



FEATURES

- Supports mV/V, VDC, and mA inputs including industry standard current ranges (0-20, 4-20, 0-25, an 5-25 mA)
- TEDS support for automatic sensor recognition
- 13 user customizable sensor profiles for quick switching between sensor setups
- High-resolution 6-digit 5" display⁹ with selectable decimal point
- Log up to 16 sessions with more than 2.7 million points each
- Provides 12 selectable ADC sampling rates ranging from 2.5 to 4800 SPS
- ASCII Streaming for system integration
- Rechargeable battery with extended runtime and USB-C Charging
- Supports multiple calibration methods including live, manual, dual scaling, and 2-point, with advanced multi-point calibration available via SENSIT Calibration Software
- Fault Detection Alerts Available
 - Open and Short Circuit Warnings
 - Low Memory Slots Warning
 - Temperature Out of Range Warning
 - 24 V Power Supply Error
- 1/4"-20 Mounting Hole
- Portrait and Landscape Display Orientation¹⁰
- Active Protection against ESD, Overcurrent, and Overvoltage Events
- Digitally Controllable 24 V Amplified Sensor Excitation

SPECIFICATIONS

GENERAL

Item Number	FSH04438
Data Logging	2,790,000 points per log
Profile Storage	17 profiles (3 reference profiles ³ , 13 user customizable profiles, and 1 TEDS profile)
Sampling Rate	Up to 4800 SPS (See NFR tables)
Bandwidth	Up to 1077 Hz (See NFR tables)
Internal Resolution	32 Bits
On Chip Memory	64 Kb
Stored Calibration	Up to 22 points per profile
Weight	1.32 lb (0.60 kg)
Material	Aluminum enclosure
IP Rating	IP64

STRAIN GAUGE mV/V INPUT

Differential Input Range	Up to ± 16 mV/V (FDR ²)
Non-linearity ¹ (Max)	$\pm 0.002\%$ of FSR ⁴
Min/Max Bridge Resistance	87.5 to 5000 Ω
Bridge Excitation	5 VDC (Fixed) at ~ 60 mA (Max)
Resolution (Noise Free)	Up to 20 bits (See table)
Reading Error	0.15% of Reading

VOLTAGE INPUT

Amplified Voltage Input	Up to ± 12 VDC (FDR ²)
Non-linearity ¹ (Max)	$\pm 0.002\%$ of FSR ⁴
Amplified Sensor Excitation	24 VDC (Fixed) at ~ 100 mA (Max)
Resolution (Noise Free)	Up to 22.1 bits (See table)
Reading Error	0.06% of Reading

CURRENT INPUT

Amplified Current Input	Up to 30 mA (FDR ²)
Non-linearity ¹ (Max)	$\pm 0.004\%$ of FSR ⁴
Amplified Sensor Excitation	24 VDC (Fixed) at ~ 100 mA (Max)
Resolution (Noise Free)	Up to 18.8 bits (See table)
Reading Error	0.04% of Reading

CONNECTORS

USB-C	Charging and Communication (Charger Kit Part Number: FSH04926)
Mating Connector	12-Pin Sensor Binder Mating Connector

¹ Note 1: Nonlinearity calculated at 2.5 SPS

² Note 2: FDR (Full Dynamic Range)

³ Note 3: The 3 reference profiles are mV/V, VDC, and mA. These profiles are set by the manufacturer and cannot be changed by the user.

⁴ Note 4: The Full Scale Range (FSR) is 5 mV/V for mV/V output, 10 V for VDC output, and 16 mA for mA output.



