

DATASHEET

NANO SAFETY CONTROLLER PRO

FORT PRO SERIES

PRODUCT

NANO SAFETY CONTROLLER PRO

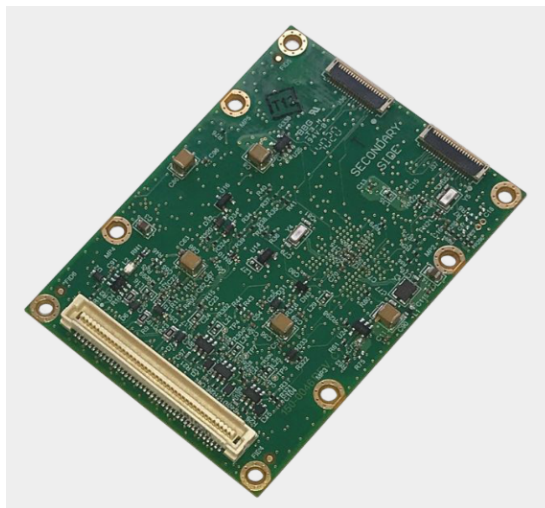
SOURCE DOCUMENT

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Nano Safety Controller Pro: Embedded Safety Receiver



FORT's **Nano Safety Controller Pro (NSC Pro)** is an embedded receiver for FORT Pro Series devices. The compact board enables machines to receive and execute safe, secure wireless commands via Wi-Fi, ISM radio, or Long Range Bluetooth Low Energy, without the need for bolt-on hardware.

Embedded Pro Series Receiver

Use with FORT's Endpoint Controller, Safe Remote Control Pro, or Wireless E-Stop Pro.

SIL 3-Certified Safety

Enables machines to receive and execute certified functional safety commands via Wi-Fi, ISM radio, or Long Range Bluetooth communications.

Supports Different E-Stop Categories

The NSC Pro supports Category 0 and Category 1 stopping for different machine considerations.

Reduce Risk and Streamline Operations

Trusted communication protocols deliver safe, secure, and reliable communication in a compact and convenient form factor.

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Nano Safety Controller Pro Features

Certified Functional Safety Receiver

Receives SIL 3 certified functional safety commands such as e-stop, pause, crawl, etc. over wireless networks including Wi-Fi, ISM radio, and Long Range BLE.

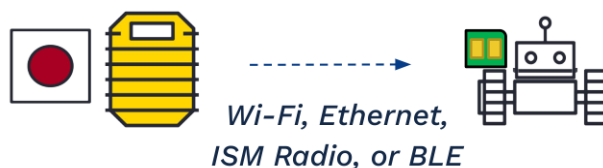
Global Safety Command Receiver

FORT's Endpoint Controller can send a global safety command to up to 30 NSC Pro-equipped machines simultaneously via Wi-Fi, enabling fleetwide safety supervision from on or offsite.

Cat 0 and Cat 1 E-Stopping	The NSC Pro supports both Category 0 (immediate removal of power) and Category 1 (delayed or graceful stopping conditions,) configurable in FORT Manager.
Remote Control Receiver	Receives remote control commands from FORT's SRC Pro via ISM radio or Long Range BLE, allowing machine control from a safe distance. One SRC Pro can be paired with up to 30 NSC Pros.
Small Embedded Architecture	Compact footprint with low power requirements. Easily integrate with industrial machines and attachments using CANbus (CANOpen or CAN J1939 protocols) or Serial (proprietary FORT Serial protocol).
Tamper resistant hardware	Designed and hardened to be tamper resistant and comply with IT recommendations to use secure hardware.
Built-in security	Secure protocol prevents unauthorized access during boot, updates, and configuration.
FORT Manager	Manage, configure, and pair your devices with FORT Manager cloud and desktop app or APIs.

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NSC Pro Pairing & Communication



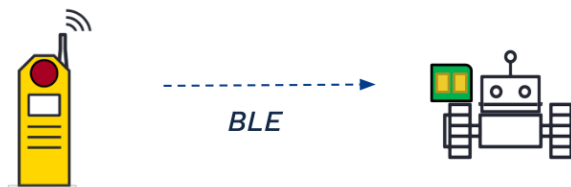
Safety Command Send a functional safety command from the Endpoint Controller to a single NSC Pro-equipped machine.



