# IRN8C-F1-V2

## 8 channels infrared temperature sensor with CAN bus output

SN: I########

Texense sensors are designed for data logging. Should the users want to include this sensor in a closed loop system, they must undertake total responsibility from doing so.

| Measurement features | | |
|---|---|---|
| Range | -20 to +200 | °C |
| Accuracy at FS | ±1 | %FS |
| Response time at FS | 260 | ms |
| Sensitive Element | Thermopile with Silicon Lens | |
| Wave Length | 8 to 14 | µm |
| Emissivity / Distance tuning | Gain factor 0.5 to 2 configurable by CAN | |
| Field of view (90% radiation) | 6.5:1 (30mm at 200mm) | |
| Mean Angle between channels | 4.5 | ° |
| Total horizontal angle | 41.6 | ° |
| Lens protection | Replaceable window (PEHD) | |
| Calibrator | HGH ECN 100 H12 | |
| **CAN bus** | | |
| CAN type | 2.0A or B | |
| Output Data | Calibrated temperature and ambient temperature | |
| Resolution | 0.1 | °/bit |
| Baud rate | 125k to 1Mbps | |
| Frequency | 1Hz to 10Hz, request mode | |
| **Electrical features** | | |
| Supply Voltage | 6 to 16 | V |
| Supply Current | 17 | mA |
| **Mechanical features** | | |
| Dimensions | 31x11x17 | mm |
| Material | Aluminum | |
| Weight (without cable) | 15 | g |
| **Environment** | | |
| Protection | IP64 | |
| Vibration test | 20Gpp 5' | |
| Shock | 500 | G |
| Operating Temp | -20 to +85 | °C |
| Storage Temp | -40 to +125 | °C |

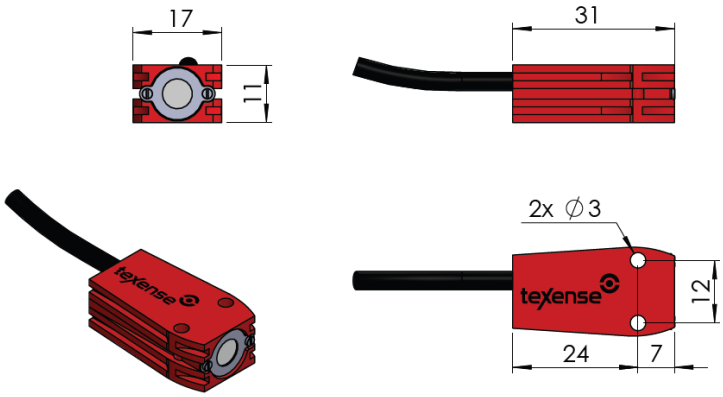
| Date | | Operator | |
|---|---|---|---|
| Customer | | | |
| Order | | | |
| Product Ref | IRN8C-F1-200-V2-### | | |
| SW version | V#.## | | |

| Sensor Readings | | |
|---|---|---|
| Calibrator Temperature | 25 °C | 180 °C |
| Channel 1 | | |
| Channel 2 | | |
| Channel 3 | | |
| Channel 4 | | |
| Channel 5 | | |
| Channel 6 | | |
| Channel 7 | | |
| Channel 8 | | |

| Setup parameters | |
|---|---|
| CAN type | 2.0A |
| Baudrate | 1Mbps |
| Frequency | 10Hz |
| Data format | ☒ STD ☐ MUX |
| Rx trig ID | 0x7F0 |
| Tx1 ID | 0x3F0 |
| Tx2 ID / Sensor ID | 0x3F4 |
| Degree unit | Celsius |
| Gain factor | 1000 |
| Digital filter | 400 ms |
| Dynamic compensation | ON |

| Hardware parameters | |
|---|---|
| CAN termination resistor | ☒ Not connected |
| | ☐ Connected |
| Cable | ☒ 4x26AWG FEP tinned copper braided cable 250V 200°C |
| | ☐ EPD116760A |

