



Power Distribution Touch Screen

Touch Screen Interface to the Power Distribution System

Features

- Toggle each channel on/off
- View on/off/fault status of each channel
- View power usage of each channel
- Trigger startup/shutdown scripts
- Change modes (with a password)

Applications

- Driverless car research
- Advanced Driver Assist (ADAS) research

Description

The Dataspeed Inc. Power Distribution System Touch Screen Interface enables control of the relay channels and reporting of each channel's current and status.



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1 Connector Pin Description

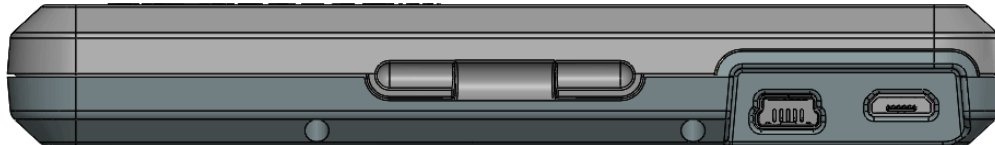


Figure 1: USB connectors, left: Mini, right: Micro

1.1 USB Connector (Mini)

The large USB connector is used for power and CAN communication. Note: The signals on this USB connector are not standard USB signals. Connecting a USB host, such as a computer, will do nothing.

Table 1: USB Connector (mini) pin description.

Pin	Symbol	Description
1	POWER	Power (12V)
2	CANL	CAN Low
3	CANH	CAN High
4	GND	Ground

1.2 USB Connector (Micro)

The small USB connector is used for firmware upgrade. Note: The device cannot be powered by this connector.

2 Electrical Characteristics

Table 2: Electrical Characteristics.

Characteristic	Min	Typ	Max	Units	Conditions
V _{POWER}	9	12	16	V	
I _{POWER}		150		mA	V _{POWER} =12V
Temperature	-40		+85	°C	

