



DEWETRON



SOFTWARE REFERENCE MANUAL

QUICK GUIDE DEWETRON LABVIEW DRIVERS 0.23

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This document is intended to be a start and quick guide for using Multiple NEX[DAQ]s in LabView and MSIs on NEX[DAQ]s and MSIs on TRIONet with TRION-MULTI.

INFORMATION:

In the example VIs a **NEX[DAQ]** is considered as a **TRIONet** with IP Address and Subnet Mask. Multiple NEX[DAQ]s are only assigned to one IP Address of the Adapter (USB or LAN), not the NEX[DAQ]s themselves.

A Library for Remote Control of DEWETRON Hardware via LabView and SCPI is also available (visit ccc.dewetron.com for downloads and the latest updates)

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1 GENERAL PROCEDURE

1. Install “dewetron_gmbh_lib_dewetron_drivers” VI Package
2. Select desired example VI
3. Connect the Hardware (NEX[DAQ] or TRIONet)
4. Make sure IP Addresses assigned via DHCP
5. Find out the IP Address
6. In VI Front Panel enter correct IP Address
7. Run the VI



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2 DRIVER INSTALLATION

To install the “dewetron_gmbh_lib_dewetron_drivers-x.x.x.x.VI” you need the LabVIEW VI Package Manager (VIPM). The easiest way to install the drivers is to just double click on the “dewetron_gmbh_lib_dewetron_drivers-x.x.x.x.VI” file in the file explorer. Follow the installation instructions.

dewetron_gmbh_lib_dewetron_drivers-0.0.0.23.vip 28/03/2025 12:35 VI Package 4.372 KB

1 Required

2 Install

3 Wait for Installation

4 Finish

Package Information

Select an action to perform on the package.

2022_64

DEWETRON Drivers

DEWETRON Drivers v0.0.0.23 by DEWETRON GmbH

Author: DEWETRON GmbH

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License: MIT

Compatible LabVIEW Versions: >= 2018.

Compatible OS Versions: ALL.

Description:

Device drivers for DEWETRON's Trion hardware.

Release Notes:

Support for multiple NEXDAQ devices

Extracting File: LabVIEW 2022\menus\Category\Measurement\functions_Dewetron_GmbH_Lib_Dewetron_Drivers.mnu ...