Global Safety Command Send a functional safety command to up to 30 machines simultaneously.

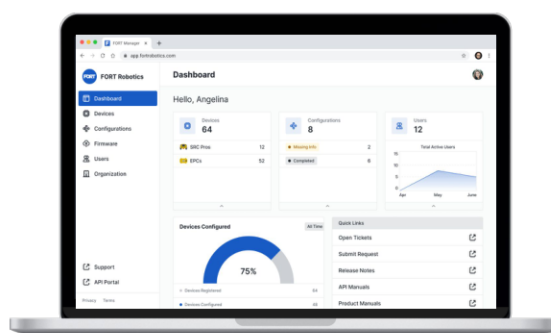


Remote Control Operate a machine from the Safe Remote Control Pro. Use *Machine Select* to pair with up to 30 different machines and control one at a time.



Wireless Safety Command Send a functional safety command to a single NSC Pro-Equipped machine from the Wireless E-Stop Pro.

Easy device management and configuration with FORT Manager



Available via web or desktop app or APIs, FORT Manager provides a convenient solution for:

- Onboarding and managing FORT Pro Series devices
- Building safe, secure device configurations
- Managing organizations, users, and permissions

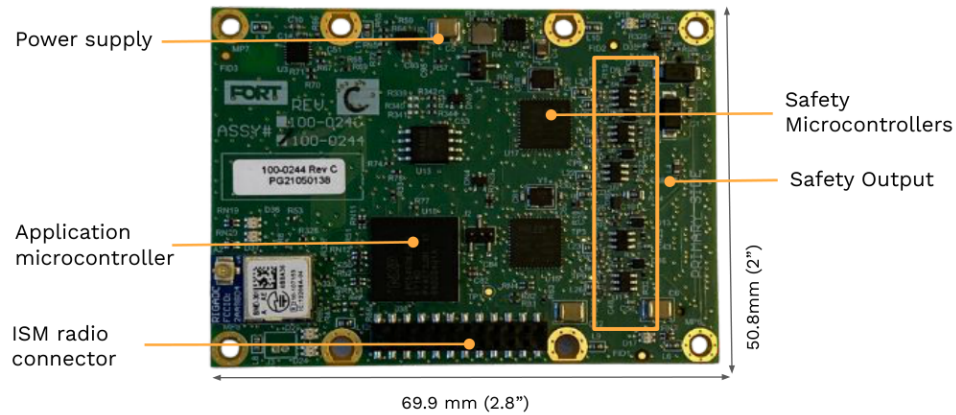
More information on FORT Manager [here](#).

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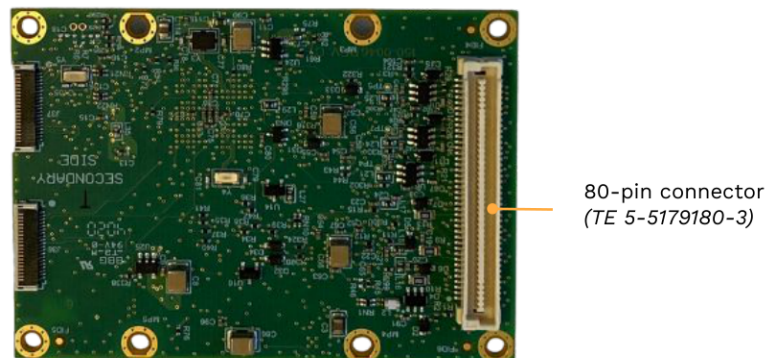
Nano Safety Controller Pro Details

Pictured: Nano Safety Controller Pro 1000

Primary Side



Secondary Side



Compatible Devices



Endpoint Controller: Send certified safety commands to up to 30 NSC Pro-equipped machines at once with this bolt-on sending and receiving device. More info on the [FORT website](#) or download the [data sheet here](#).

Safe Remote Control Pro: Rugged handheld controller with built-in certified E-Stop. Share across multiple NSC Pro-equipped machines. More info on the [FORT website](#) or download the [data sheet here](#).



