



NX IV 3450T

Digital Instrumentation

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The Curtis enGage® NX IV (NX4) is a rugged 4-inch touchscreen display designed to provide clear visualization and intuitive control of vehicle and machine data. The bright, high-resolution capacitive touch screen enables responsive operator interaction while supporting fully customizable interfaces that allow OEMs to implement their own branding and user experience.

Featuring CAN-FD communication, the NX4 delivers faster data transfer and improved network reliability for modern vehicle architectures. Dual video inputs and flexible I/O capabilities enable easy integration of cameras and external devices, supporting enhanced machine awareness and functionality. Optional Bluetooth® and Wi-Fi connectivity allow communication with mobile applications and fleet telematics systems, while optional RFID enables secure operator identification and vehicle access control.

As part of the unified enGage® NX platform, the NX4 shares a common user experience and development environment across all NX displays, simplifying integration and allowing OEMs to scale display solutions across multiple vehicle platforms.

Features

- 4 inch, 800x480 pixel, touch screen LCD.
- Bright, 600 nit, optically bonded, display enables clear visualization in direct sunlight.
- Enables visualization of machine information and a unique brand identity through a fully customizable user interface.
- A light sensor can be programmed to adjust screen brightness to ambient light conditions.
- Two CAN FD ports, with J1939* and CANopen support, provide 5 Mbps data speeds, superior EMC and reliability, and backwards compatibility to CAN 2.0.
- Support for two analog video inputs.
- 32MB of Flash (expandable), enabling storage of firmware, logs and other critical files.
- Optional WiFi and Bluetooth wireless connectivity communicate machine data to a data server or third-party applications.**
- Optional RFID/NFC enables easy operator identification using compatible ISO 14443A RFID tags or supported mobile phone application.**
- Four digital inputs and one analog input, configurable as either voltage or resistance, allow connection of external IO devices.
- One MOSFET output enables control of an external component.
- Operates in demanding conditions with an operational temperature range of -40° to $+70^{\circ}\text{C}$ and IP67 front and rear ingress protection.
- Wide voltage range supports a variety of applications.
- CE, UKCA and ROHS3 compliance and UL recognition ensure compatibility with global regulatory safety.*

*Pending

**Wireless variant will be realized after the base variant.



Specifications

Electrical

Voltage Ranges

Nominal	Min.	Max.
12–48V	9V	60V

Operating Currents:

Voltage	Min (mA) Screen OFF	Min (mA) Screen ON Full Brightness
B+ (9V)	94mA	190mA
B+ (12V)	72mA	140mA
B+ (24V)	40mA	75mA
B+ (36V)	30mA	55mA
B+ (48V)	25mA	45mA
B+ (60V)	22mA	40mA

CAN Baud Rate:

Default: 250Kbit/s
100 Kbps to 5 Mbps

Inputs

Digital Input Characteristics

The digital inputs may be active-low (switched to B-) or active-high (switched to B+).

Switch Input Characteristics	Min.	Max.	Units
Input Active High Threshold Voltage	0	48	Volts
Active Low Threshold	–	1.0	Volts

Analog Input

The sender must be referenced to the system ground (B-) connected to the unit.

Analog Input Characteristics	Min.	Max.	Units
Voltage Input Range	0	48	Volts
Voltage Measurement Range	0	10	Volts
Voltage Resolution	–	5	mV
Voltage Measurement Error	–	± (1% + 40 mV)	
Resistance Measurement Range	0	10k	Ohms
Resistance Resolution (0 – 1200 Ω)	0.2	5	Ohms
Resistance Resolution (1.2k – 10k Ω)	5	35	Ohms
Resistance Measurement Error	–	± (3% + 2 Ω)	

Outputs

MOSFET Output Specifications.