12 PIN BINDER CONNECTOR			SPECIFICATIONS continued	
PIN	FUNCTION	DESCRIPTION	ENVIRONMENT	
A	+ E	+ Excitation	Operating Temperature	Charging: 32 to 113°F (0 to 45°C) Discharging: 14 to 131°F (-10 to 55°C)
B	+ S	+ Signal	Storage Temperature	-4 to 140°F (-20°C to 60°C)
C	- E	- Excitation/TEDS Return (Ground ⁶)	Temperature Coefficient	10 ppm/°C of FDR ² (mV/V and VDC) 25 ppm/°C of FDR ² (mA)
D	- S	- Signal	CONFORMITY	
E	TEDS	TEDS Data	RoHS	2011/65/EU
F	24V	On-Board Amplified Sensor Excitation	CE	EN IEC 61326-1:2021, FCC 15.107:2024, FCC 15.109:2024, FCC 15.109(g):2024, ICES-003:2020, VCCI-CISPR 32:2016
G ⁵	GND/Shield	Ground ⁶	UN	UN38.3
H	N/C	Not Connected	IEC	IEC 62133-2:2017/IEC 62133-2:2017/AMD1:2021
J	- V/mA	- Amplified Input (Ground ⁶)	DISPLAY	
K	+ V/mA	+ Amplified Input	Display size	5.0 in (127 mm)
L	N/C	Not Connected	Resolution	800 × 480 pixels
M	N/C	Not Connected	Display type	TFT IPS (In-plane switching)
5 Note 5: Shield can be connected to Ground and should be grounded on one end, either the sensor side or the SENSLOG connection side. All grounds are internally connected.			Brightness	900 cd/m ²
6 Note 6: All grounds are internally connected			Blacklight Color	White
			Touch Panel	Capacitive (TPC) with Gorilla glass and optical bonding
			BATTERY ⁷	
			Battery Type	Rechargeable Lithium-ion Polymer (LiPo)
			Nominal Capacity	5000 mAh (5Ah)/ 36 Wh
			Charge Current	2 A
			Continous Discharge Current	2 A
			Battery Runtime (3 W Load)	Up to 13 hours
			Battery Runtime (no Load)	Up to 40 hours
			Battery Charge Time (no Load)	Up to 5 hours
			TEDS	
			Compatibility	ISO/IEC/IEEE 21451-4:2010/TEDS
			Supported TEDS Devices	DS2431, DS24B33, & DS28EC20
			Supported Cable Length	Up to 30 ft (9.14 m)
			Supported Templates	30 and 33
			ASCII PARAMETERS ⁸	
			Data	8 Bits
			Baud Rate	1,000,000 bps
			Parity	None
			Stop	1 Bit
			Flow Control	None
			Format	Data, Unit, LF

⁷ Note 7: Default settings are 2.5 SPS, display off, 50% brightness, 100% contrast, mV/V profile with amplified sensor excitation off, datalogging turned off, and may vary based on device set up and connected offload.

⁸ Note 8: ASCII streaming feature is auto-enabled upon startup. This feature only works for sampling rates up to 1200 SPS and is auto-disabled for higher sampling rates

⁹ Note 9: Auto dimmer time out is always 50% of screen saver setting

¹⁰ Note 10: Landscape orientation is available only on select pages

NOISE FREE RESOLUTION (Amplified Input)			
SPS	NFR Voltage Input (bits) ± 10 V	NFR Current Input (bits) 16 mA	Bandwidth (Hz)
2.5	21.4	18.8	0.58
5	21	18.1	1.15
10	20.7	17.8	2.28
16.6	20.4	17.4	3.80
20	20.2	17.2	4.63
50	19.7	16.8	11.40
60	19.3	16.7	13.70
100	18.9	16.3	22.80
400	18.1	15.4	91
1200	16.9	14.1	273
2400	16.2	13.7	544
4800	15.9	12.9	1077

NOISE FREE RESOLUTION (mV/V)		
SPS	NFR (bits) ± 5 mV/V	Bandwidth (Hz)
2.5	20	0.58
5	19.2	1.15
10	18.6	2.28
16.6	18.3	3.80
20	18.1	4.63
50	17.5	11.40
60	17.4	13.70
100	17.1	22.80
400	16.2	91
1200	15.3	273
2400	14.6	544
4800	14	1077