Wireless E-Stop Pro: Wearable safety command device that sends SIL 3 certified commands via highly reliable Long Range Bluetooth (BLE). More info on the [FORT website](#) or download the [data sheet here](#).

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Technical Specifications

Nano Safety Controller Pro (NSC Pro)

	NSC PRO 1000	NSC PRO 1001	NSC PRO 1002	NSC PRO 1003
Device Type	Embedded Receiver			
IP Communications	Customer-provided Ethernet (supports 10/100 Mbps) or Wi-Fi (supports 2.4GHZ, 5GHZ) plus FORT SDK (IP to Serial)			
Additional Communication Options		ISM Radio 902 - 928 MHz (US & Canada)	ISM Radio 869.4 - 869.65 MHz (Europe)	Long Range BLE 2.400–2.4835 GHz
Wireless Range <i>May vary based on antenna placement and environment</i>		300-400m line of sight	100-200m line of sight	250m line of sight
Dimensions	50.8mm x 69.9mm x 10.4mm (2.0" x 2.75" x 0.5")	50.8mm x 69.9mm x 18.5mm (2.0" x 2.75" x 0.72")		
Weight	17g	29g		
Operating Voltage	Regulated 4.5VDC to 13.0VDC USB 5VDC @ 500mA			
Maximum PVIN Current	1600 mA			

	NSC PRO 1000	NSC PRO 1001	NSC PRO 1002	NSC PRO 1003
System Operating Current	67 mA @ 5.1V 32 mA @ 13V	92 mA @ 4.5V 39 mA @ 13V		83 mA @ 4.5V 36 mA @ 13V
System Power Consumption	342 mW @ 5.1 V 410 mW @ 13V	416 mW @ 4.5V 502 mW @ 13V		374 mW @ 4.5V 471 mW @ 13V
Safety Outputs	2 dual channel, digital outputs with OSSD			
Safety Output Voltage	Matches supply input voltage			
Total Safety Output Current Capacity	1500 mA			
Per Channel Safety Output Current Capacity	750 mA (2 channels in use) 375 mA (4 channels in use)			
Operating Temperature	-40°C to 85°C			
Wired Interfaces for Non-Safety Communications	2 serial lines (UART) 2 CAN lines (Tx and Rx) J1939 protocol			
Connectors	80-pin integration	80-pin integration, IPEX antenna		
Safety Command Response Time	<100 ms avg tested plus network latency			
Safety Timeout Period	Selectable: .25 sec; .50 sec; .75 sec; 1 sec; 3 sec; 5 sec			
Pairing	1 Endpoint Controller to 30 NSC Pro; 1 Safe Remote Control Pro to 30 NSC Pro			1 Endpoint Controller to 30 NSC Pro; 1 Safe Remote Control Pro to 30 NSC Pro; 1 Wireless E-Stop Pro to 1 NSC Pro
Regulatory Certifications	FCC, IC, CE	FCC, IC	N/A	FCC, IC, CE, RCM, Giteki
Safety Certification	E-Stop functionality certified by Exida to SIL 3 rating per IEC 61508			

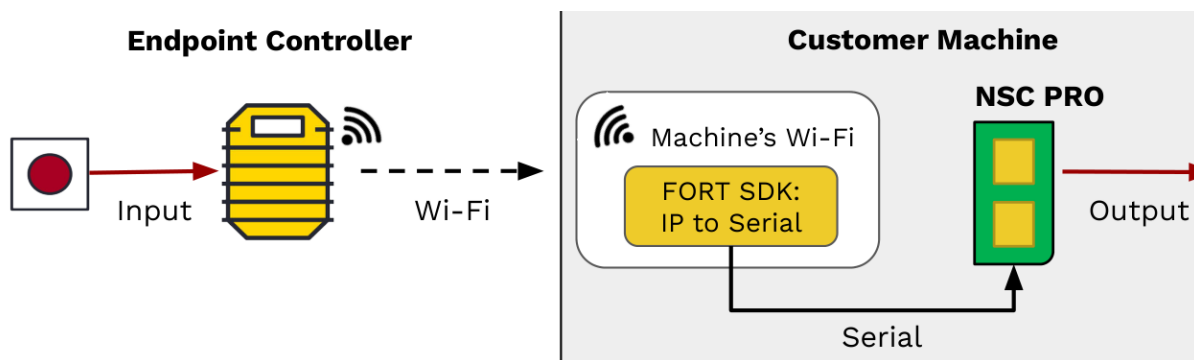
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NSC Pro Technical Specifications