3 Mechanical Drawings

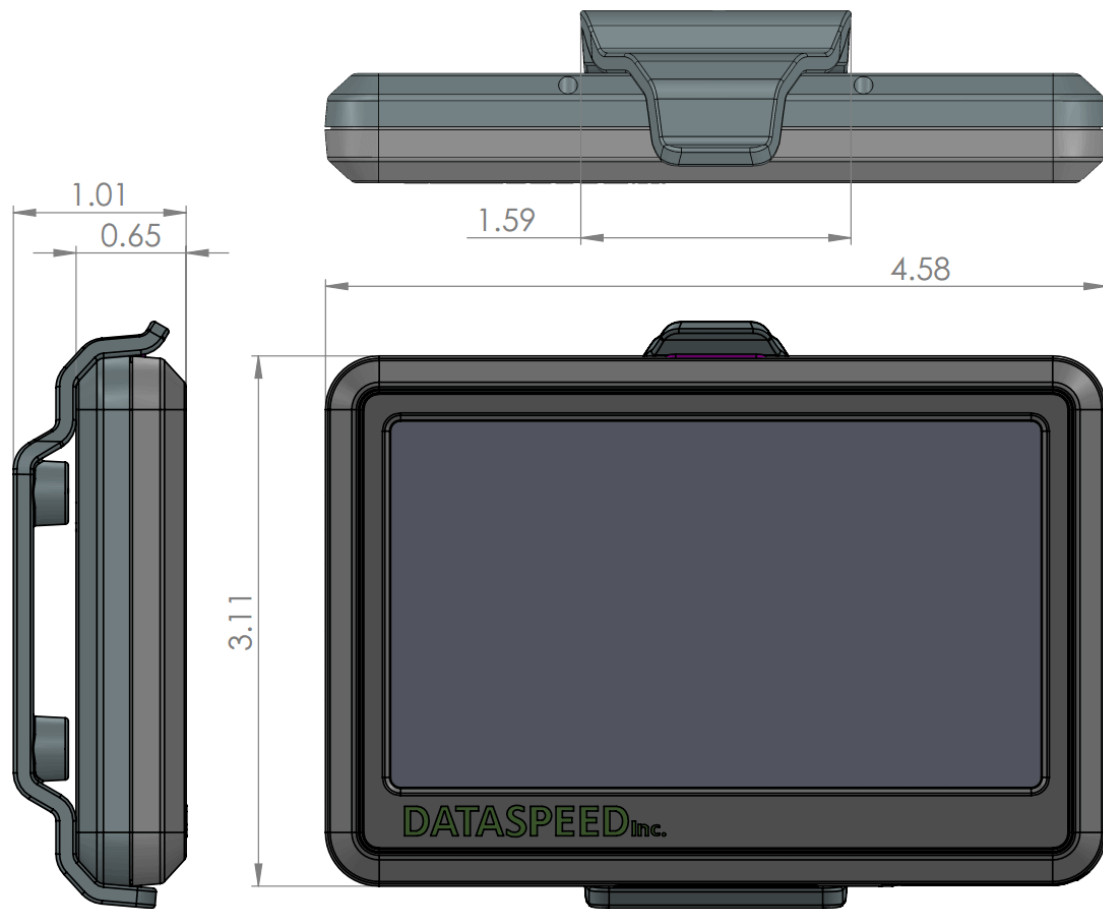


Figure 2: Mechanical Drawing

4 CAN Messages

Table 3: CAN bus configuration.

Parameter	Value	Units
Terminated	No	
BitRate	500	k
t _q	200	ns
SyncSeg	1	t _q
PropSeg	3	t _q
PhaseSeg1	3	t _q
PhaseSeg2	3	t _q
SyncJumpWidth	2	t _q

4.1 Request

Message ID: 0x410
Transmit Rate: On Event

Table 4: Request CAN Message Description.

Byte	Bits	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	7:0	INDEX							
1	15:8	REQUEST							

bit 0-7 **INDEX:** Channel Index
 0 = Channel 1
 1 = Channel 2
 2 = Channel 3
 ...
 23 = Channel 24
 —
 48 = Inverter 1
 49 = Inverter 2
bit 8-15 **REQUEST:** Relay Request
 0 = Off
 1 = On
 2 = Toggle

Power Distribution Touch Screen

4.2 Mode

Message ID: 0x411
Transmit Rate: On Event

Table 5: Mode CAN Message Description.

Byte	Bits	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	7:0	MODE							

bit 0-7 **MODE:** Mode Request
0 = Auto
1 = Manual
2 = Valet

4.3 Script

Message ID: 0x412
Transmit Rate: On Event

Table 6: Script CAN Message Description.

Byte	Bits	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	7:0	SCRIPT							

bit 0-7 **SCRIPT:** Script Request
0 = None
1 = Startup
2 = Shutdown

4.4 Reserved

Message ID: 0x413
Transmit Rate: On Event

4.5 Reserved

Message ID: 0x431
Receive Rate: On Event

4.6 Reserved

Message ID: 0x432
Receive Rate: 200ms

4.7 Status Master

Message ID: 0x420
Receive Rate: 50ms

4.8 Status Slave

Message ID: 0x421
Receive Rate: 50ms

4.9 Status2 Master

Message ID: 0x43C
Receive Rate: 50ms

4.10 Status2 Slave

Message ID: 0x43D
Receive Rate: 50ms

4.11 Current 1 Master

Message ID: 0x424
Receive Rate: 50ms

4.12 Current 1 Slave

Message ID: 0x425
Receive Rate: 50ms

4.13 Current 2 Master

Message ID: 0x428
Receive Rate: 50ms

4.14 Current 2 Slave

Message ID: 0x429
Receive Rate: 50ms

4.15 Current 3 Master

Message ID: 0x42C
Receive Rate: 50ms

4.16 Current 3 Slave

Message ID: 0x42D
Receive Rate: 50ms

APPENDIX A: REVISION HISTORY

Revision A-00 (August 2017)

Modifications:

1. Initial release of this document.