BYNET

Testing Systems

# USB2.0 High Speed Mux 4 to1 - Quickstart guide

## BTS 78882328A

V1.0.1

## Overview

The BTS78882328A is a bi-directional, low power, high speed USB 2.0 4:1 MUX. Designed to facilitate the switching of four high-speed sources to single USB2.0 connector.
This bi-directional device operates at low power and allows all ports to function as either Host or Device.

## Features

USB 2.0 High-Speed
Low Power
Low RON Resistance
Voltage Switching Based on Electromechanical Relays

## Specifications

Communication Port Ethernet:
Ethernet 10/100 base T
TCP Static IP
Default IP & Port: 192.168.10.10:7

## Ordering Information

Part Number: BTS78882328A

*Figure 1: USB2.0 High Speed MUX 4 to1*

# Installation

## Dimensions

130 mm x 78 mm x 27 mm

## Command Set

### 1. Set MUX Switch Position

a. **All Off Command:** 0x18DE02
   Response: 0x18DE02
b. **Set Position A Command:** 0x18DE10
   Response: 0x18DE10
c. **Set Position B Command:** 0x18DE24
   Response: 0x18DE24
d. **Set Position C Command:** 0x18DE48
   **Response:** 0x18DE48
e. **Set Position D Command:** 0x18DE8C
   **Response:** 0x18DE8C

### 2. Get MUX Switch Position

**Command:** 0x187E

### Response:

0x187E02 - All Off
0x187E10 - Position A
0x187E24 - Position B
0x187E48 - Position C
0x187E8C - Position D

### 3. Get Firmware Version:

Command: 0x1818
Response: 0x1818XXYY
XX - Version
YY - Subversion
Response Example: 0x18180563 => Ver. 5.63

*Figure 2: USB2.0 High Speed MUX 4to1*

1. Ethernet Control
2. Power Input
3. 1 x USB Common Input/Output
4. 4 x USB Output/Input

## 4. Get MAC Address (Device Unique)

Command: 0x1881
Response Example: 0x1881B7D0C98CE5C0
MAC Address: B7-D0-C9-8C-E5-C0

## 5. Set New IP Address:

Command: 0x18AAC0A80A05
IP Address (HEX): C0A80A05 (192.168.10.5)
This command does not elicit a response.