Product

Action

Status

DEWETRON Drivers v0.0.0.23

installed

No Errors

Include Dependencies

Select / Deselect All

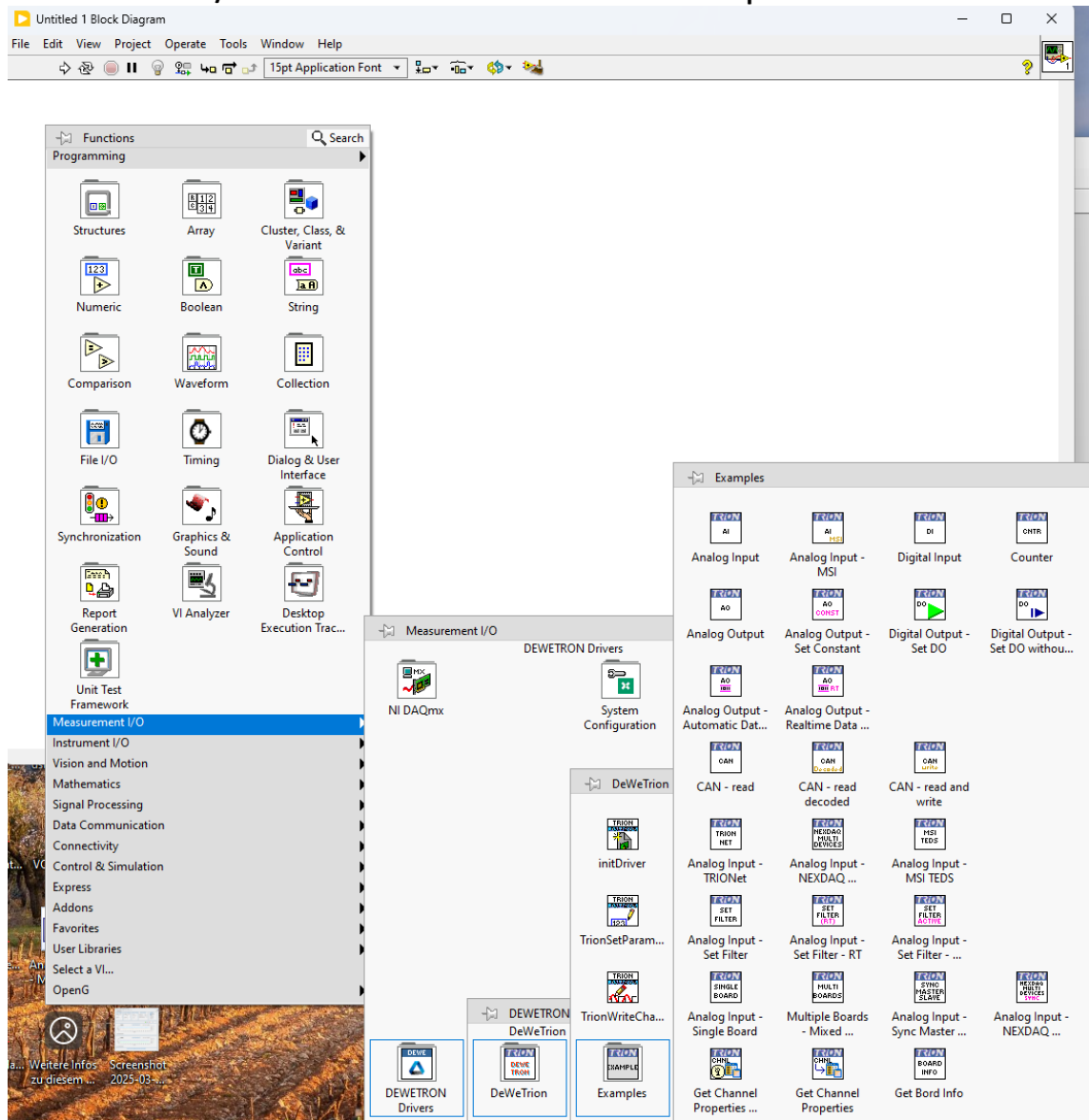
Help

Finish

3 EXAMPLE OVERVIEW

To access the DEWETRON example VIs in LabView open a Block Diagram (from a **Blank VI**). The Dewetron Examples can be found under

Functions->Measurement I/O-> Dewetron Drivers -> DeWeTrion -> Examples





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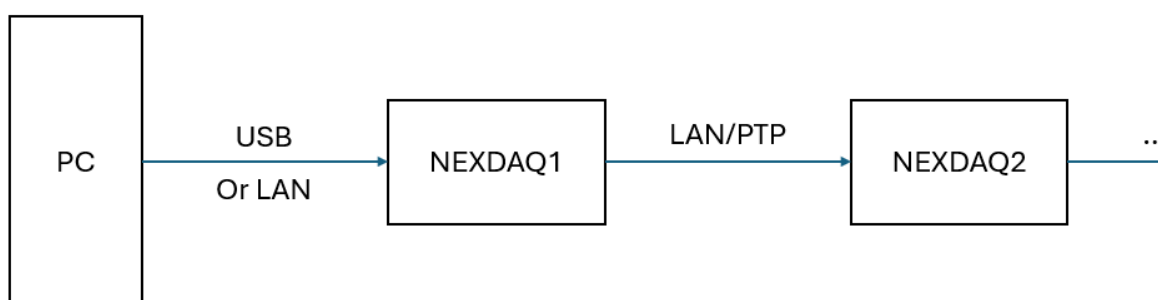
4 EXAMPLE SETUPS

1. MULTIPLE NEX[DAQ]S WITH SYNC

Connect the Nex[DAQ]s via daisy chain or switch to one USB or LAN Port of the LabView PC. Wait about 60s for the start-up procedure of the hardware. Look up the IP Address of the Network Adapter (usually starting with 169.xxx.xxx.xxx and subnet mask 255.255.0.0). This can be done via the **ipconfig** command in the Windows Command Prompt.

