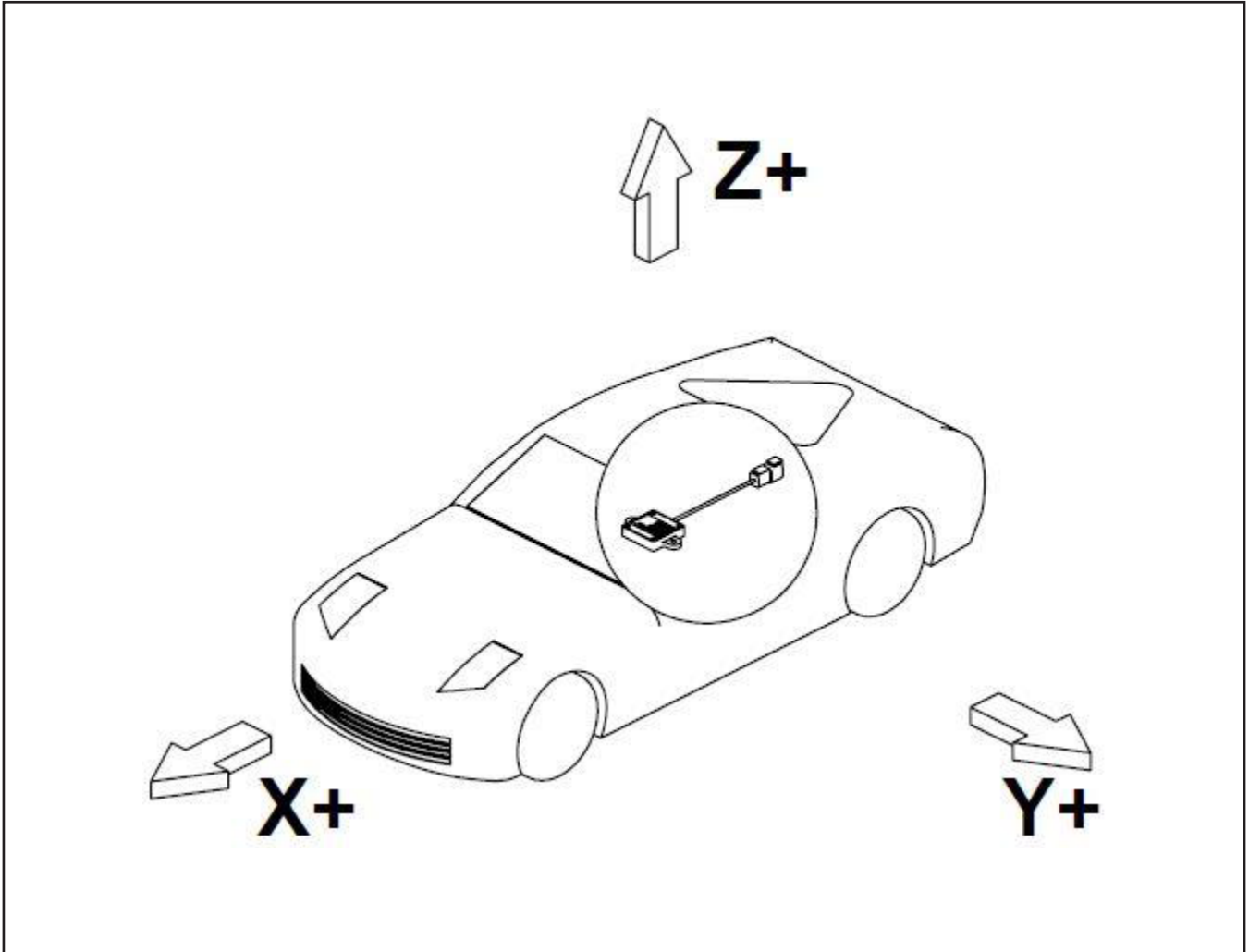


Three-Axis Accelerometer with Yaw, Pitch, and Roll Module Specification

Physical	
Weight	0.15 lbs
Dimensions (L x W x H inches)	3.625 x 2.25 x 0.5 case Approximately 9" harness pigtail
Case Material and Finish	Aluminum case with plastic lid
Mounting	2 bolt holes
Operating Conditions	
Input Voltage Range	9 - 36VDC, MIL-STD 1275D Compliant
Current	30mA
Operating Temperature	-40 to 85 °C
Storage Temperature	-40 to 125 °C
Ingress Protection	IP67 minimum
Harness Interface	6-pin Deutsch DTM04-6P Connector
EMI Immunity	MIL-STD 461
Gyroscope	
Number of Axis	3
Selectable Full Scales	250, 500, 2000 dps
Accelerometer	
Number of Axis	3
Selectable Full Scales	+/- 2.0g, 4.0g, 8.0g, or 16.0g
Connector Pinout	
Pin 1	CAN High
Pin 2	CAN Low
Pin 3	Power
Pin 4	Ground
Pin 5	ID 1
Pin 6	ID 2



