



Features

- 100BASE-T1 to 100BASE-TX Ethernet
- Configurable Master or Slave modes
- LED Link Status Indicator
- USB Powered
- ESD Protection on 100BASE-T1 Circuit
- Uses Molex mini50 Connector for 100BASE-T1 Unshielded Twister Pair
 - mini50 connector: 0347930040
 - Mating mini50 connector: 0347910040
 - Mating mini50 contacts: 5600230421

Applications

- Product Development
 - Infotainment
 - Audio Amplifiers
 - Clusters
- Test racks
- Automation

Description

while(1)_engineering's Navigator provides a solution for debugging and monitor 100BASE-T1 Ethernet traffic with speeds up to 100Mbps. Being powered from a common micro-USB connector and compact in physical size, the Navigator can be used in a variety of environments ranging from product development to test fixtures. A user configurable switch configures the Navigator as a master or slave on power cycle or from the reset button with a LED indicator illuminating when a link has been established.



Typical Application

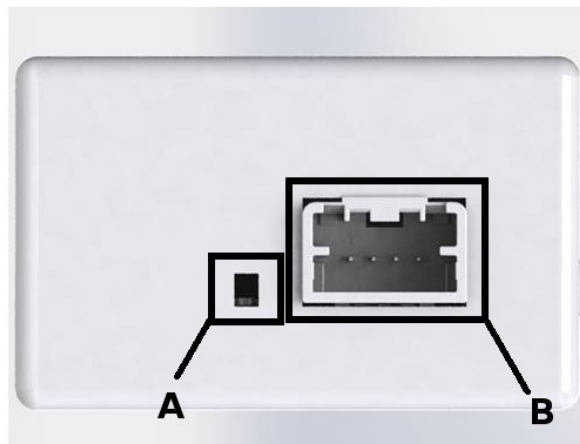


Usability

Use the following steps to use the while(1)_engineering Navigator:

1. Plug in a standard Ethernet cord to the RJ45 jack.
2. Connect a single 100BASE-T1 twisted pair to the Molex mini50 connector.
3. Configure the Navigator as Master or Slave based on user configuration of the system under test.
4. Plug in USB.
5. Once a link has been established, the link indicator LED shall illuminate.
6. If the user wishes to change the Master or Slave setting, simply change the orientation of the slide switch and either depress the Reset button or cycle power by unplugging and plugging back in the USB cord.

Mechanical Characteristics



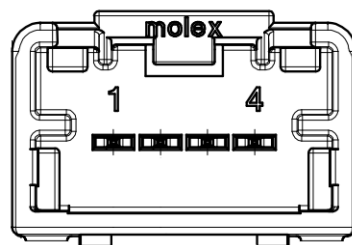
Navigator Test Interface

A: Link Status Indicator

ON: Indicates that a 100BASE-T1 link has been established

OFF: Indicates that a 100BASE-T1 link has not been established

B: Molex mini50 100BASE-T1 Connector (part number 0347930040)

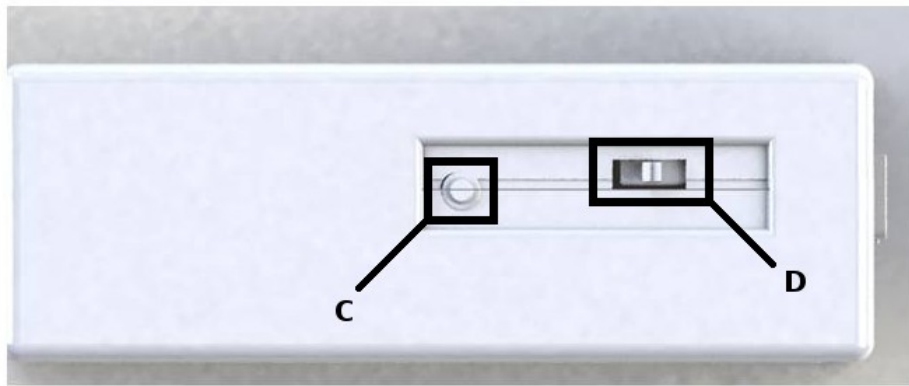


Pin 1: No connect

Pin 2: Broad-Reach Positive Signal (BRR+)

Pin 3: Broad-Reach Negative Signal (BRR-)

Pin 4: No connect



Navigator Configuration Interface

C: Reset Toggle Button

Depressing and releasing this button will reset the while(1)_engineering Navigator. This can be used when changing the Master or Slave configuration of the Navigator.

D: Master/Slave Slide Switch

This switch determines if the while(1)_engineering Navigator is configured as a Master or Slave. This setting is configured within the Navigator once a reset event has occurred triggered by a Reset Toggle Button event or cycling power by removing and asserting the USB cable.

Master: Slide switch is configured 'towards' the User Interface (towards the RJ45 & USB jacks)

Slave: Slide switch is configured 'towards' the Test Interface (towards the Molex mini50 connector)



Navigator User Interface

E: RJ45 Connector

Connector for standard 100Mbps 802.3 Ethernet.