Use the **Analog Input NEXDAQ Multiple Devices Sync.vi** example

Enter the IP Address and subnet mask in the VI and disable the “standalone” option in the Front Panel.



```
C:\WINDOWS\system32\cmd. x
Microsoft Windows [Version 10.0.22631.5039]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Productmanagement>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 3:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 13:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::8b01:f35d:9819:86be%10
    IPv4 Address. . . . . : 192.168.56.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

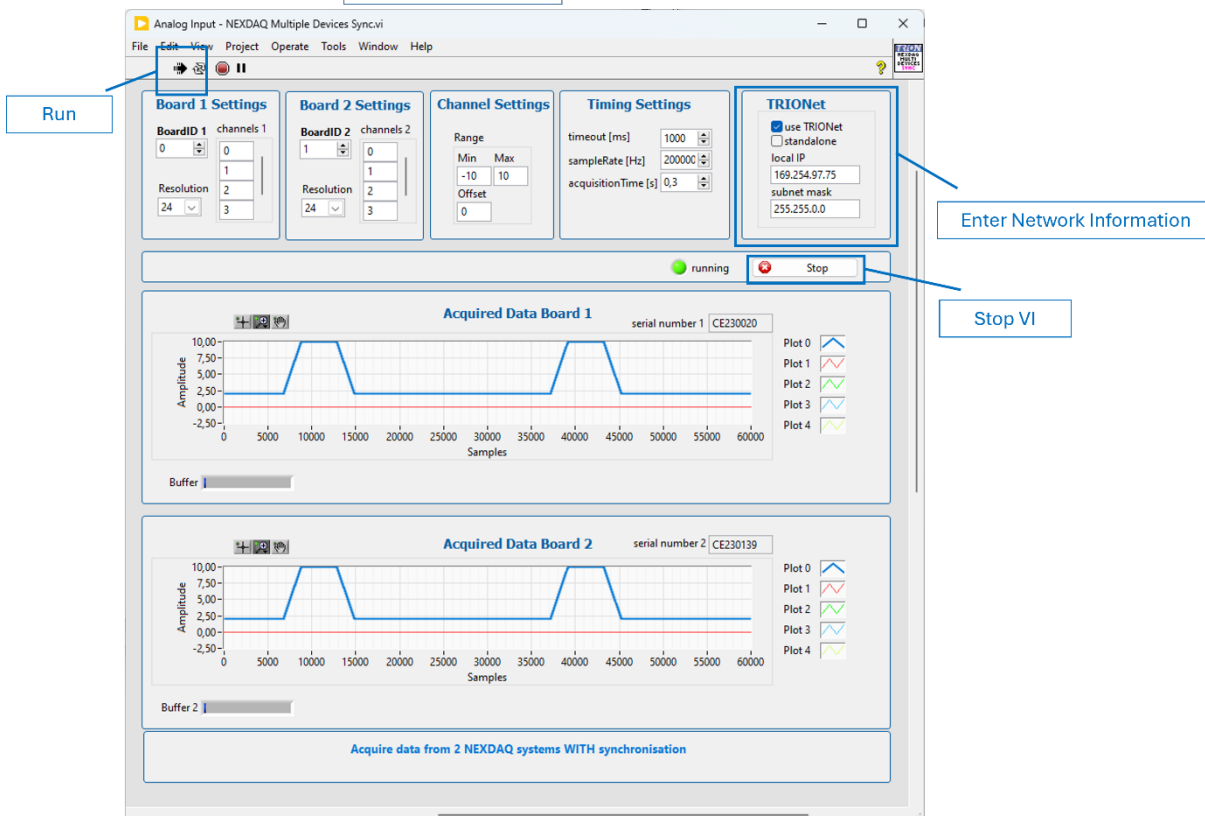
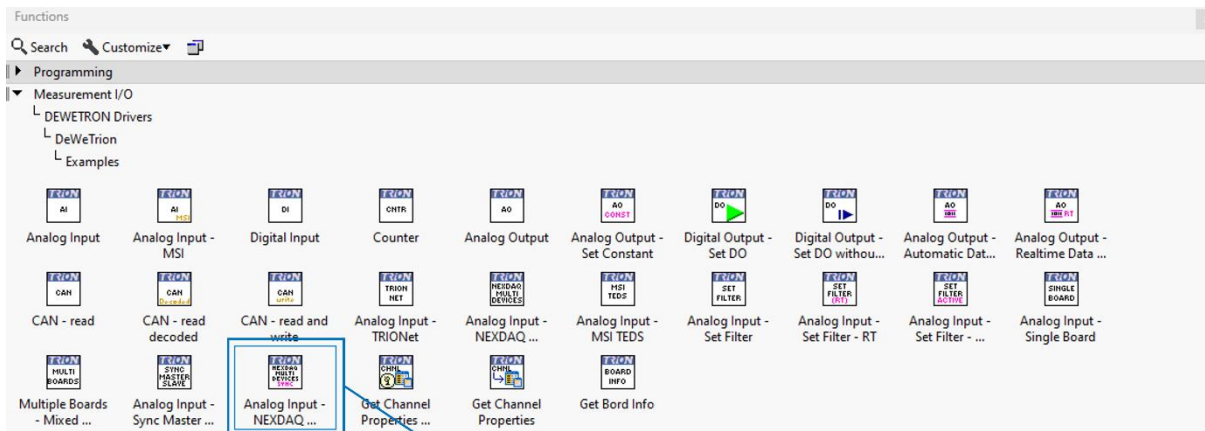
Ethernet adapter Ethernet 15:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::1969:a3eb:fcce:2262%37
    Autoconfiguration IPv4 Address. . : 169.254.97.75
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . :

C:\Users\Productmanagement>
```