# Installation & Basic Operation

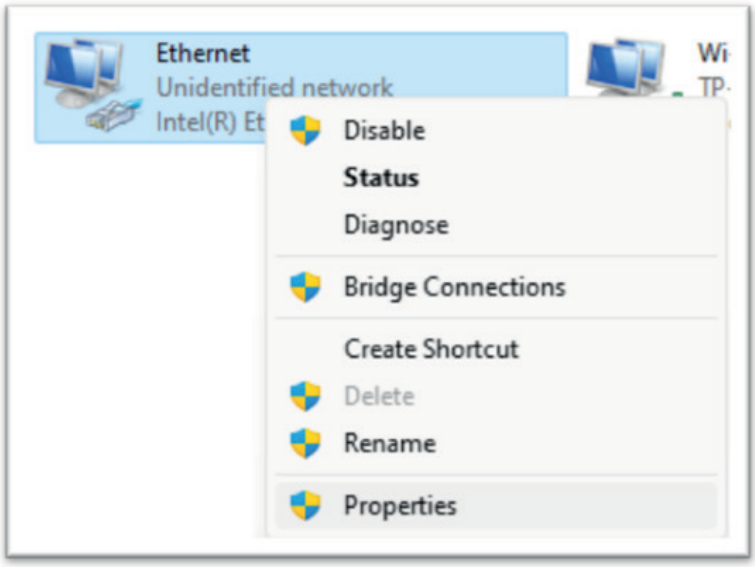


*Figure 3: Go to your Ethernet Settings*

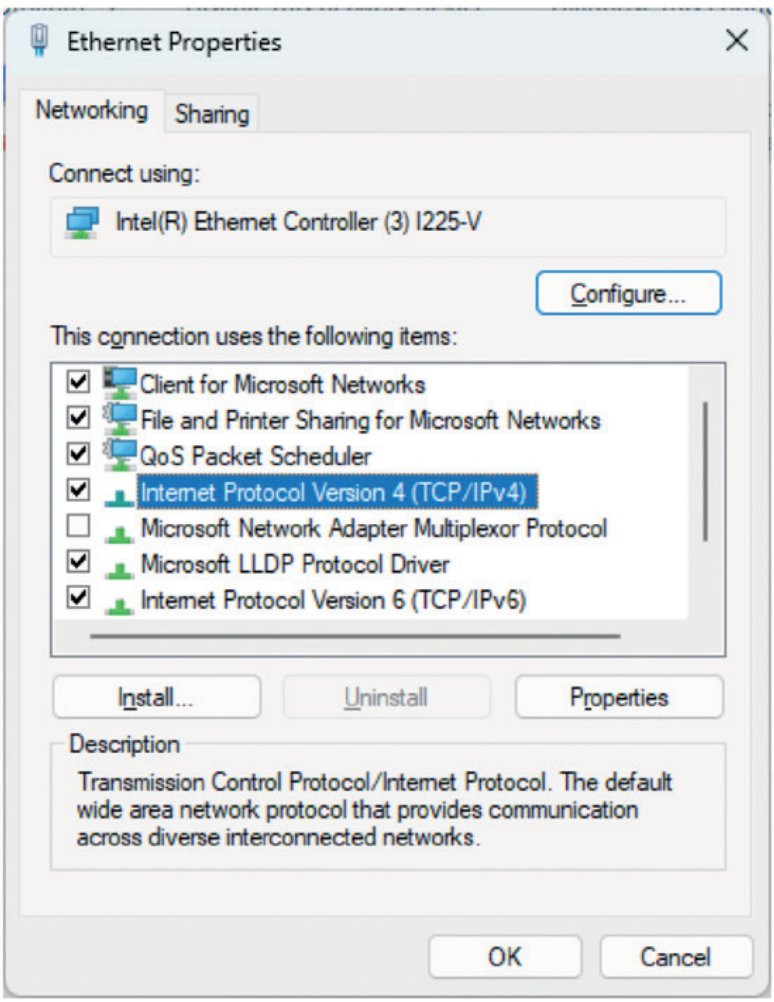


*Figure 4: IPv4 Properties*

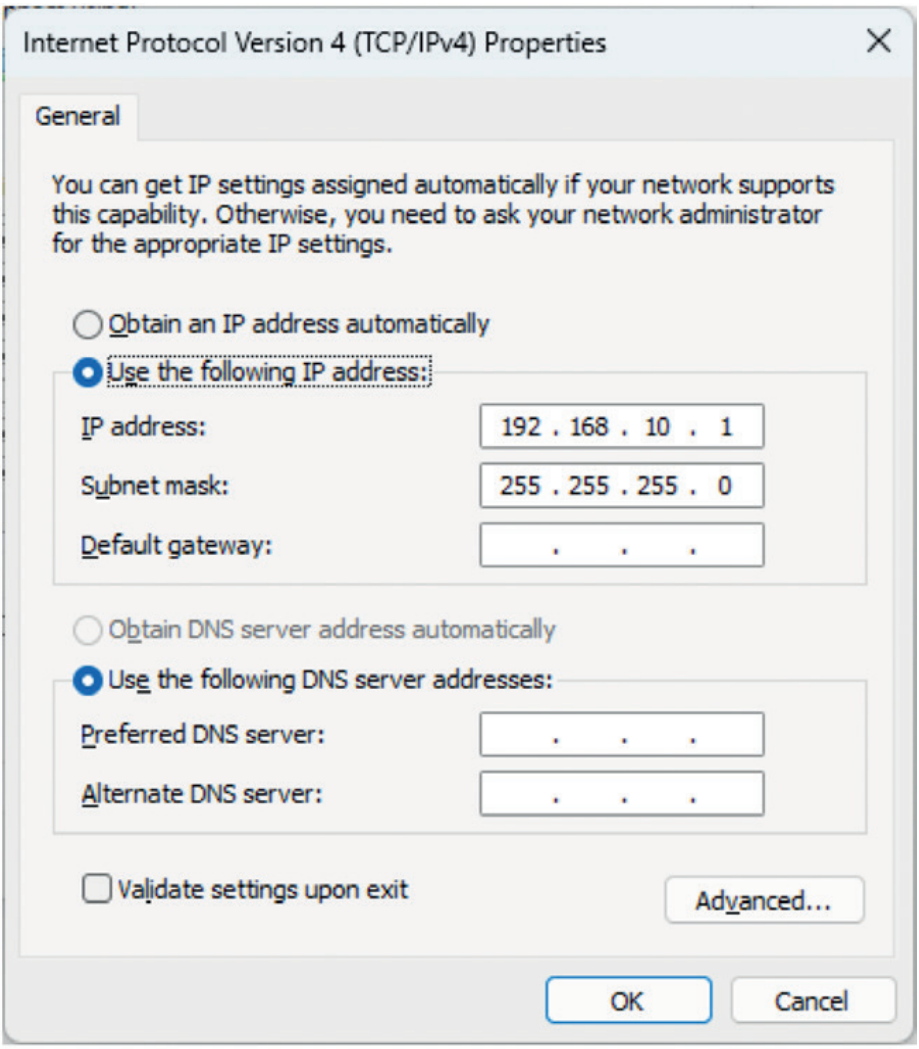


*Figure 5: Set the correct Properties to establish connection with the Mux card*

```
C:\>ping 192.168.10.10

Pinging 192.168.10.10 with 32 bytes of data:
Reply from 192.168.10.10: bytes=32 time=286ms TTL=64
Reply from 192.168.10.10: bytes=32 time=2ms TTL=64
Reply from 192.168.10.10: bytes=32 time=2ms TTL=64
Reply from 192.168.10.10: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.10.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 286ms, Average = 72ms
```