Configuration Example

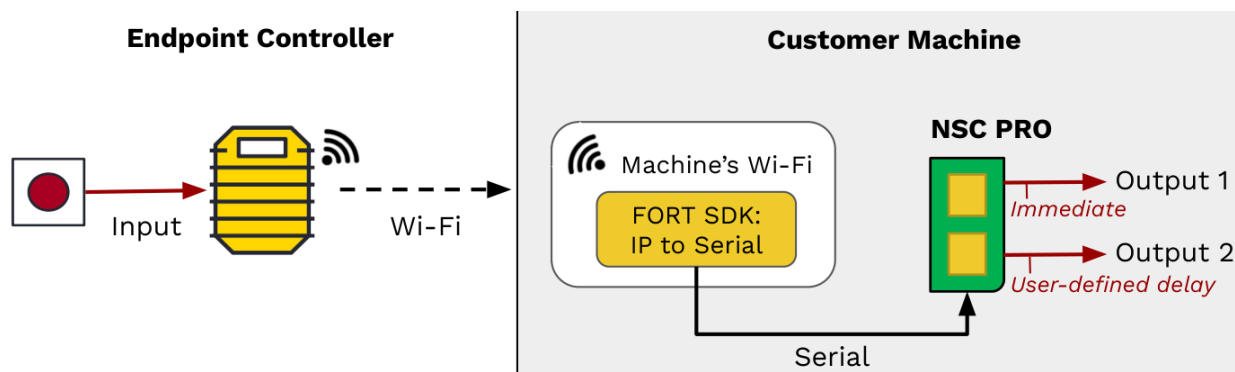
1. Safety input connected to the Endpoint Controller

2. Input sent via Wi-Fi from the Endpoint Controller to customer machine's Wi-Fi
3. FORT SDK must be installed on the machine so the IP to Serial component converts Wi-Fi to Serial
4. Serial messages sent to Nano Safety Controller Pro
5. Nano Safety Controller Pro drives output to the machine



Category 1 E-Stop Configuration Example

1. E-Stop immediately turns off Output 1 of the receiver
2. Output 2 turns off after user-defined delay



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NSC Pro Integration Requirements

Hardware specifications

- Power supply 5V or 12V can be provided via USB
- Temperature within -40°C to +85°C range
- All ISM cables require a u.FL connector. Contact FORT for custom cable designs.
- Primary side of board recommended clearance >4mm
- Secondary side of board recommended clearance >5mm
- Secondary side of board connector TE 5177986-3, engages with TE 5 5179180-3
- Secondary side of board recommended standoff = 9mm

FORT software

- A Linux based computer is required to run FORT tools; the CLI configuration and the FORT SDK
- IP-to-serial conversion tool required for communications from Endpoint Controller (included in FORT SDK)
- Portable to various Linux OS versions and PC architectures
- FORT Manager and CLI tool to install firmware updates and update the system configuration

IP connectivity via customer Linux machine

- Wi-Fi or wired Ethernet required when using the Nano Safety Controller Pro with the FORT Endpoint Controller