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2. MULTIPLE NEX[DAQ]S WITHOUT SYNC

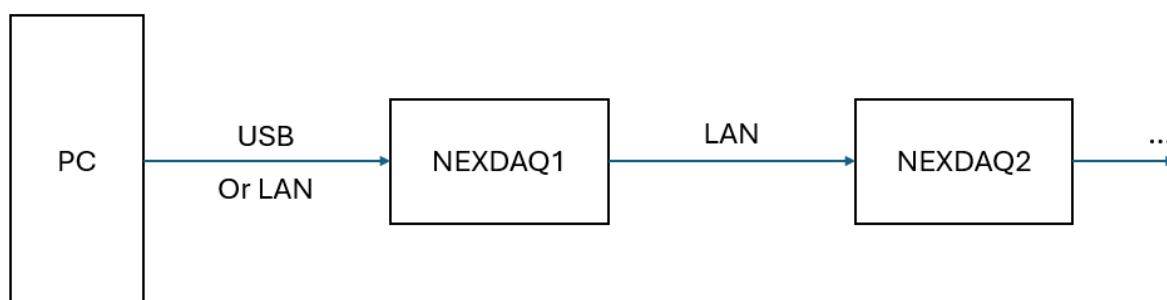
Connect the Nex[DAQ]s via daisy chain or switch to one USB or LAN Port of the LabView PC. Wait about 60s for the start-up procedure of the hardware. Look up the IP Address of the Network Adapter (usually starting with 169.xxx.xxx.xxx and subnet mask 255.255.0.0). This can be done via the **ipconfig** command in the Windows Command Prompt.

Use the **Analog Input NEXDAQ Multiple Devices.vi** example

Enter the IP Address and subnet mask in the VI and enable the “standalone” option in the Front Panel. The “**standalone**” option makes sure each device uses its own independent synchronization and does not lock on to a sync of neighboring devices.

Daisy Chain topology is advised, because the example only allows one IP address to be entered. Connecting each NEX[DAQ] to its own USB Port would require multiple IP addresses of multiple adapters which the examples do not allow.

When applicable using the example with sync is advised because unsynced devices can have noticeable time misalignment.



```
C:\WINDOWS\system32\cmd. X + -
Microsoft Windows [Version 10.0.22631.5039]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Productmanagement>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 3:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 13:

    Connection-specific DNS Suffix  . :
    Link-Local IPv6 Address . . . . . : fe80::8b01:f35d:9819:86be%10
    IPv4 Address. . . . . : 192.168.56.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

Ethernet adapter Ethernet 15:

    Connection-specific DNS Suffix  . :
    Link-Local IPv6 Address . . . . . : fe80::1969:a3eb:fc0c:2262%37
    Autoconfiguration IPv4 Address. . : 169.254.97.75
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . :

C:\Users\Productmanagement>
```



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Functions

Search Customize

Programming

Measurement I/O

DEWETRON Drivers

DeWeTrion

Examples

Analog Input

Analog Input - MSI

Digital Input

Counter

Analog Output

Analog Output - Set Constant

Digital Output - Set DO

Digital Output - Set DO without...