*Figure 6: Connect the Mux card and make a Ping Test*

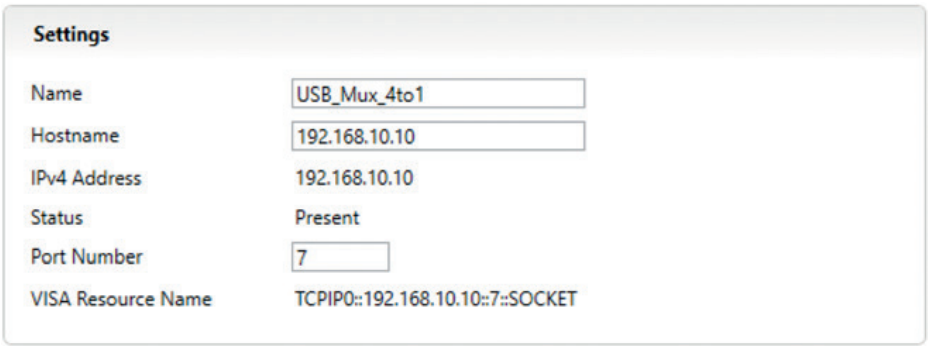


*Figure 7: Add new device to your systems. Here is NI-MAX example.*

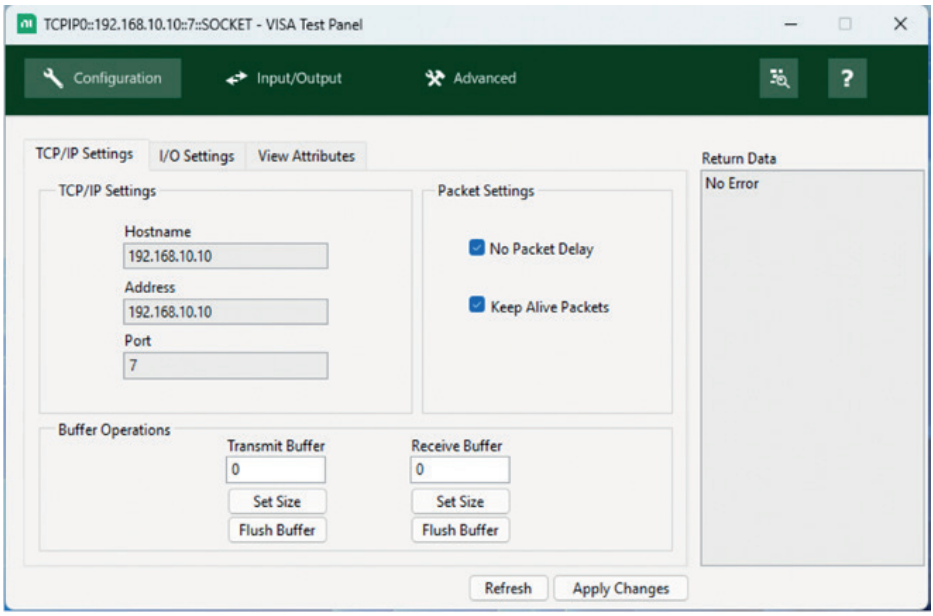


*Figure 8: Open Communication console. Here is NI-MAX built in Test Panel. You can use any 3rd party software, for example Hercules.*