Module orientation as mounted in vehicle

PGN \$FO2A (61482)

Source Address: Customer Specified

Repetition Rate: 10 ms

Data Page: 0

PDU Specific: 42

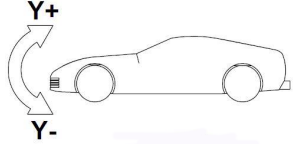
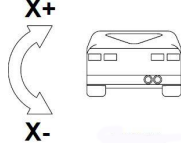
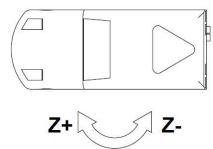
Angular Rate Information (ARI)

Priority: 3

Data Length: 8 bytes

PDU Format: 240

29-Bit Identifier: \$0CF02Axx

Byte	Bits	Parameter
1-2	8-1	<p>Pitch Rate Extended Range (4983) - Pitch rate is the rate-of-change of the pitch angle over time.</p>  <p>Resolution: 1/128 deg/sec per bit, -250 deg/sec offset Data Range: -250 to 250.992 deg/sec</p>
3-4	8-1	<p>Roll Rate Extended Range (4984) - Roll rate is the rate-of-change of the roll angle over time.</p>  <p>Resolution: 1/128 deg/sec per bit, -250 deg/sec offset Data Range: -250 to 250.992 deg/sec</p>
5-6	8-1	<p>Yaw Rate Extended Range (4985) - Yaw rate is the rate-of-change of the yaw angle over time.</p>  <p>Resolution: 1/128 deg/sec per bit, -250 deg/sec offset Data Range: -250 to 250.992 deg/sec</p>
7	2-1	<p>Pitch Rate Extended Range Figure of Merit (4986) - Figure of merit for pitch rate measurement.</p> <p>00 = Pitch rate fully functional. Data is within sensor specification. 01 = Pitch rate degraded. Data is suspect due to environmental conditions. 10 = Error 11 = Not available</p>
	4-3	<p>Roll Rate Extended Range Figure of Merit (4987) - Figure of merit for roll rate measurement.</p> <p>00 = Roll rate fully functional. Data is within sensor specification. 01 = Roll rate degraded. Data is suspect due to environmental conditions. 10 = Error 11 = Not available</p>
	6-5	<p>Yaw Rate Extended Range Figure of Merit (4988) - Figure of merit for yaw angle measurement.</p> <p>00 = Yaw rate fully functional. Data is within sensor specification. 01 = Yaw rate degraded. Data is suspect due to environmental conditions. 10 = Error 11 = Not available</p>
	8-7	<p>Undefined, bits set to 1.</p>
8	8-1	<p>Angular Rate Measurement Latency (4989) - The estimated measurement latency of the measurement.</p> <p>NOTE: This is only the sensor latency and does not include any additional latencies that might exist because of the CAN Bus or overall system implementation. Latency is the time from sensor readings to the queuing of the message data for CAN transmission.</p> <p>Resolution: 0.5 ms/bit, 0 offset Data Range: 0 to 125 ms</p>

PGN \$FO2D (61485)

Source Address: Customer Specified

Repetition Rate: 10 ms

Data Page: 0

PDU Specific: 45

Acceleration Sensor (ACCS)

Priority: 2

Data Length: 8 bytes

PDU Format: 240

29-Bit Identifier: \$08F02Dxx

Byte	Bits	Parameter
1-2	8-1	Lateral Acceleration Extended Range (SPN 5347) - Indicates lateral acceleration of the vehicle (the component of vehicle acceleration vector along the Y-axis). Resolution: 0.01 m/s ² per bit, -320 m/s ² offset Data Range: -320 to +322.5 m/s ² NOTE: Measured range is -19.62 to +19.63 m/s ²
3-4	8-1	Longitudinal Acceleration Extended Range (SPN 5348) - Indicates longitudinal acceleration of the vehicle (the component of vehicle acceleration vector along the X-axis). Resolution: 0.01 m/s ² per bit, -320 m/s ² offset Data Range: -320 to +322.5 m/s ² NOTE: Measured range is -19.62 to +19.63 m/s ²
5-6	8-1	Vertical Acceleration Extended Range (SPN 5349) - Indicates vertical acceleration of the vehicle and the effect of gravity (the component of vehicle acceleration vector along the Z-axis). Resolution: 0.01 m/s ² per bit, -320 m/s ² offset Data Range: -320 to +322.5 m/s ² NOTE: Measured range is -19.62 to +19.63 m/s ²
7	2-1	Lateral Acceleration Extended Range Figure of Merit (SPN 5350) - Figure of merit for lateral acceleration measurement. 00 = lateral acceleration is fully functional. Data is within sensor specification 01 = lateral acceleration is degraded. Data is suspect due to environmental conditions 10 = error 11 = not available
	4-3	Longitudinal Acceleration Extended Range Figure of Merit (SPN 5351) - Figure of merit for longitudinal acceleration measurement. 00 = longitudinal acceleration is fully functional. Data is within sensor specification 01 = longitudinal acceleration is degraded. Data is suspect due to environmental conditions 10 = error 11 = not available
	6-5	Vertical Acceleration Extended Range Figure of Merit (SPN 5352) - Figure of merit for vertical acceleration measurement. 00 = vertical acceleration is fully functional. Data is within sensor specification 01 = vertical acceleration is degraded. Data is suspect due to environmental conditions 10 = error 11 = not available
	8-7	Support Variable Transmission Repetition Rate for Acceleration Sensor (SPN 5353) – only 10 ms rate supported, bits set to 11.
8	8-1	<i>Not Defined, Byte set to \$FF</i>