Analog Output - Automatic Dat...

Analog Output - Realtime Data ...

CAN - read

CAN - read decoded

CAN - read and write

Analog Input - TRIONet

Analog Input - NEXDAQ ...

Analog Input - MSI TEDS

Analog Input - Set Filter

Analog Input - Set Filter - RT

Analog Input - Set Filter - ...

Analog Input - Single Board

Multiple Boards - Mixed ...

Analog Input - Sync Master ...

Analog Input - NEXDAQ ...

Get Channel Properties ...

Get Channel Properties

Get Board Info

correct example

Analog Input - NEXDAQ Multiple Devices.vi

File Edit View Project Operate Tools Window Help

Run

Board 1 Settings

BoardID 1 channels 1

Resolution 24 3

Board 2 Settings

BoardID 2 channels 2

Resolution 24 3

Channel Settings

Range

Min Max

-10 10

Offset

0

Timing Settings

timeout [ms] 1000

sampleRate [Hz] 10000

acquisitionTime [s] 0,3

TRIONet

use TRIONet

standalone

local IP

169.254.97.75

subnet mask

255.255.0.0

Enter Network Information

running

Stop

Stop VI

Acquired Data Board 1

serial number 1 CE230020

Amplitude

Samples

Plot 0

Plot 1

Plot 2

Plot 3

Plot 4

Acquired Data Board 2

serial number 2 CE230139

Amplitude

Samples

Plot 0

Plot 1

Plot 2

Plot 3

Plot 4

Acquire data from 2 NEXDAQ systems without synchronisation



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3. MSI WITH NEX[DAQ]

Connect the Nex[DAQ] via USB or LAN to the LabView PC. Wait about 60s for the start-up procedure of the hardware. Connect one or multiple MSIs to the Nex[DAQ]. Look up the IP Address of the Network Adapter (usually starting with 169.xxx.xxx.xxx and subnet mask 255.255.0.0). This can be done via the **ipconfig** command in the Windows Command Prompt.

Use the **Analog Input – MSI TEDS.vi** example.

The **Analog Input – MSI TEDS.vi** scans multiple connected MSIs automatically and shows them in the default range and scaling.

Enter the IP Address and subnet mask in the VI. Then Run the VI (shown below).

The **Analog Input - MSI.vi** example for single MSIs with manual settings is developed for TRION(3)-MULTI boards and is unfortunately not working with the NEX[DAQ].