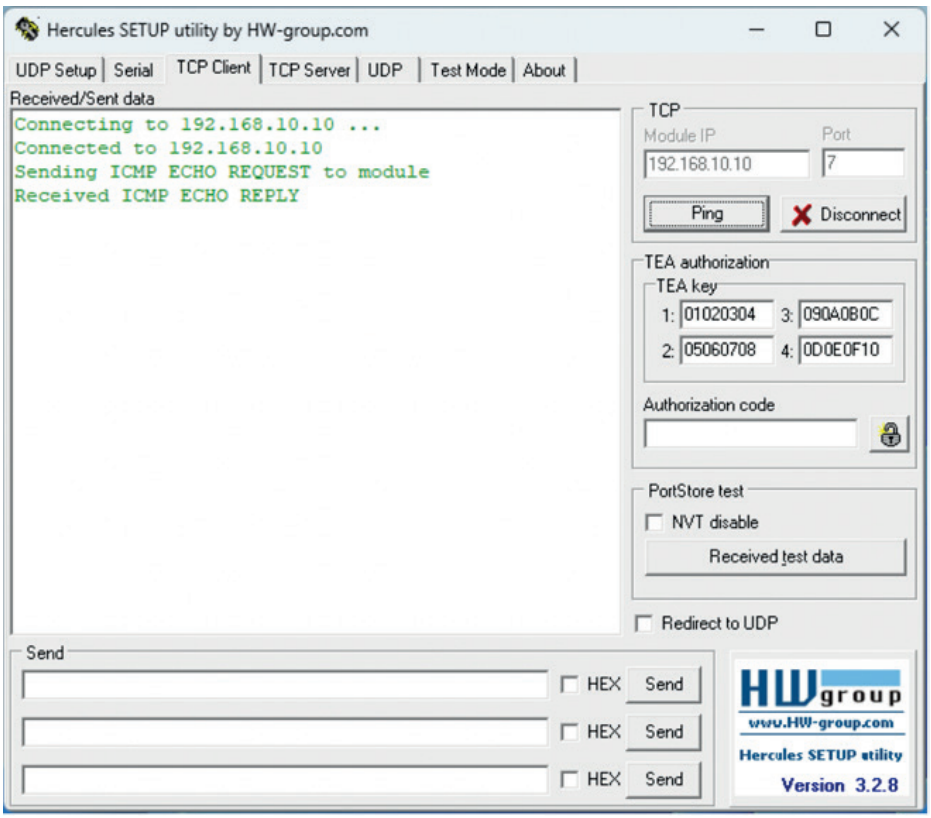


*Figure 9: Hercules Connection and PING example*

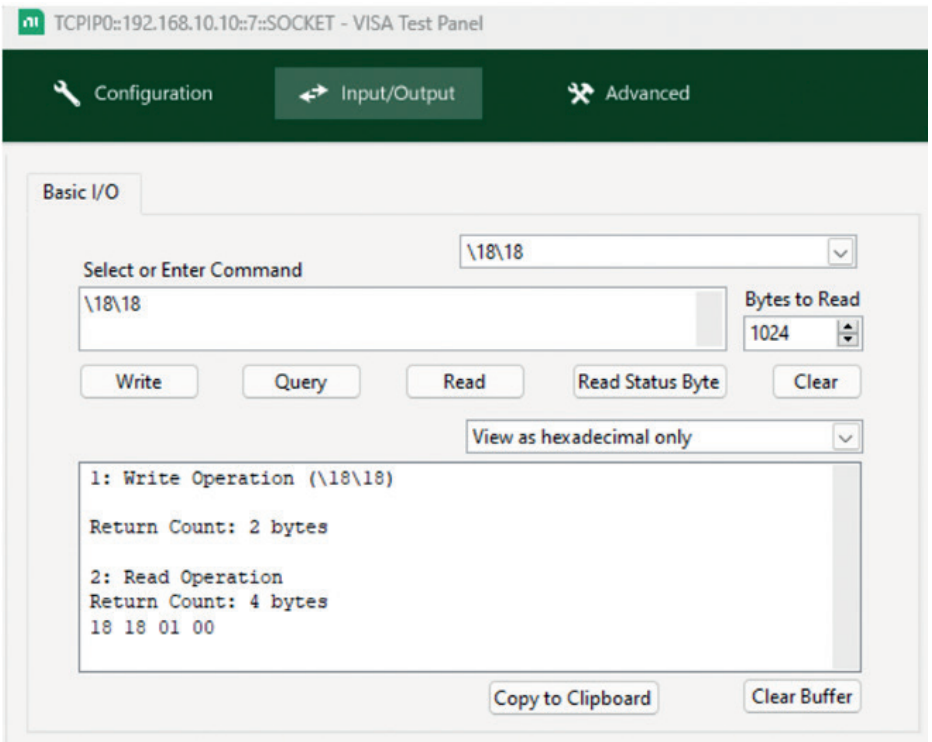


*Figure 10: Get FW Version*

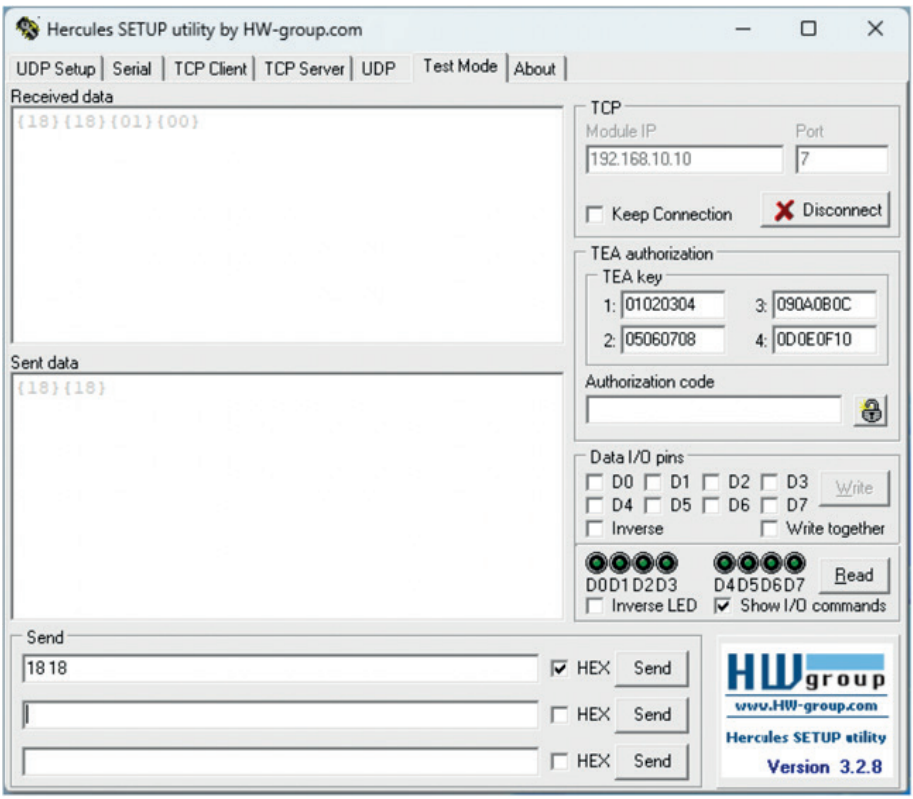


*Figure 11: Get FW Version*

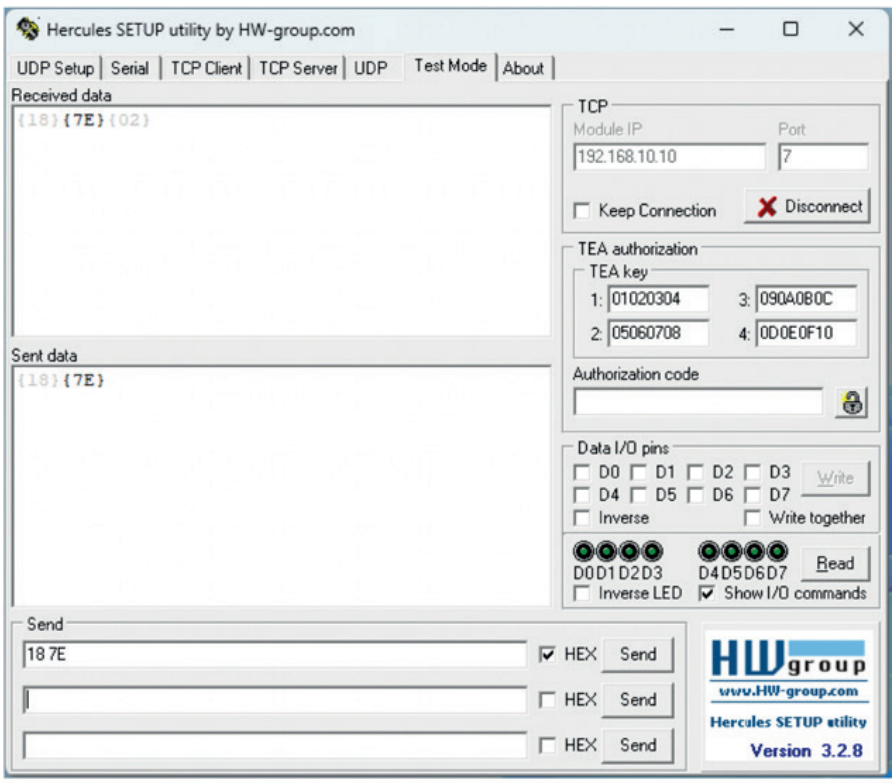


*Figure 12: Get State on Init, 0x02 - All Off*

