

# CAInSTRUMENTS

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## TMT78N2K J1587/J1708 to NMEA 2000 Translator

### User Manual



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## 1. Introduction

The TMT78N2K reads data directly from a J1587/J1708 ECU and transmission and transmits the translated equivalent data on a NMEA 2000 network. The TMT78N2K a simple and and easy-to-use solution for making data from older engines available to newer NMEA 2000 devices (such as MFDs).

The TMT78N2K supports a wide variety of engine and transmission information, which is listed in section XXX.

## 2. Installation

Physical mounting is accomplished using the 4 mounting holes found on the upper and lower flanges of the TMT78N2K.

Electrical installation is accomplished by following these steps:

1. Terminal 6 (GND) should be connected to a common ground between the TMT78N2K and the J1587/J1708 bus.
2. Connect terminal 1 to J1587/J1708+, and terminal 2 to J1587/J1708-.
3. If the J1587/J1708 bus contains a signal GND wire, connect it to terminal 3.
4. Connect the device to the NMEA 2000 network via the micro-c connector and a NMEA 2000 drop cable.

**Note:** The TMT78N2K is not waterproofed. If the unit is mounted vertically, ensure the terminal strip is facing downward to reduce the risk of water leaking into the device.

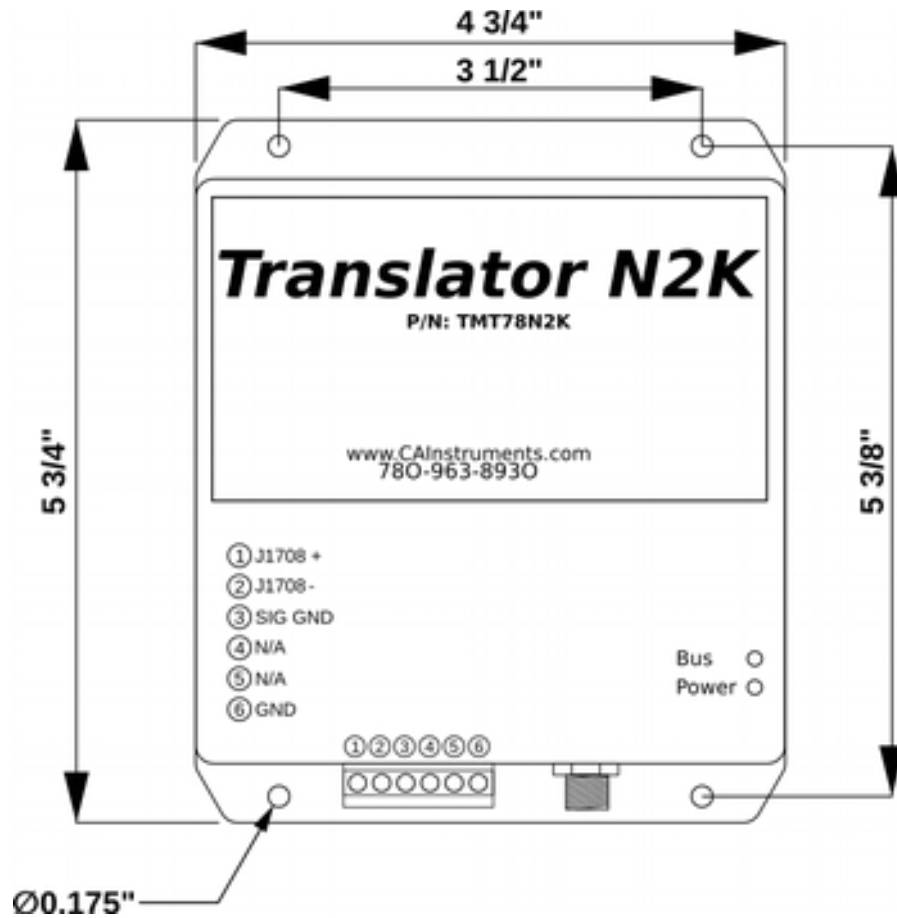


Illustration 1: Mounting dimensions

### 3. Configuration

Configuration of the TMT78N2K is done primarily via the built-in USB interface and the TMT78N2K Configuration Software. Configurable properties include:

- NMEA 2000 properties
  - System instance
  - Device instance
  - Configuration information
  - Output engine instance
  - Output transmission instance

The TMT78N2K's system and device instances are also configurable via the Command Group Function PGN (126208).