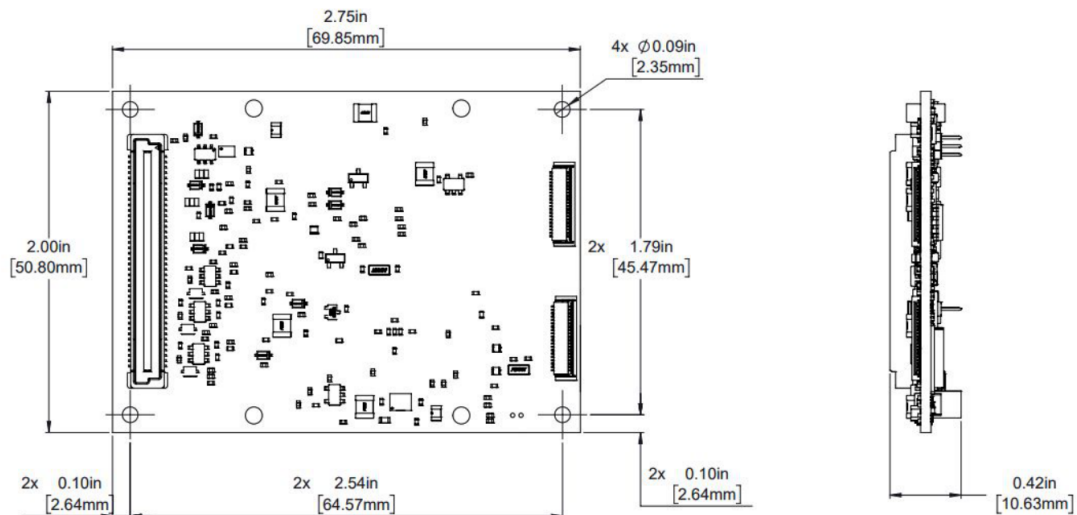
Serial interface (Optional)

- Remote control data from Safe Remote Control Pro
- System diagnostics

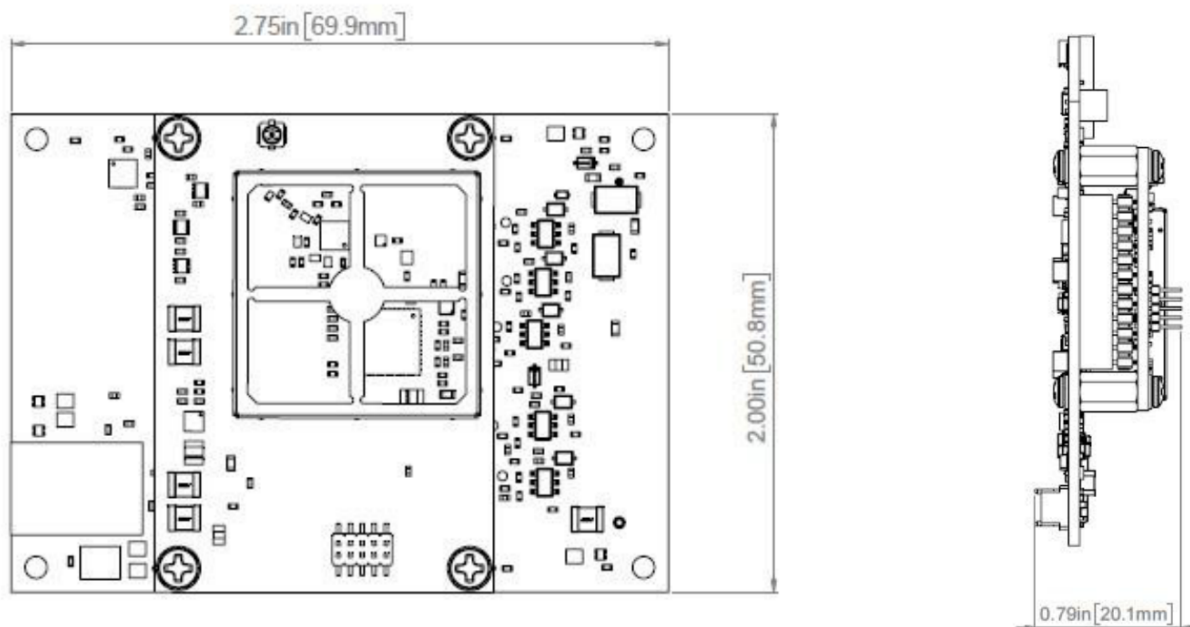
OPTIONAL: NSC Pro Breakout Board

A breakout board is available for development and testing the NSC Pro with both the Endpoint Controller and the Safe Remote Control Pro. It simplifies access to the 80-pin header. Recommended for initial proof of concept and bench testing.