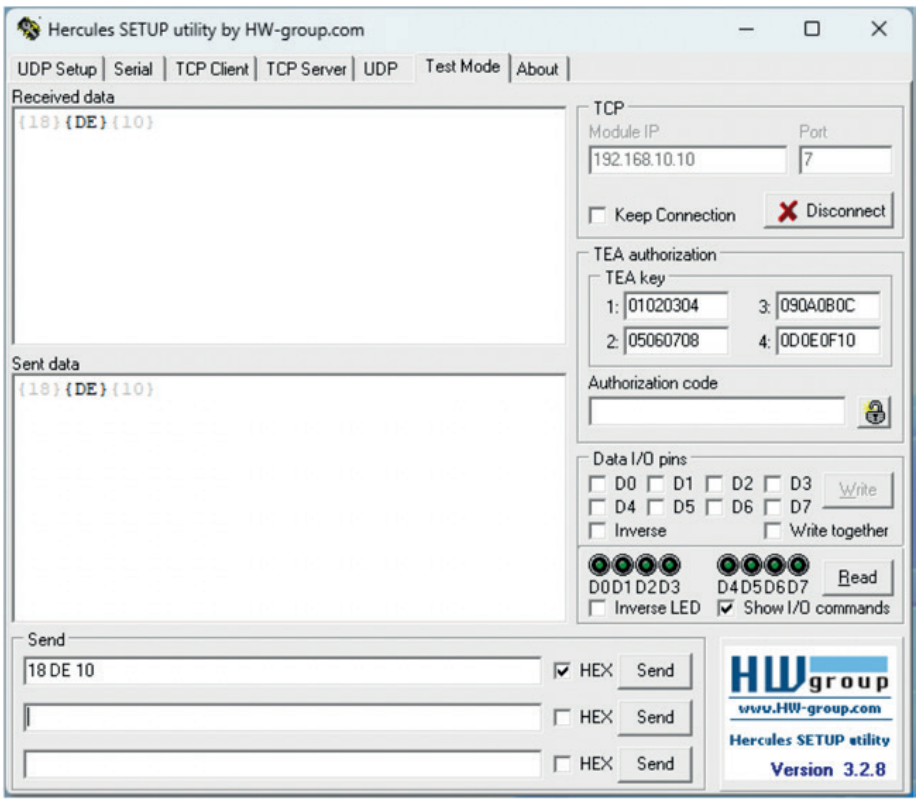


*Figure 13: Set State B to A*

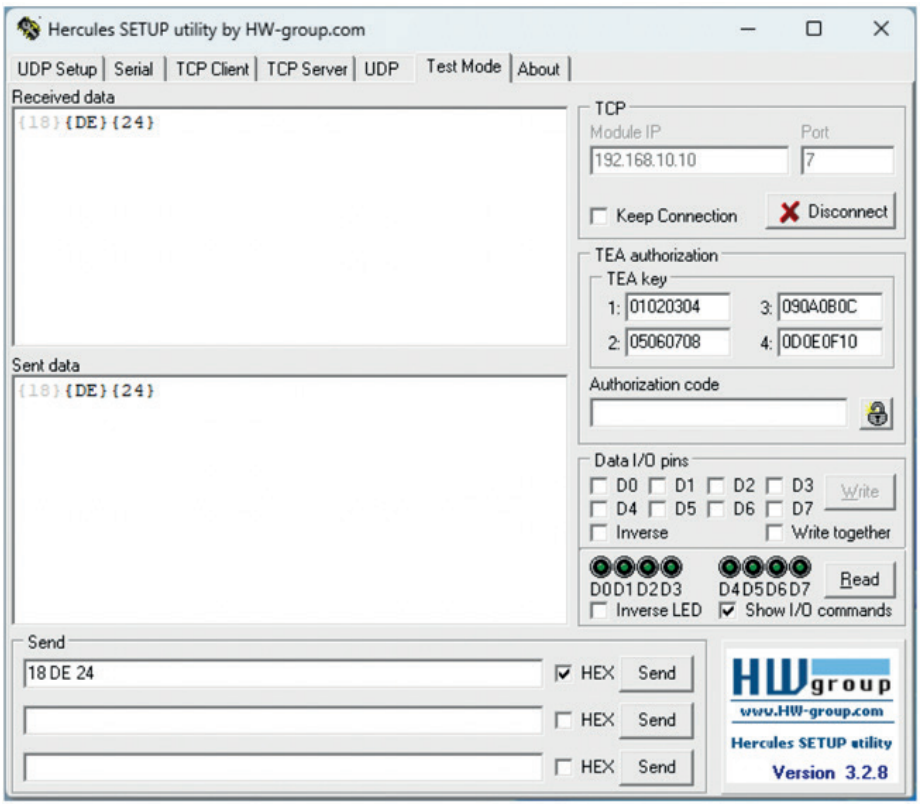


*Figure 14: Set State C to A*

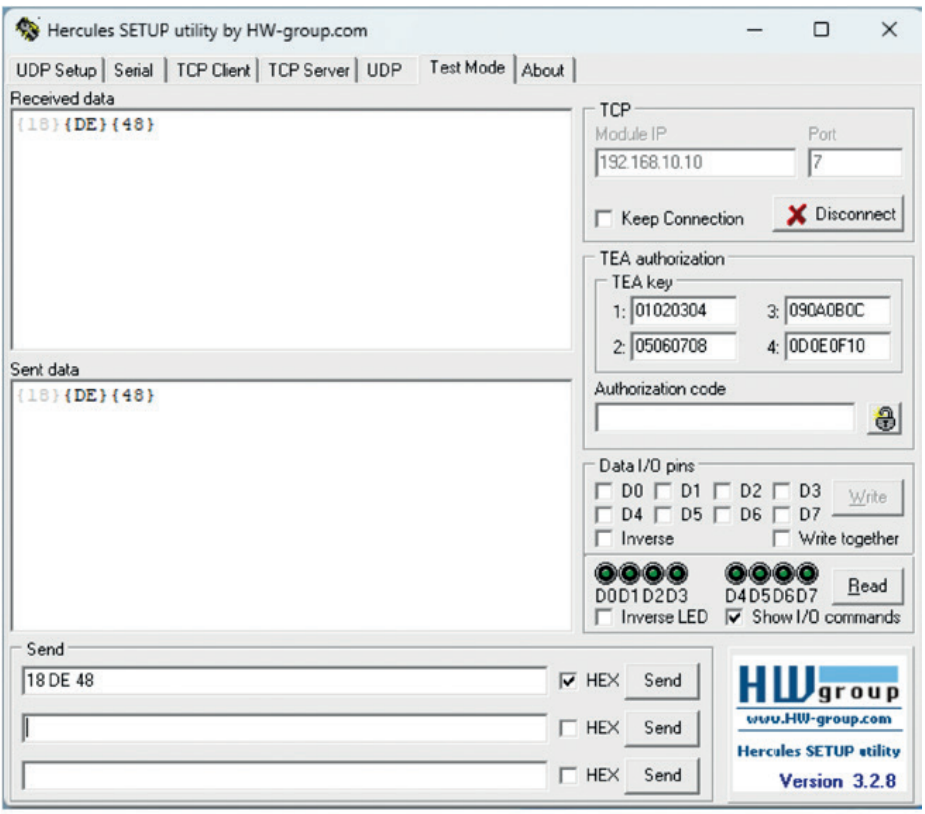


*Figure 15: Set State D to A*

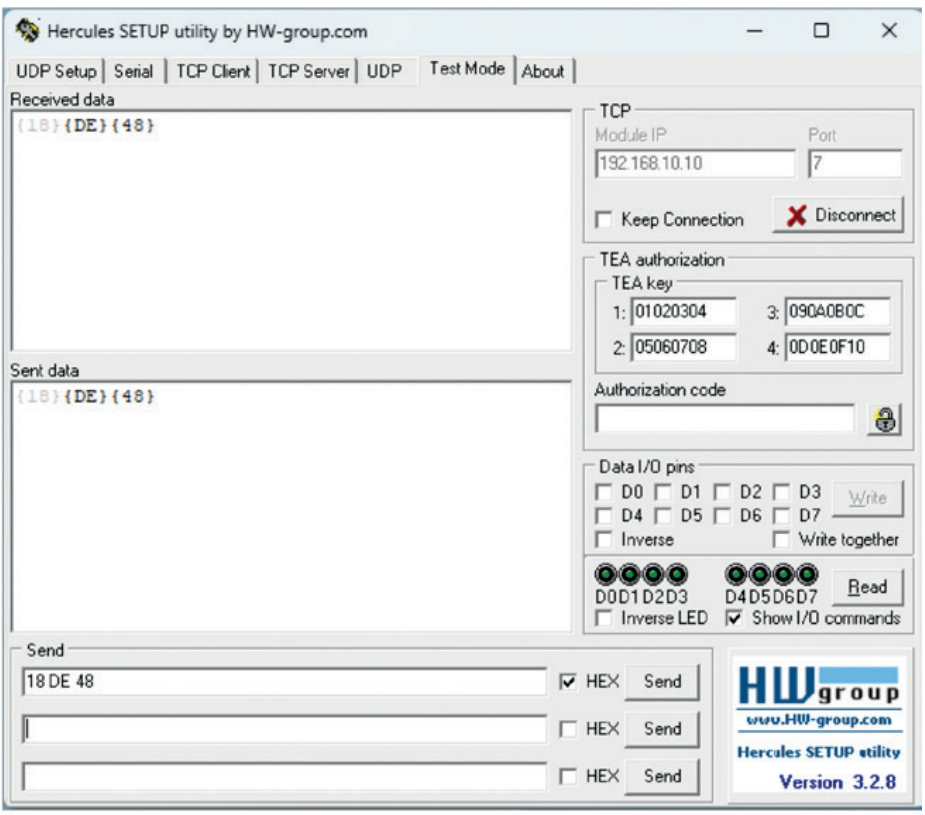


*Figure 16: Set State E to A*