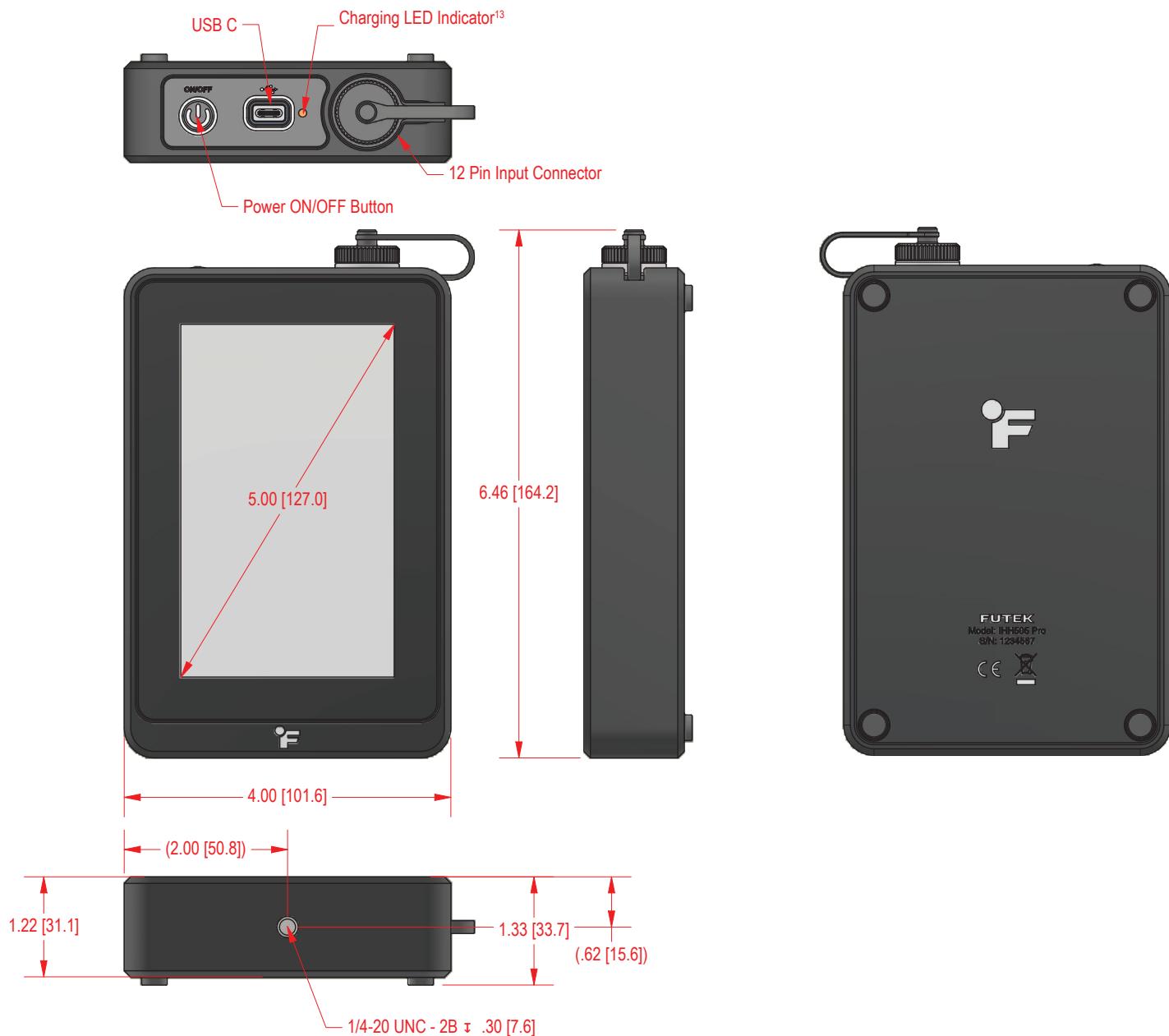
COMPATIBILITY	
SYSTEM	NOTES
Software	Programming Platforms: DLL file available for programming support, such as LabVIEW, Visual Studio, and Xcode. Support Operating System: Windows 10 and 11.

AVAILABLE ACCESSORIES	
ITEM #	DESCRIPTION
FSH04926 ¹¹	Charger kit (USB-C)
GOD02975 ¹²	12-Pin Sensor Binder Mating Connector
FSH04877 / FSH04878	FUTEK's SENSIT® Software 14 Day Trial - Available to download on FUTEK website. A license is required, per seat, after 14 days to benefit the features such as data logging, graphing, etc. Trial version turns into basic read-out ONLY after 14 days and a product key is required to enable the features.

¹¹ Note 11: FSH04926 is the manufacturer certified kit. The usage of this kit is highly recommended to ensure validity of conformity, battery performance, and all specifications stated in this spec sheet.

¹² Note 12: Search [99 5129 00 12](#) on FUTEK.com for additional cable mating options

DIMENSIONS inches [mm]

¹³ Note 13: LED Indicator Behavior:

Device ON

- Solid orange LED: Charging
- LED OFF: Fully charged or no charger connected

Device OFF

- Solid orange LED: Charger connected (LED stays ON regardless of charge level)

Drawing Number: FI1584-B

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