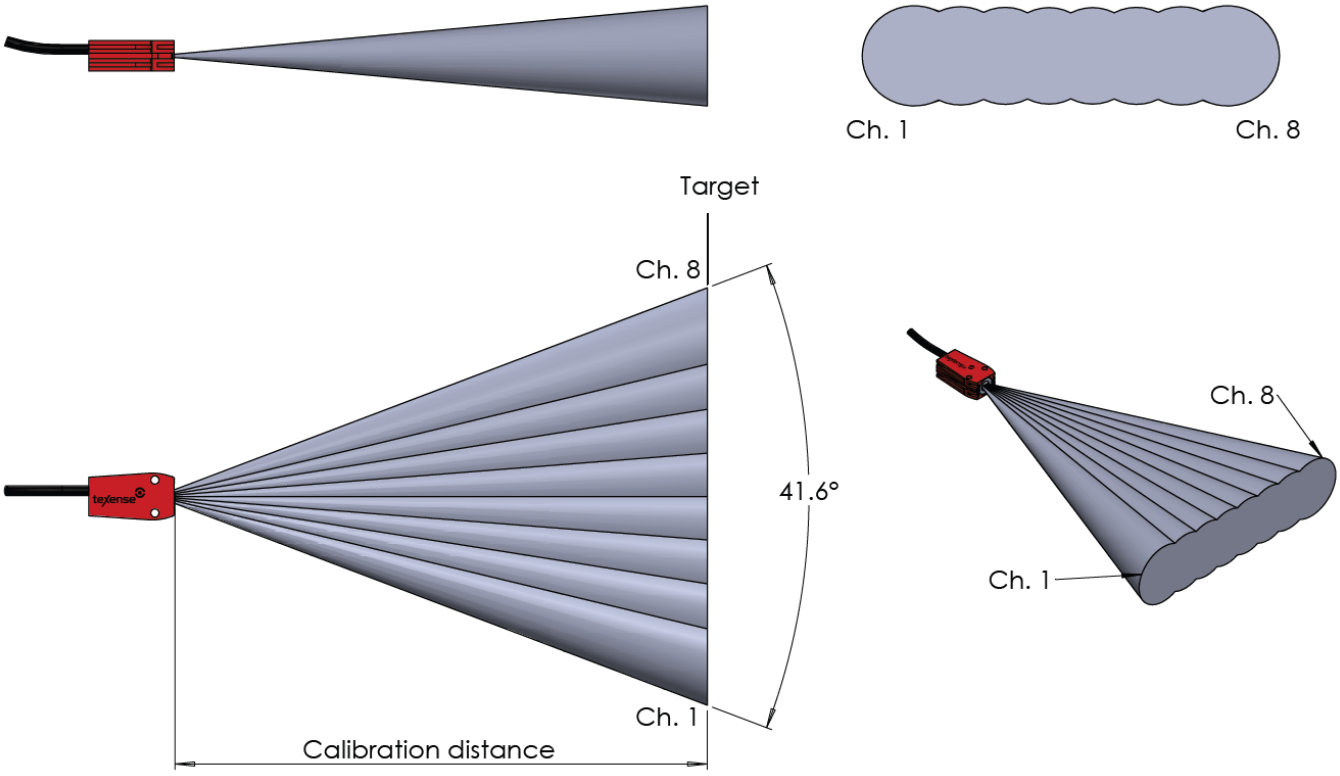
## Mechanical drawing




## Wiring

| Cable | | |
|---|---|---|
| Cable:<br>• Default: 4x26AWG FEP tinned copper braided cable 250V 200°C<br>• Optional: EPD116760A<br>Length: 1000 mm ±10% Tubing: None<br>Connector: N/A | | |
| **Color** | **Function** | **Pin** |
| Red | Supply | |
| Black | 0V | |
| Green | CAN High | |
| White | CAN Low | |
| Braid<br>(not for EPD116760A) | | |

## FOV (Field of view)



## *CAN data output*

Standard format (STD mode):

*Interframe spacing is 5ms*

Frame #1 (default Tx1 Frame ID: 0x03F0)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x03F0 | Channel 1 MSB | Channel 1 LSB | Channel 2 MSB | Channel 2 LSB | Channel 3 MSB | Channel 3 LSB | Channel 4 MSB | Channel 4 LSB |
| | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | |