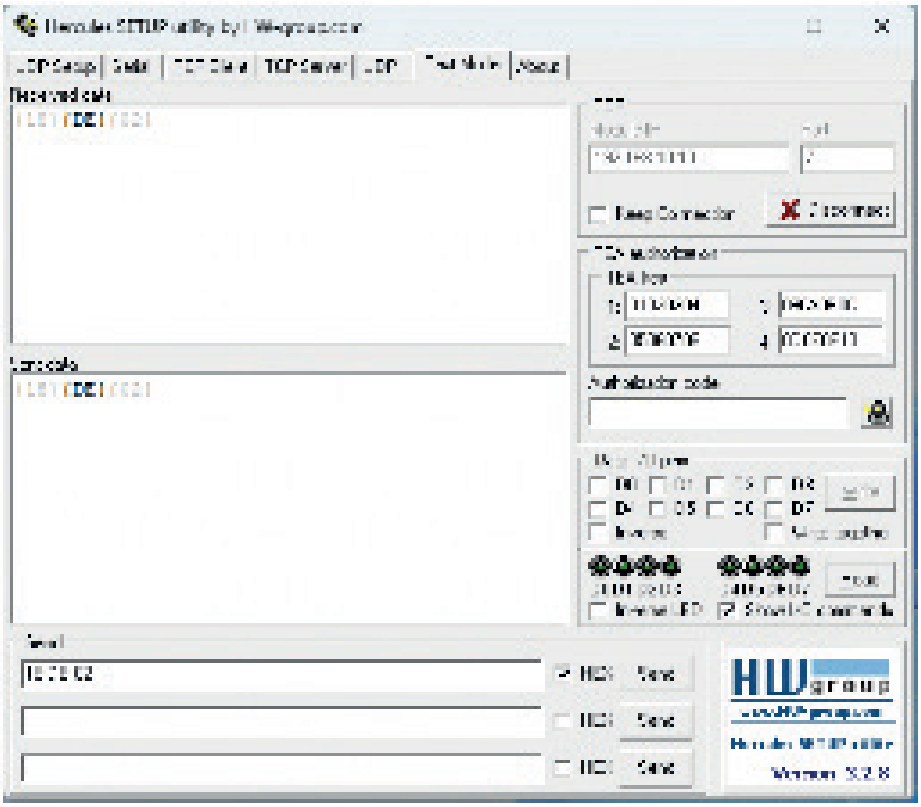

*Figure 17: Set State - All Off*

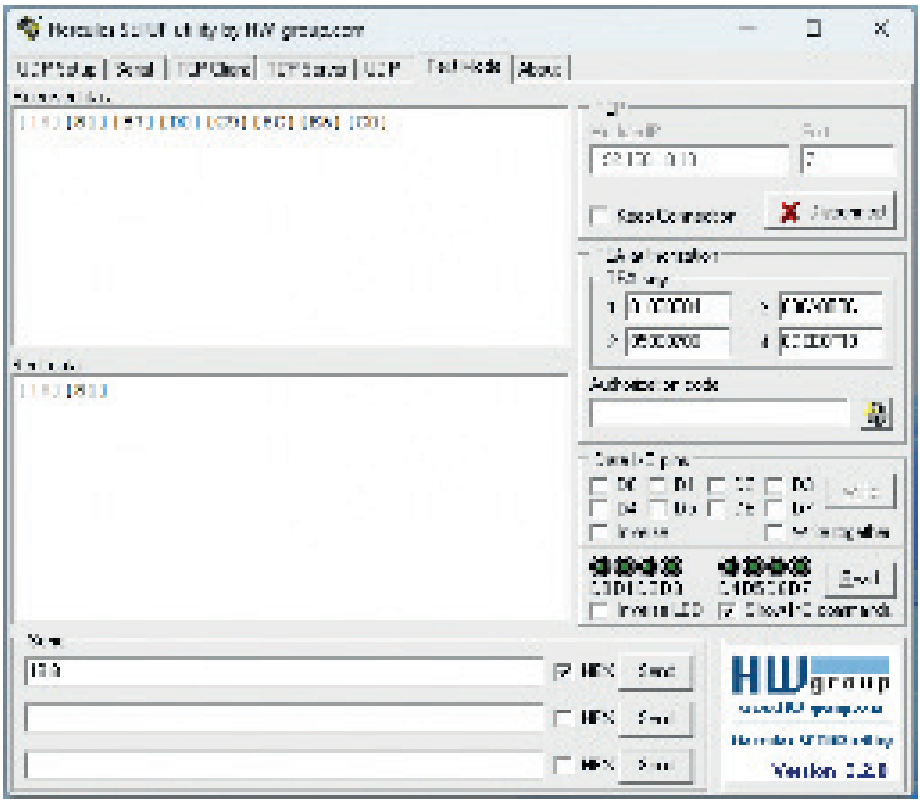

*Figure 18: Get MAC Address – B7-D0-C9-8C-E5-C0*

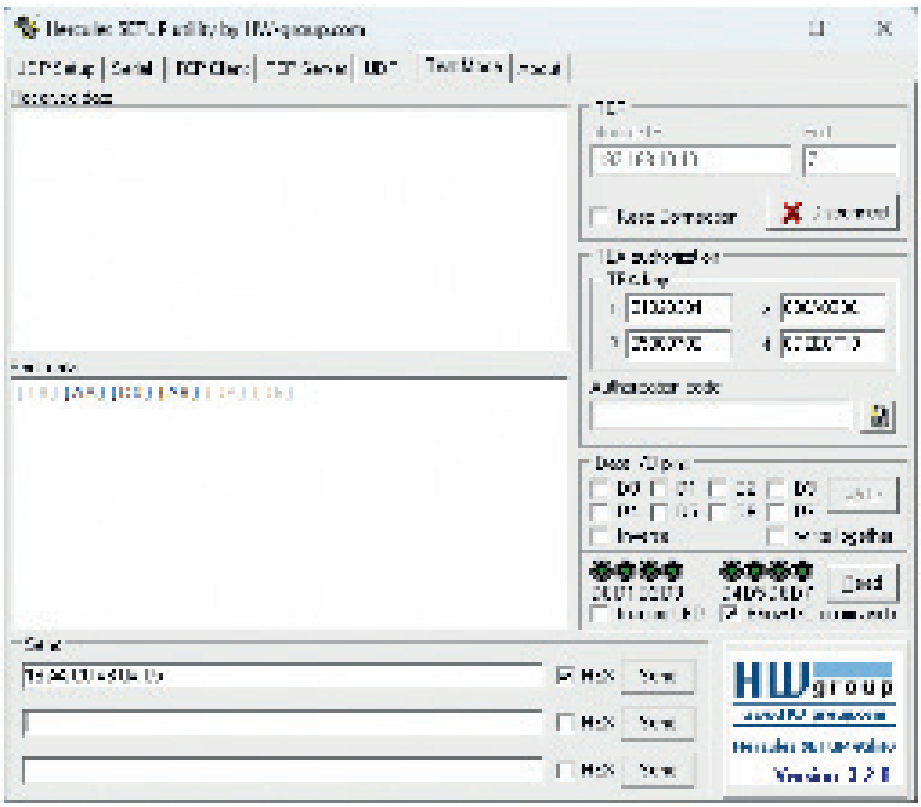

*Figure 19: Set New ip address, in this case 192.168.10.5*

```
C:\>ping 192.168.10.5

Pinging 192.168.10.5 with 32 bytes of data:
Reply from 192.168.10.5: bytes=32 time=3ms TTL=64
Reply from 192.168.10.5: bytes=32 time=2ms TTL=64
Reply from 192.168.10.5: bytes=32 time=2ms TTL=64
Reply from 192.168.10.5: bytes=32 time=2ms TTL=64

Ping statistics for 192.168.10.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 3ms, Average = 2ms
```

*Figure 20: PING Test after changing the IP Address.*

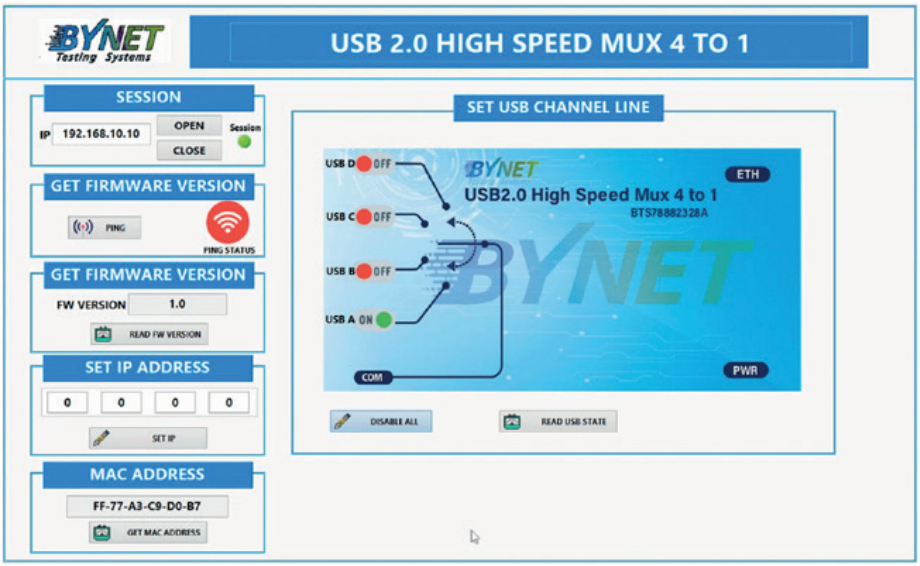


*Figure 21: Manual GUI for Windows*

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Testing Systems

24 Raoul Wallenberg St. Tel-Aviv 6971921 Israel
Tel: +972-3-7684910 Fax: +972-3-6475979

www.bynet-ts.co.il

info@bynet-ts.co.i