

# Enabling Smart, Connected Hydraulics

Telematics device, cellular connectivity, 1 CAN interface,  
supply voltage 6-36 VDC, IP6K7

The Eaton TFX remote monitoring system provides fleet and equipment managers a comprehensive view into machine location and performance, enabling them to make data-driven decisions that increase uptime and productivity. With the ability to monitor data on anything connected to the CAN bus, the TFX system is easy to integrate with Eaton's other Pro-FX Ready™ products, as well as non-Eaton components.

The Eaton TFX system features over-the-air programming (OTAP) of the Eaton HFX controller, multiple hardware and data plan options as well as complete configurability to pull and visualize the data that matters, allowing users to create a telematics solution perfectly suited to the application—whether single machine or fleet system.



*Powering Business Worldwide*

# Technical data

## Technical Data

<b>Dimensions</b>	4.84 (W) X 3.39 (H) X 1.38 (D)
<b>IP Rating</b>	IP6K7 (with mounted vehicle plug)
<b>Operating Temperature</b>	-40°C to 80°C
<b>Weight</b>	0.16 kg

## Electrical Specifications

<b>DC Power Supply</b>	6-36 VDC
<b>Power Input at 24V (sleep mode)</b>	<250 mA / <500 uA
<b>Status LEDs</b>	2 (RGB)

## Processor and Memory

<b>Processor</b>	ARM(R), Cortex(R) M4 based STM32 (168 MHz)
<b>Program Flash/Data Flash</b>	1MB/16MB
<b>FRAM/SRAM</b>	8 kB / 760 kB
<b>Real-time Clock with Backup Capacitor</b>	Backup time > 48h at 25°C

## Internal Sensors

<b>Temperature Sensor</b>	-40°C to 85°C
<b>Acceleration Sensor</b>	3 axes, +/- 16 g, 16-bit
<b>Angular Rate Sensor</b>	3 axes, +/- 250 o/s, 16-bit

## CAN Specifications

<b>CAN1 (2.0 A/B)</b>	ISO 11898/-5
<b>CANopen, Layer 2, J1939</b>	✓

## Wireless Connectivity

<b>SIM Card</b>	eSIM Proemion
<b>UMTS / HSPA / 3G (MHz)</b>	850 / 900 / 1900 / 2100
<b>GSM / GPRS / EDGE / 2G (MHz)</b>	850 / 900 / 1800 / 1900

## Positioning

<b>GPS / GLONASS / Beidou / Galileo</b>	<5m / 1 Hz (CEP 50%, 24h static, -130 dBm, > 6 satellites in view)
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## Security

<b>Trusted Platform Module</b>	Encrypted Data Transmission according to TLS: ✓ Bidirectional authentication: ✓
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## Connectors

<b>Antenna Cellular</b>	Integrated antenna (TFX Internal); Fakra D (TFX External)
<b>Antenna Positioning</b>	Integrated antenna (TFX Internal); Fakra C (TFX External)
<b>Main Connector</b>	Micro Timer II, 14 contacts
<b>Inputs (analog)</b>	1x A-IN (CL15), 3x A-IN (0-15 VDC) (resolution 12-bit)
<b>Outputs (digital)</b>	1x D-OUT (6-36 VDC / 500mA)
<b>Service Interface</b>	Micro USB 2.0 Full Speed Type AB Self-Powered Device

# Technical data

## Communications

<b>CAN 1 Interface</b>	2.0A, 2.0B
<b>Baud Rates</b>	20, 50, 125, 250, 500, 800, 1000, 83.33 kb/s
<b>Protocol</b>	CANopen, J1939
<b>Default Node Address</b>	39
<b>Default Baud Rate</b>	250 kb/s
<b>Mobile Radio Frequency Range</b>	Models TFX Internal Antenna, TFX External Antenna: 2G/GSM/GPRS/Edge850/900/1800/1900 MHz 3G/UMTS/HSPA 850/900/1900/2100 MHz
<b>Mobile Radio Transmission Rate</b>	GPRS upload: 85.6 kbit/s GPRS download: 85.6 kbit/s Edge upload: 236 kbit/s Edge download: 236 kbit/s UMTS upload: 384 kbit/s UMTS download: 384 kbit/s HSPA upload: 5.7 Mbit/s HSPA download: 7.2 Mbit/s LTE upload: CAT1 5.2 Mbit/s LTE download: CAT1 10.3 Mbit/s
<b>Maximum Mobile Radio Transmission Performance</b>	33 dBm with GSM 33 dBm with GPRS 27 dBm with Edge 24 dBm with UMTS 24 dBm with HSPA 23 dBm with LTE (EU) 23 dBm with LTE (NA)
<b>Satellite Systems Supported</b>	GNSS: GPS Band L1 (Galileo / Glonass / Beidou) GPS fix: cold start <=30s/ warm start <= 1s Updated rate: 1 Hz Accuracy: <=5 m (CEP, 50%, 24 h stationary, -130 dBm, > 6 satellites in viewing range)