Parameter	Min.	Max.	Condition
Continuous Current	0	2A	
Off Voltage	–	60V	
On Voltage	1.0 V	2.0V	I = 2A DC
MOSFET PWM Output Frequency		65 kHz	

Specifications continued

Environmental

Temperature Range:

Operating: -40° to 70°C

Storage: -40° to +85°C

Hot Soak – Operating:

Designed to meet EN IEC 60068-2-2:2007

Hot Soak – Storage:

Designed to meet IEC 60068-2-2:2007

Cold Soak – Operating & Storage:

Designed to meet IEC 60068-2-2:2007

Thermal Cycling:

Designed to meet IEC 60068-2-14:2023

Thermal Shock:

Designed to meet IEC 60068-2-14:2023

Humidity:

Soak: Designed to meet IEC 60068-2-78:2012

Cyclic: Designed to meet IEC 60068-2-30:2005

Ingress Protection:

Designed to meet IEC 60529-2020 - IP67

IP67 front and rear (with mating connector connected)

Shock:

Designed to meet IEC 60068-2-27:2008

UV:

Designed to meet ASTM G155-05a cycle 7A without water mist spraying for 500Hrs

Shock and Vibration:

General: Designed to meet IEC 60068-2-6:2007

Random: Designed to meet

IEC 60068-2-64:2008+A1:2019 Test Fh

Resonance: Designed to meet IEC 60068-2-6:2007

EMC Specifications

ESD:

Designed to meet EN 12895:2015+A1:2019

Emissions:

Designed to meet EN 12895:2015+A1:2019

Immunity:

Radiated: Designed to meet EN 12895:2015+A1:2019

Frequency Magnetic Field: Designed to meet EN 12895:2015+A1:2019

Regulatory Approvals

UL*: UL recognition to ANSI/CAN/UL 583:2022

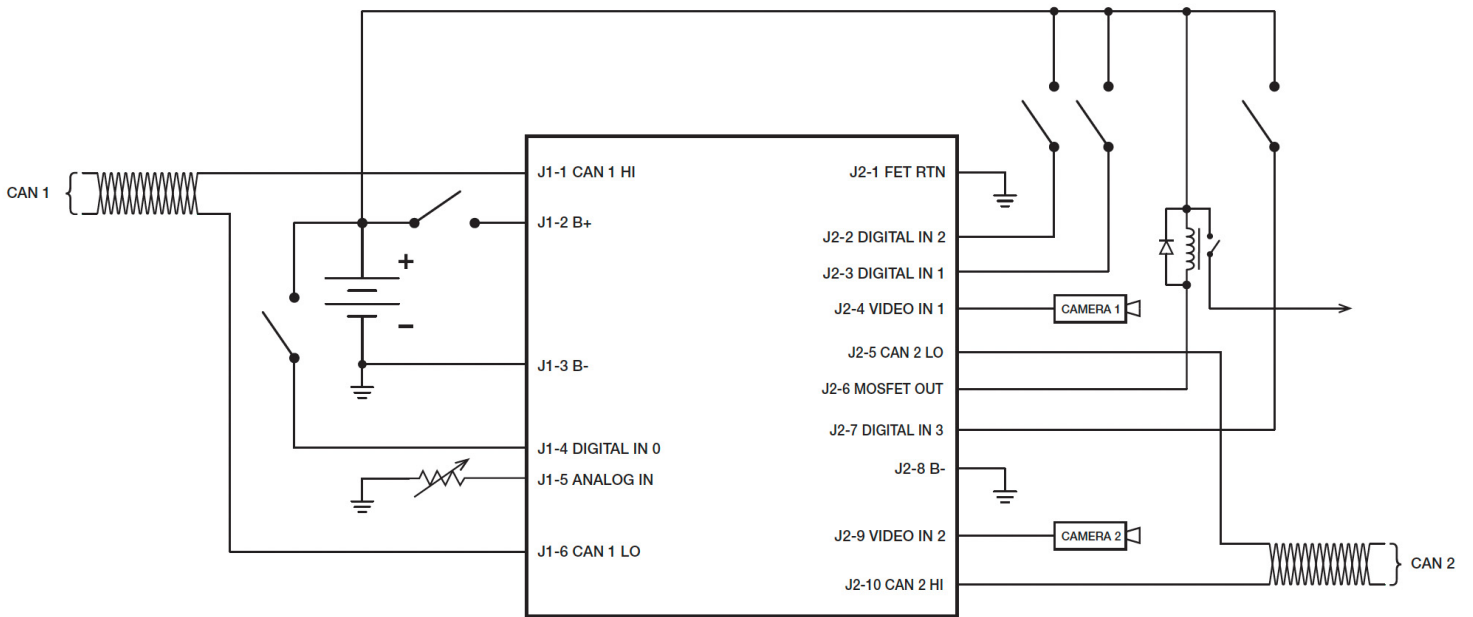
CE*: Designed to meet the EMC Directive 2014/30/EU and RoHS2 as amended by 2015/863/EU and 2017/2102/EU

