Spread Spectrum (DSSS) Near / Far Problems.**

*The problems generated in DSSS systems by transmitters located close to receivers of other systems are known as Near / Far problems.*

The interfering signals described above may be generated for example by the transmitter of one system (System A) located close to the receiver of a different system (system B). If receiver B is a DSSS one, the interference generated by transmitter A could totally block its activity. It may be necessary to relocate transmitters/receivers of different systems to avoid this issue.