MSI with NEX[DAQ] was tested with a NEXDAQ-1000, MSI-BR-ACC, MSI-BR-V-200, MSI-BR-RTD, MSI2-TH-K and MSI-CH-100. It is expected that PUREC, TRION-x-dIV and CB16 have the same behavior with MSIs in LabView as the NEX[DAQ].

```
C:\WINDOWS\system32\cmd. X
Microsoft Windows [Version 10.0.22631.5039]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Productmanagement>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 3:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 13:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::8b01:f35d:9819:86be%10
    IPv4 Address. . . . . : 192.168.56.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

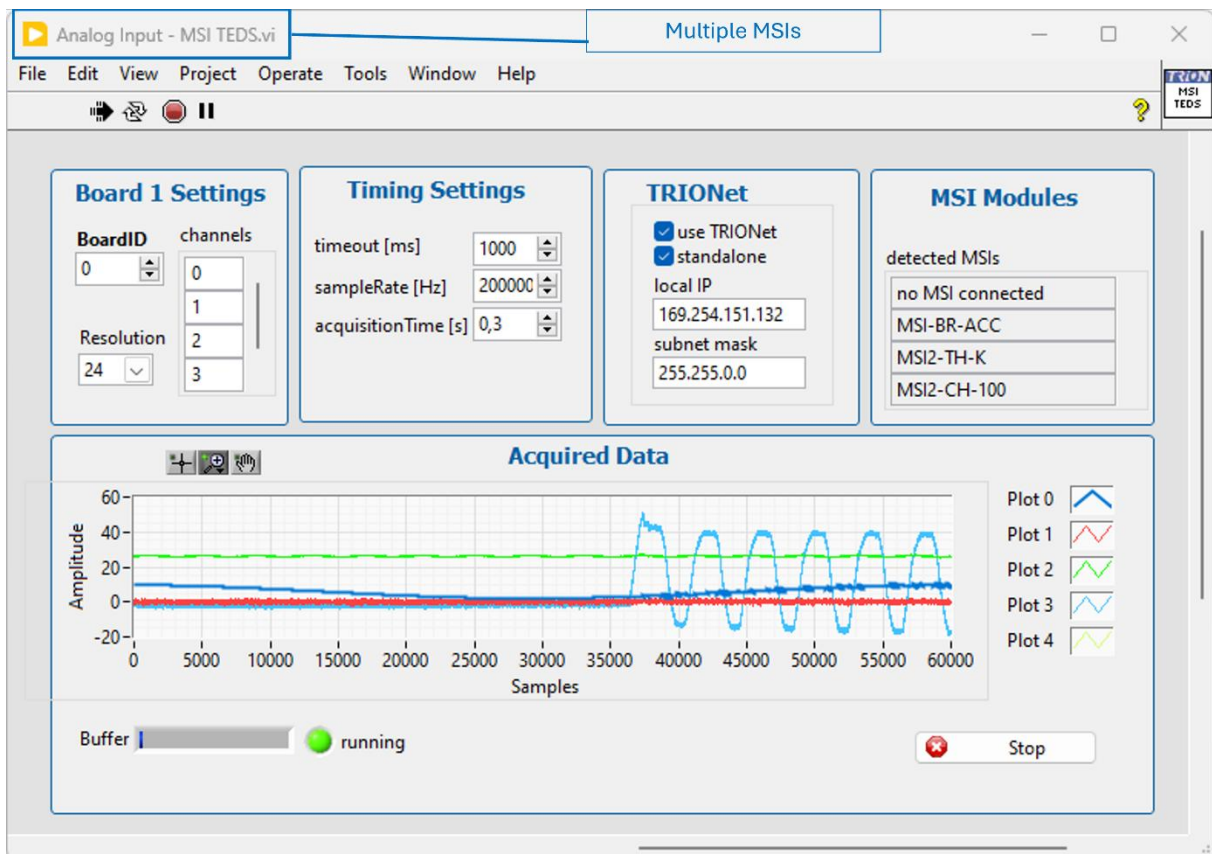
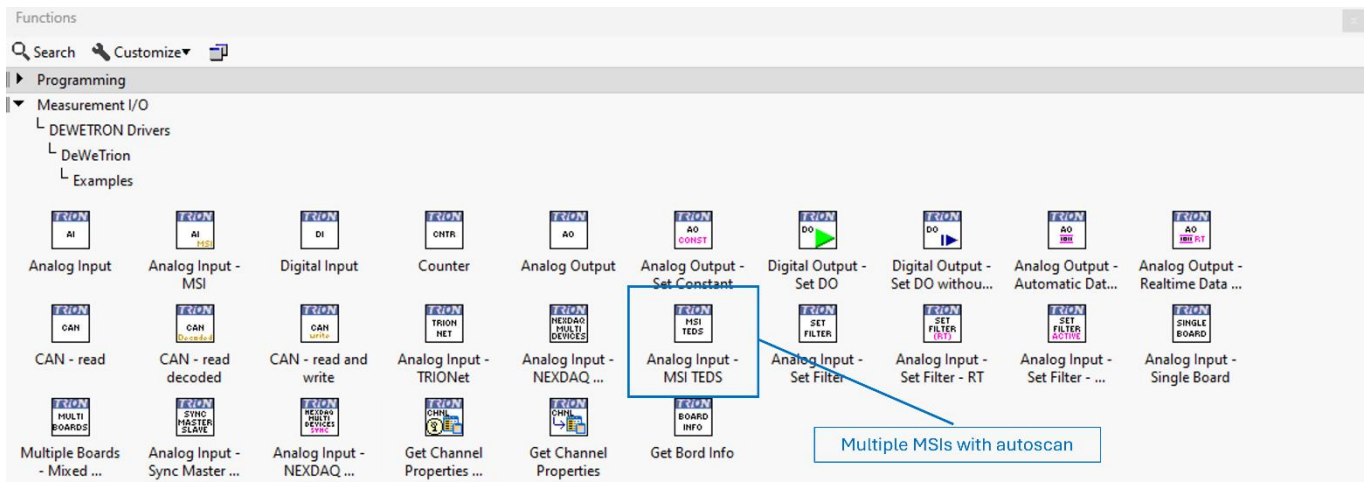
Ethernet adapter Ethernet 15:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::1969:a3eb:fcec:2262%37
    Autoconfiguration IPv4 Address. . . : 169.254.97.75
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . :

C:\Users\Productmanagement>
```