## 4. Translated Parameter List

The TMT78N2K translates the following parameters, if available:

- Engine RPM
- Engine boost pressure
- Engine oil pressure
- Engine oil temperature
- Engine oil level
- Engine coolant temperature
- Engine coolant pressure
- Engine fuel rate
- Engine fuel pressure
- Engine fuel level
- Average fuel rate
- Trip fuel used
- Engine discrete status
- Total engine hours
- Percent engine load
- Rated engine speed
- Engine VIN
- Engine software ID
- Transmission direction (forward, neutral, reverse)
- Transmission oil pressure
- Transmission oil temperature
- Transmission oil level
- Transmission discrete status
- Alternator potential
- Battery potential
- Battery current
- Active/inactive diagnostic trouble codes\*

\* Diagnostic trouble codes are translated from J1587/J1708 into J1939 DM1 and DM2 messages, and are only readable by devices that specifically support them. Data Definitions

## 5. Troubleshooting

The TMT78N2K has 2 diagnostic LEDs on its front face. They are labeled BUS and POWER. The POWER LED is lit when the TMT78N2K is powered. The BUS LED will pulse blue when the TMT78N2K is receiving J1587/J1708 data, otherwise the LED will pulse green.

See the chart below for additional error/operating modes.

<b>LIGHTS</b>	<b>STATUS</b>	<b>ACTION</b>
BUS: <i>Off</i> POWER: <i>Off</i>	No power	-Check connection to the NMEA 2000 bus -Ensure the NMEA 2000 bus is powered
BUS: <i>Pulsing Green</i> POWER: <i>Solid red</i>	Not receiving J1587/J1708 data	-Check the connections to the J1587/J1708 bus -Ensure other devices on the bus are powered and working
BUS: <i>Flashing Yellow</i> POWER: <i>Solid red</i>	No NMEA 2000 network detected	-Check connection to the NMEA 2000 bus -Ensure other NMEA 2000 devices are powered and working -Ensure NMEA 2000 terminators are installed
BUS: <i>Pulsing blue</i> POWER: <i>Solid red</i>	Everything is OK; J1587/J1708 data is being received	
BUS: <i>Pulsing purple</i> POWER: <i>Solid red</i>	Everything is OK; device is in N2K analyzer mode or J1587/J1708 analyzer mode	
BUS: <i>Flashing yellow and red</i> POWER: <i>Solid red</i>	Device is in flash mode	-Cycle power to the TMT78N2K -If the TMT78N2K powers immediately into flash mode, contact CAI technical support.

## 6. Supported PGNs

### 6.1 Received PGNs

59392	ISO Acknowledge
59904	ISO Request
60160	Connection Management
60416	Transport Protocol
60928	Address Claim
65240	Commanded Address
126208	Group Function

### 6.2 Transmitted PGNs

59904	ISO Request
59392	Acknowledgement
60160	Connection Management
60416	Transport Protocol
65226	J1939 Active Trouble Codes
65227	J1939 Inactive Trouble Codes
60928	ISO Address Claim
126208	Group Function
126996	Product Information
126998	Configuration Information
126464	PGN Tx/Rx List
126993	Heartbeat
127488	Engine Parameters, Rapid Update
127489	Engine Parameters, Dynamic
127493	Transmission Parameters, Dynamic
127497	Trip Fuel Consumption, Engine
127498	Engine Parameters, Static
127505	Fluid Level
127508	Battery Status

## 7. Electrical Specifications and Certification

<b>Num</b>	<b>Rating</b>	<b>Min</b>	<b>Typical</b>	<b>Max</b>	<b>Unit</b>
1	Operating Voltage	9.0	12.0	30.0	V
2	Transient Voltage (Max 3 positive transients, 60 seconds intervals)	-	-	80.0	V
3	Power Consumption (NET-S @ 12VDC)	-	55	150	mA
4	Operating Temperature	-40	-	80.0	°C
5	Repetitive Reverse Polarity Voltage (Voltage at NET-C relative to NET-S)	-	-	200	V
6	Reverse Polarity Duration (NET-C @ +100V relative to NET-S)	-	-	∞	s

<b>NMEA 2000 Certification</b>	Yes
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## 8. Contact and Technical Support

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