## Inputs

<b>Digital OUT</b>	1 digital out: switching 6-36 VDC, 500 mA max output current, 10 Hz max switch frequency
<b>Analog IN</b>	3 analog inputs: 0-15 VDC, 20 kOhm input resistance, 12 bit resolution, 20 Hz sampling frequency
<b>USB</b>	micro-USB type A/B (12 Mbit/s)

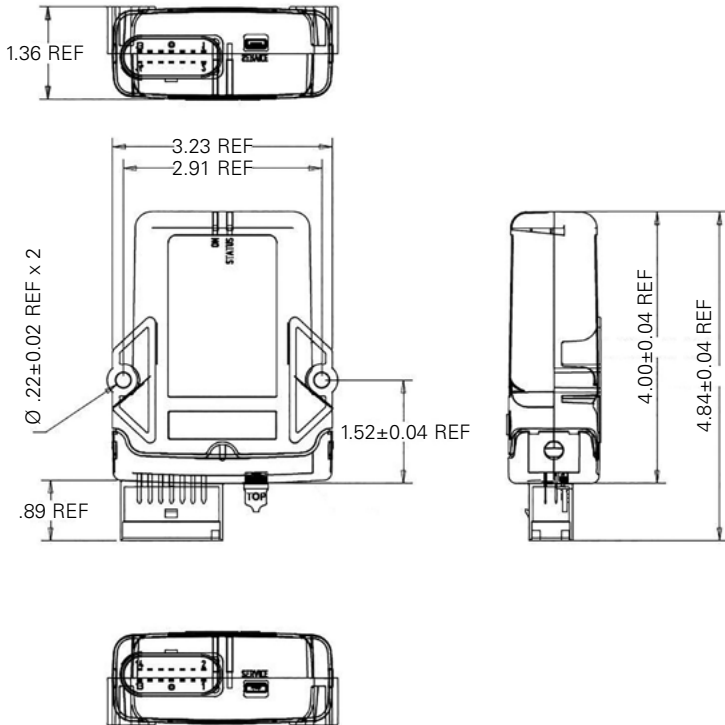
## Certifications

<b>CE Mark</b>	✓
<b>e-Mark</b>	✓

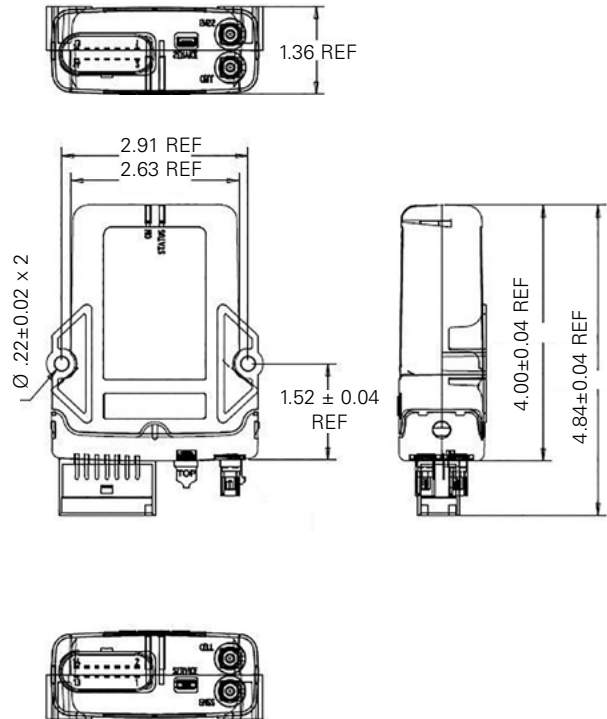
# Mounting diagram



## TFX Internal



## TFX External



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