PGN \$FF00 (65280)

Source Address: Customer Specified

Repetition Rate: 10 ms

Data Page: 0

PDU Specific: 0

High Resolution Acceleration Sensor – Proprietary Message

Priority: 6

Data Length: 8 bytes

PDU Format: 255

29-Bit Identifier: \$18FF00xx

Byte	Bits	Parameter
1-2	8-1	High Resolution Lateral Acceleration - Indicates lateral acceleration of the vehicle (the component of vehicle acceleration vector along the Y-axis). Resolution: 0.000599 m/s ² per bit, -19.62 m/s ² offset Data Range: -19.62 to +19.63 m/s ²
3-4	8-1	High Resolution Longitudinal Acceleration - Indicates longitudinal acceleration of the vehicle (the component of vehicle acceleration vector along the X-axis). Resolution: 0.000599 m/s ² per bit, -19.62 m/s ² offset Data Range: -19.62 to +19.63 m/s ²
5-6	8-1	High Resolution Vertical Acceleration - Indicates vertical acceleration of the vehicle and the effect of gravity (the component of vehicle acceleration vector along the Z-axis). Resolution: 0.000599 m/s ² per bit, -19.62 m/s ² offset Data Range: -19.62 to +19.63 m/s ²
7	2-1	High Resolution Lateral Acceleration Figure of Merit - Figure of merit for lateral acceleration measurement. 00 = lateral acceleration is fully functional. Data is within sensor specification 01 = lateral acceleration is degraded. Data is suspect due to environmental conditions 10 = error 11 = not available
	4-3	High Resolution Longitudinal Acceleration Figure of Merit - Figure of merit for longitudinal acceleration measurement. 00 = longitudinal acceleration is fully functional. Data is within sensor specification 01 = longitudinal acceleration is degraded. Data is suspect due to environmental conditions 10 = error 11 = not available
	6-5	High Resolution Vertical Acceleration Figure of Merit - Figure of merit for vertical acceleration measurement. 00 = vertical acceleration is fully functional. Data is within sensor specification 01 = vertical acceleration is degraded. Data is suspect due to environmental conditions 10 = error 11 = not available
	8-7	Support Variable Transmission Repetition Rate for Acceleration Sensor (SPN 5353) – only 10 ms rate supported, bits set to 11.
8	8-1	<i>Not Defined, Byte set to \$FF</i>

Change Offset

These are the CAN messages to set the module offset. To set the offsets, replace the bytes marked XX and YY with your desired offsets. These must be saved before power cycling the module. If the module is power cycled before saving, the offsets will default to previous settings.

ID: 1FE01882

DLC: 8

Action	Data
Change Lateral Acceleration Offset for message PGN \$F02D	39 5D XX YY 00 00 00 00
Change Longitudinal Acceleration Offset for message PGN \$F02D	39 5D XX YY 00 00 00 00
Change Vertical Acceleration Offset for message PGN \$F02D	39 73 XX YY 00 00 00 00
Change Lateral Acceleration Offset for message PGN \$F000	39 68 XX YY 00 00 00 00
Change Longitudinal Acceleration Offset for message PGN \$F000	39 52 XX YY 00 00 00 00
Change Vertical Acceleration Offset for message PGN \$F000	39 7E XX YY 00 00 00 00
Change Pitch Angular Rate Offset for message PGN \$F02A	39 9F XX YY 00 00 00 00
Change Roll Angular Rate Offset for message PGN \$F02A	39 89 XX YY 00 00 00 00
Change Yaw Angular Rate Offset for message PGN \$F02A	39 B5 XX YY 00 00 00 00

XX = integer offset applied to scaled sensor reading, most significant byte
 YY = integer offset applied to scaled sensor reading, least significant byte

Example:

Default XX YY = 7D 00 --> 0x7D00 = 32000

Save/Load Config

These are the CAN messages to save/load calibration data.

ID: 1FC01880

DLC: 6

Action	Data
Save config to flash	3A D7 80 00 80 00
Load config from flash	3A D7 04 00 04 00