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4. MSI WITH TRION-MULTI

The handling for MSIs on a TRION-MULTI with is very similar as with the NEX[DAQ]. The commands used and scaling information are handled a bit differently on the hardware near side of the TRION API, but this is not noticeable from the front panel of the example.

In case the MULTI board is in a DEWE2/3 Chassis, deactivate the **Use Trionet** option in the front panel of the VI. No IP Adress is needed for this case.

In case the MULTI board is in a TRIONet, connect the TRIONet via USB or LAN to the LabView PC. Wait about 60s for the start-up procedure of the hardware. Connect one or multiple MSIs to the TRIONet with a MSI compatible card like the TRION-MULTI. Look up the IP Address of the Network Adapter (usually starting with 169.xxx.xxx.xxx and subnet mask 255.255.0.0). This can be done via the **ipconfig** command in the Windows Command Prompt.

Use the **Analog Input - MSI.vi** or **Analog Input – MSI TEDS.vi** examples.

The **Analog Input - MSI.vi** allows for one MSI channel with manual settings and range.

The **Analog Input – MSI TEDS.vi** scans multiple connected MSIs automatically and shows them in the default range and scaling.

MSI with TRION-MULTI was tested with a TRIONet and TRION-1820-MULTI, MSI-BR-ACC, MSI-BR-V-200, MSI-BR-RTD, MSI2-TH-K and MSI-CH-100.

NOTE: The **Analog Input - MSI.vi** does not work properly on the TRION-2402-MULTI. Please use the **Analog Input – MSI TEDS.vi**.

In case a TRIONet is used, enter the IP Address and subnet mask in the VI.

```
C:\Users\Productmanagement>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 3:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet 7:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::8056:9e95:809d:385d%21
    Autoconfiguration IPv4 Address. . : 169.254.192.151
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . :

Ethernet adapter Ethernet 13:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::19e5:5230:2c26:6535%12
    IPv4 Address. . . . . : 192.168.56.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :
```

correct adapter



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Examples

Single MSI with manual settings

Multiple MSIs with autoscan

Analog Input - MSI

Analog Input - MSI TEDS

Analog Input - Set Constant

Analog Input - Set Filter

Analog Input - Set Filter - RT

Analog Input - Set Filter - ...

Analog Input - Single Board

Analog Input - MSI.vi

Single MSI

File Edit View Project Operate Tools Window Help

Board

BoardID 0

channel 0

Resolution 24

MSI-Mode

Thermocouple RTD More

Range [degC]