Frame #2 (default Tx2 Frame ID: 0x03F4)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x03F4 | Channel 5 MSB | Channel 5 LSB | Channel 6 MSB | Channel 6 LSB | Channel 7 MSB | Channel 7 LSB | Channel 8 MSB | Channel 8 LSB |
| | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | |

Multiplexed format (MUX mode):

*Interframe spacing is 33±2ms*

Frame #1 (default Tx1 Frame ID: 0x03F0, default Sensor ID 0xF4)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x03F0 | Sensor ID | Muxed Msg ID = 0 | Channel 1 MSB | Channel 1 LSB | Channel2 MSB | Channel 2 LSB | Channel 3 MSB | Channel 3 LSB |
| | | | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | |

Frame #2 (default Tx1 Frame ID: 0x03F0, default Sensor ID 0xF4)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x03F0 | Sensor ID | Muxed Msg ID = 1 | Channel 4 MSB | Channel 4 LSB | Channel 5 MSB | Channel 5 LSB | Channel 6 MSB | Channel 6 LSB |
| | | | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | |

Frame #3 (default Tx1 Frame ID: 0x03F0, default Sensor ID 0xF4)

| ID | Byte 0 | Byte 1 | Byte 2 | Byte 3 | Byte 4 | Byte 5 | Byte 6 | Byte 7 |
|---|---|---|---|---|---|---|---|---|
| 0x03F0 | Sensor ID | Muxed Msg ID = 2 | Channel 7 MSB | Channel 7 LSB | Channel 8 MSB | Channel 8 LSB | Ambient Temperature MSB | Ambient Temperature LSB |
| | | | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | | Resolution: 0.1°/bit | |

## Changing parameters

**Must be setup according to Texense CAN protocol, or by using the tWist® software (texense Windows software tool) with the tSIB (texense Smart Interface Box).**

| Address | Parameter | Raw values | Values | Comments | |
|---|---|---|---|---|---|
| 0x00 | Baudrate | 0x00 | 1000 Kbps | Default | |
| | | 0x01 | 500 Kbps | - | |
| | | 0x02 | 250 Kbps | | |
| | | 0x03 | 125 Kbps | | |
| 0x01 | Emission frequency AND STD format | 0x02 | 10 Hz | Default | |
| | | 0x03 | 1 Hz | - | |
| | | 0x04 | Rx frame trig | On trig - 10Hz max. | |
| | Emission frequency AND MUX format | 0x12 | 10 Hz | - | |
| | | 0x13 | 1 Hz | - | |
| | | 0x14 | Rx frame trig | On trig - 10Hz max. | |
| 0x02 | Rx frame ID | 0 to 0x07 | 0x0000 to 0x07F0 | MSB | Default 0x07F0 |
| 0x03 | | 0 to 0xFF | | LSB | |
| 0x04 | Tx1 frame ID | 0 to 0x07 | 0x0000 to 0x07F0 | MSB | Default 0x03F0 |
| 0x05 | | 0 to 0xFF | | LSB | |
| 0x06 | If STD format: Tx2 frame ID | 0 to 0x07 | 0x0000 to 0x07F0 | MSB | Default 0x03F4 |
| 0x07 | | 0 to 0xFF | | LSB | |
| 0x06 | If MUX format : Sensor ID | Not used | | | Default 0xF4 |
| 0x07 | | 0 to 0xFE | | LSB | |
| 0x08 | Degree Unit | 0 | Fahrenheit | - | |
| | | 1 | Celsius | Default | |
| 0x09 | Gain factor | 500 to 2000 | 1/1000 (0.5 to 2) | MSB | Default 1000 |
| 0x0A | | | | LSB | |
| 0x0B | Digital filter response time | 100 to 10000 | ms (0.1 to 10s) | MSB | Default 400 ms |
| 0x0C | | 0: disable | | LSB | |
| 0x0D | Dynamic compensation | 0 | OFF | Compensation for quick changes in ambient (sensor) Temperature | Default ON |
| | | 1 | ON | | |

*For complete information, contact us at info@texense.com*

## Ordering information

**Ordering ref:**

IRN8C-F1-*200*-V2 - *Distance* – *R120*

*200:* 200°C range

*Calibration distance in mm*

*Optional 120Ω termination resistor*

ex: IRN8C-F1-200-V2-480-R120