**Pending*

Model Chart

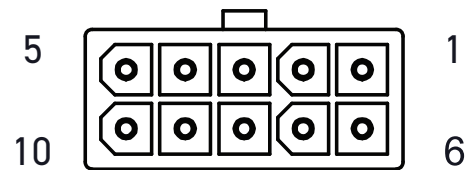
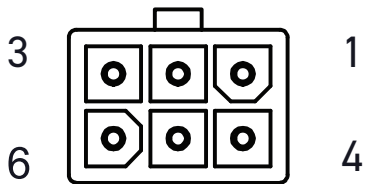
Model	Curtis PN	Description
3450T	17784700-XXX	NX4 with Touch Screen
3451T	17784701-XXX	NX4 wireless with Touch Screen

Typical Wiring Diagram



Connectors

The signals are assigned as shown in the tables below.



J1 Connector

Pin No.	Signal Name	Description
1	CAN 1 Hi	CANbus 1 High Signal
2	B+	Battery Positive
3	B-	Battery Common
4	Digital Input 1	Digital Input 1
5	Analog Input	Analog Input
6	CAN 1 Low	CANbus 1 Low Signal

J2 Connector

Pin No.	Signal Name	Description
1	MOSFET Ground	MOSFET Common
2	Digital Input 3	Digital Input 3
3	Digital Input 2	Digital Input 2
4	Video Input 1	Video Input Channel1
5	CAN 2 Low	CANbus 2 Low Signal
6	Output MOSFET	MOSFET Output
7	Digital Input 4	Digital Input 4
8	Ground	Ground
9	Video Input 2	Video Input Channel 2
10	CAN 2 Hi	CANbus 2 High Signal

Mating Connector

The part numbers for mating assembly are shown in the tables below.