Min -200 Max 850

Offset 0

Settings

Linearization PTX

SensorRes [Ohm] 100

Timing

timeout [ms] 1000

sampleRate [Hz] 5000

acquisitionTime [s] 0,2

TRIONet Settings

☒ use TRIONet

☒ standalone

local IP 169.254.192.151

subnet mask 255.255.0.0

Acquired Data

BoardID0/AI

Amplitude

Samples

Plot 0

Plot 1

Plot 2

Plot 3

Plot 4

Buffer

*Note: This example is intended to show the use of MSI-Modes

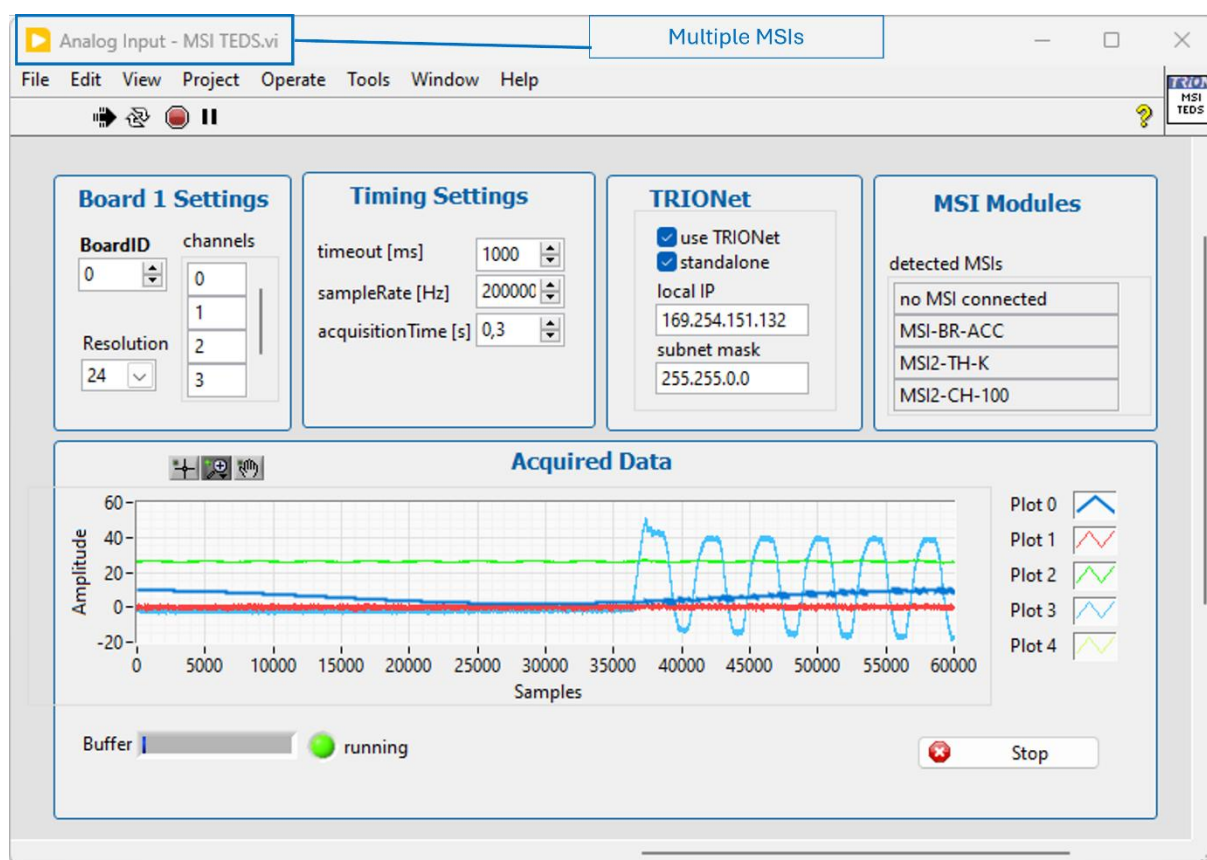
Stop

In order to run this example, it is required to use a board that supports the MSI functionality. (e.g. TRION 18xx-MULTI-Family). An overview of the boards can be found on the DEWETRON website.

If you want activate channels on boards other than board 0, you must enable at least one channel on board 0. See the Analog Input - Multiple Boards example for more details on how to do this.



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5 TROUBLESHOOTING

In case running an Example VI is throwing an error during execution try one of the following:

1. Make sure no other software is accessing the TRION API (OXYGEN and Dewetron Explorer are closed)
2. Make sure the TRION Applications and Firmware of the connected Hardware is up to date (visit ccc.dewetron.com for the latest updates)
3. Make sure the number of channels and the selected sample rate in the front panel is correct.
4. Make sure the IP Addresses are acquired via DHCP
5. Make sure the IP Address of the network adapter is entered, not the IP of TRIONet / NEX[DAQ] itself
6. Try turning off the Firewall
7. Make sure "Get Bord Info.VI" example is functioning. That ensures the hardware can be accessed and read.
8. Restart LabView
9. Restart the connected hardware