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Nano Safety Controller Pro Details**Nano Safety Controller Pro**

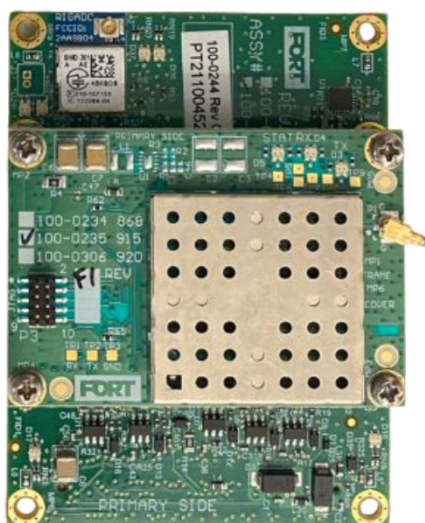
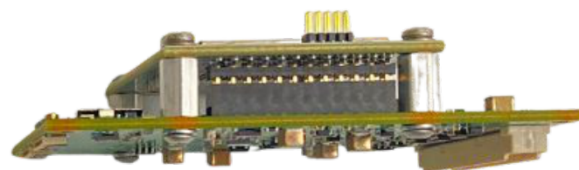
Nano Safety Controller Pro with ISM Radio



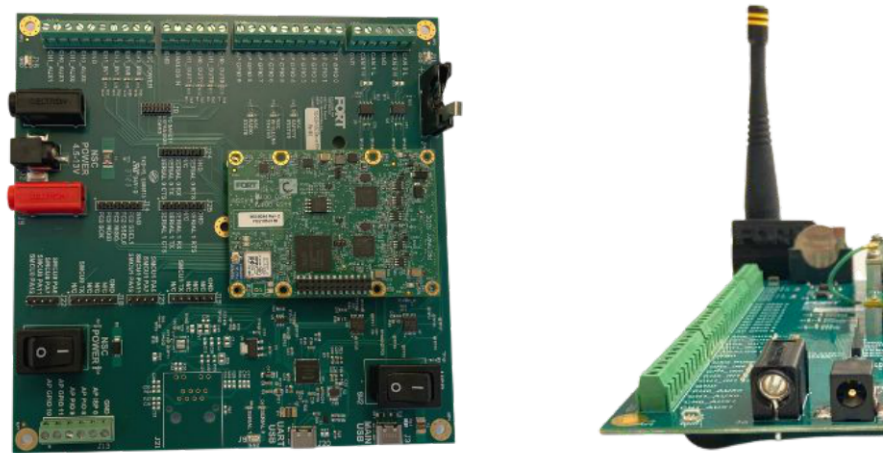
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Product and Accessory Images

Nano Safety Controller Pro with ISM Radio

**TOP VIEW****SIDE VIEW**

Nano Safety Controller Pro on Breakout Board



TOP VIEW SIDE VIEW

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Part Numbers and Ordering Information

STEP 1

Select Nano Safety Controller Pro with required functions

Select System

Select Communication

PRODUCT CODE

Embedded receiver *Wi-Fi NSC Pro 1000 **100-0347**



***Wi-Fi & ISM Radio 902-928 MHz NSC Pro 1001 100-0348**

***Wi-Fi & ISM Radio 868 MHz NSC Pro 1002 100-0349**

***Wi-Fi & Long Range BLE NSC Pro 1003 100-0448**

**Wi-Fi is enabled thru machine's Wi-Fi and the FORT SDK installed on the machine to convert IP to Serial*

STEP 2	Select accessories
NSC Pro 1000 Developer Kit	800-0007
Breakout Board	100-0354

	2 x USB-A to USB-C, 1m (connect to power & Serial port) 250-0561
NSC Pro 1001 Developer Kit	800-0008
Breakout Board	100-0354
Antenna holder for NSC Pro breakout board	304-0075
USB-A to USB-C, 1m (connect to power & Serial port)	250-0561
900 MHz antenna, RP-SMA male	275-0108
IPEX to RP-SMA IP67 1.32mm ucoax 9in, 11mm HEX	275-0010
NSC Pro 1002 Developer Kit	800-0009
Breakout Board	100-0354
Antenna holder for NSC Pro breakout board	304-0075
USB-A to USB-C, 1m (connect to power & Serial port)	250-0561
800 MHz antenna, RP-SMA male	275-0111
IPEX to RP-SMA IP67 1.32mm ucoax 9in, 11mm HEX	275-0010
NSC Pro 1003 Developer Kit	800-0028
Breakout Board	100-0354
Antenna holder for NSC Pro breakout board	304-0075
2 x USB-A to USB-C, 1m (connect to power & Serial port)	250-0561
2.4 GHz antenna, RP-SMA male	275-0112
IPEX to RP-SMA IP67 1.32mm ucoax 9in, 11mm HEX	275-0010
Individual Accessories	
Breakout Board	100-0354
NSC Breakout Board 12V Power Supply	270-0019
USB-A to USB-C, 1m (connect to power & Serial port)	250-0561
IPEX to RP-SMA IP67 1.32mm ucoax 9in, 11mm HEX	275-0010
900 MHz antenna, RP-SMA male	275-0108
800 MHz antenna, RP-SMA male	275-0111