J1 Mating Connector Part Numbers: IP54

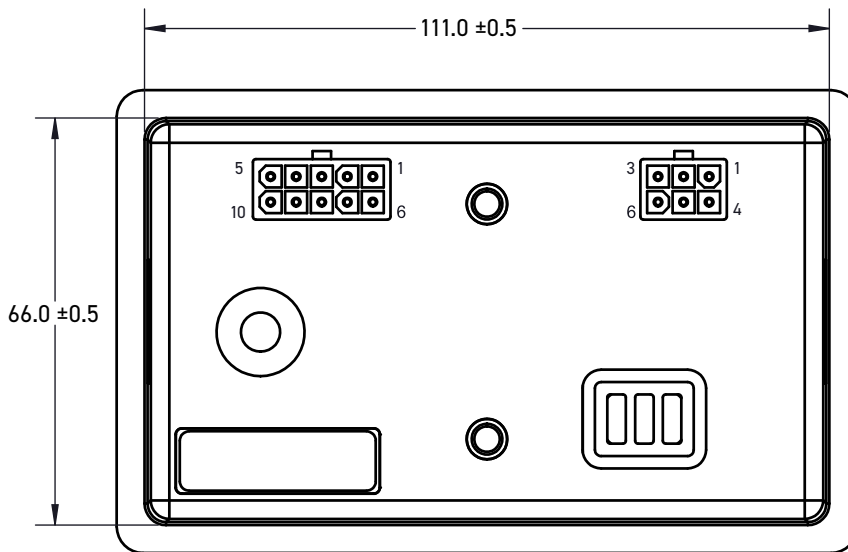
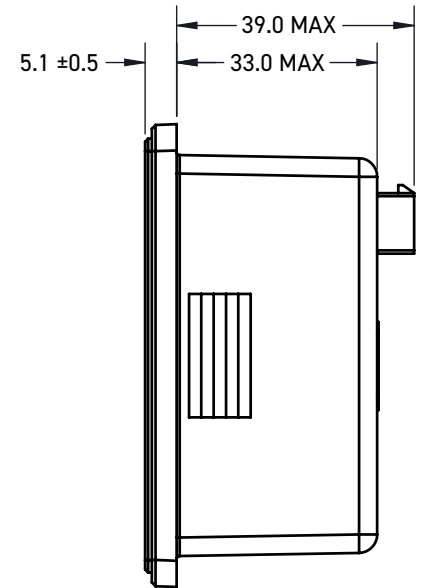
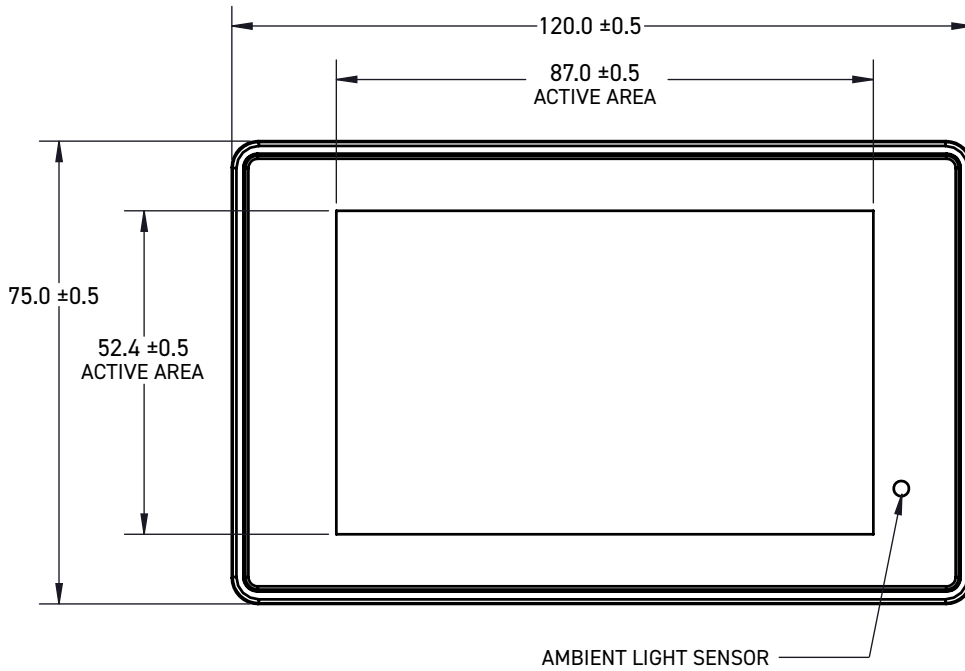
Item	Part Description	TE P/N
1	Connector Housing	794895-1
2	Terminal (18 – 24 AWG)	770904-3
3	Interface Seal	794772-6
4	Wire Seal	794758-1
5	Cavity Plug Seal (for unused terminal positions)	794995-1

J2 Mating Connector Part Numbers: IP54

Item	Part Description	TE P/N
1	Connector Housing	794895-1
2	Terminal (18 – 24 AWG)	770904-X
3	Interface Seal	1794772-0
4	Wire Seal	794758-1
5	Cavity Plug Seal (for unused terminal positions)	794995-1



Dimensions (mm)



Warranty

Two year limited warranty from time of delivery.

Specifications are subject to change without notice.

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