Orange LED: Indicates link activity

Green LED: Link status. LED illuminated indicates 100Mbps link established.

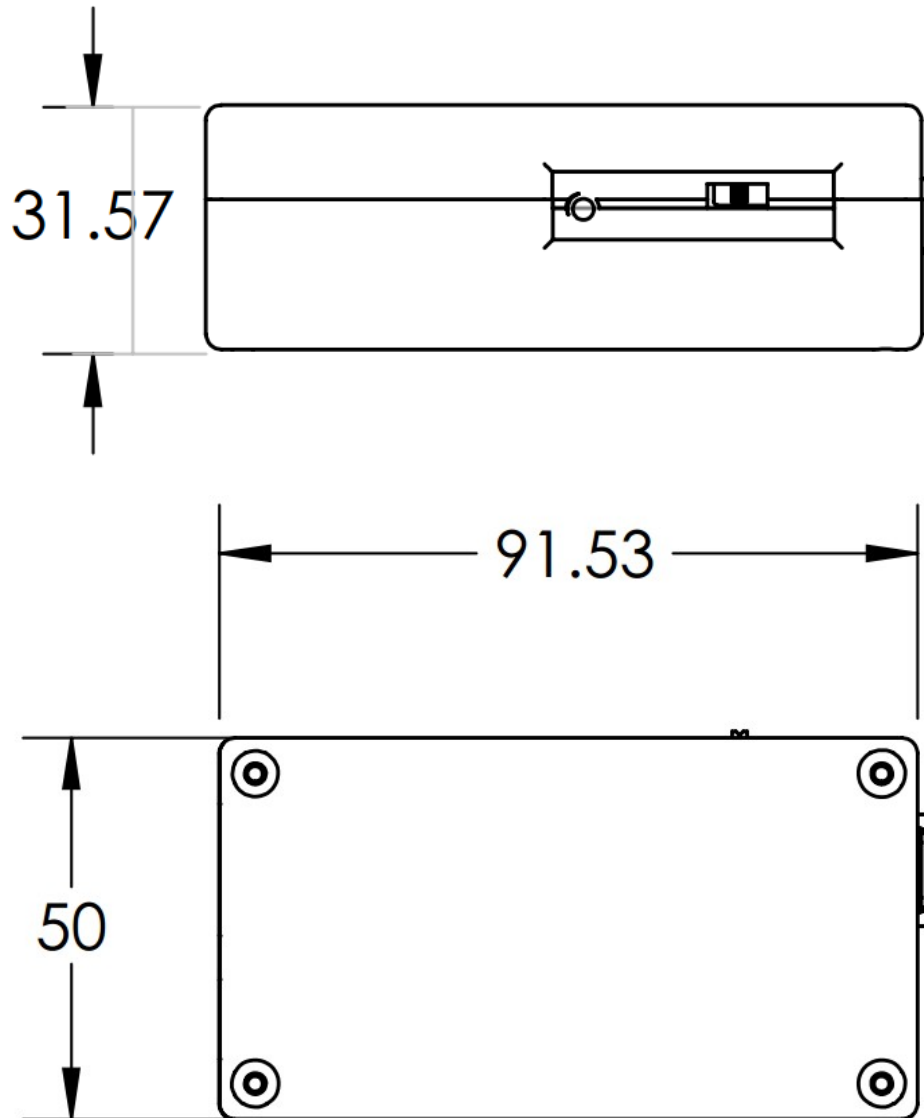
LED non-illuminated indicates 10Mbps or no link established.

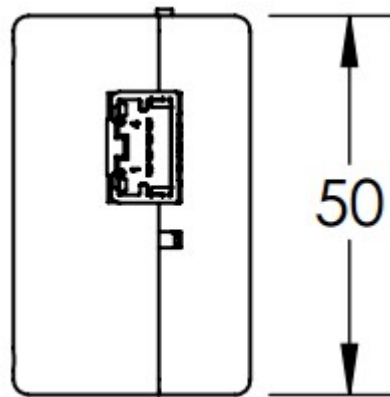
F: microUSB Connector

The microUSB connector is solely used to power the Navigator with +5V (VBUS) from a standard USB cord. No data is transmitted to/from the Navigator over the USB interface.

Mechanical Dimensions

* Note: all dimensions are given in millimeters





Electrical Characteristics

VBUS = +5V (powered from standard USB interface)

Parameter	Condition	Min.	Typ.	Max.	Units
Quiescent Current – Configured as Slave	No connections established	100	135	150	mA
	100BASE-T1 link only ¹	140	150	160	mA
	802.3 link only ¹	171	174	178	mA
	100BASE-T1 & 802.3 link ¹		192	199	mA
	Ethernet traffic	200			mA
Quiescent Current – Configured as Master	No connections established	140	147	154	mA
	100BASE-T1 link only ¹	152	150	154	mA
	802.3 link only ¹	182	185	187	mA
	100BASE-T1 & 802.3 link ¹		193	199	mA
	Ethernet traffic	203			mA
ESD Protection	USB			20	kV
	100BASE-T1			12	kV

¹: No activity