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FORT Manager License Tiers

FORT Manager is available as an annual subscription with two license tiers:

- **Core:** *Best for essential device configuration and supervision*
- **Connect:** *Best for integrated, flexible management at scale*

	CORE	CONNECT
Included Features		
Web and Desktop Apps	✓	✓
Device Configuration & Management	✓	✓
Regular Software Updates & Bug Fixes	✓	✓
Command Line Interface Access	✓	✓
REST API Access		✓
Support		
Channels	Email	Email, Phone & Portal
Coverage window	Business hours (Mon-Fri, Eastern time)	24x7
Escalation path		Priority escalation & scheduled reviews
Response SLAs		
Priority 1 – System down	Best effort	< 1 hour
Priority 2 – Degraded	Best effort	< 4 hours
Priority 3 – General	Best effort	< 8 hours
Ordering Information		
Product Code	FM-CORE-1YR	FM-CONNECT-1YR

For pricing and additional information, contact your FORT Account Executive or sales@fortrobotics.com.

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Pro Series Warranty & Support Options

Coverage for Safe Remote Control Pro, Endpoint Controller, Nano Safety Controller Pro, and Wireless E-Stop Pro. Device warranty covers hardware replacement; support SLAs are delivered through FORT Manager licenses. Both are required for fully supported Pro Series deployment.

1. DEVICE WARRANTY — HARDWARE COVERAGE & REPLACEMENT

	Standard <i>Included year 1 · Renewable annually</i>	Advantage <i>Available upgrade · Renewable annually</i>
Product Codes	870-0050 (Year 1) 870-0051 (Extension)	870-0052
Warranty Shipping	Standard handling	Priority handling
Advanced Replacement	Within 2 weeks	Within 3 days

2. Support SLAs — via FORT Manager License

	Core <i>Essential configuration & management</i>	Connect <i>Integrated management at scale</i>
Product Code	FM-CORE-1YR	FM-CONNECT-1YR
Support Channels	Email	Email, Phone & Portal
Coverage Window	Business hours (M–F, ET)	24×7
Escalation Path	—	Priority escalation & scheduled reviews
Response SLAs: Priority 1 — System Down	Best effort	< 1 hour
Priority 2 — Degraded	Best effort	< 4 hours
Priority 3 — General	Best effort	< 8 hours

Understanding Pro Series Coverage

- ▶ Device warranty covers hardware repair, replacement, and shipping.
- ▶ FORT Manager license adds software, device management, and support SLAs.
- ▶ Each can be renewed or upgraded independently each year.

When to Choose FM Connect

- ▶ 24×7 operations or mission-critical safety deployments.
- ▶ Fleets needing REST API access or integration with internal systems.
- ▶ Teams requiring priority escalation and scheduled account reviews.

Product Code	Description
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870-0050	Device Warranty — Standard, Year 1 (included with every device)
870-0051	Device Warranty — Standard, annual extension
870-0052	Device Warranty — Advantage, annual
FM-CORE-1YR	FORT Manager Core — 1-year subscription (Pro Series)
FM-CONNECT-1YR	FORT Manager Connect — 1-year subscription (Pro Series)

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FORT ROBOTICS CONTROL PLATFORM

Pro Series



Safe Remote Control Pro



Endpoint Controller



FORT Manager



Nano Safety Controller Pro



Wireless E-Stop Pro

Foundation Series



Safe Remote Control



Vehicle Safety Controller



Wireless E-Stop



Wired Remote Control

Professional Services



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