



USER MANUAL

A3800 – RELAYS, LOOPS module



Updated: 2023



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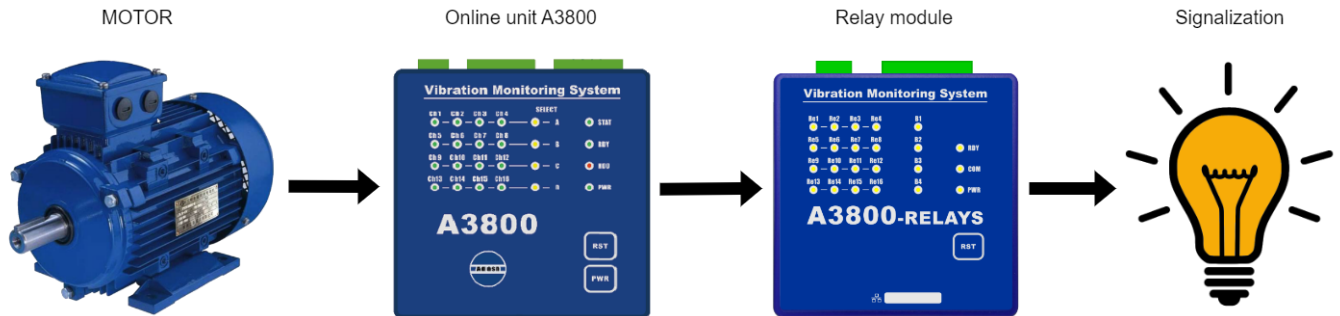
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Introduction

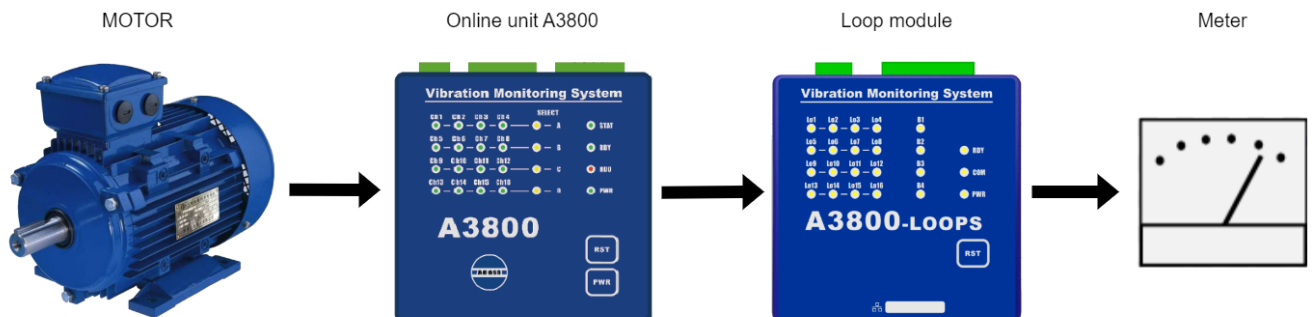
Adash also offers relay and loop modules. This manual is used for description of these modules and their specifications.

Relay module is mostly used for signalization in practice. Just to imagine how it can work in practice, see simple scheme below.



Let's explain this scheme. We have connected all components (motor, online unit, relay module and some bulb) together. In this example, imagine, that value 5 mm/s is value of vibration which we would like to know that it is exceeded. For such a situation we can use relay module. We get 5 mm/s value on motor. Online unit will measure this value. This value is in this moment also known to relays – relay is closed. The bulb is lightened up. In that moment we know, that value on the motor exceeded the value we set – 5 mm/s.

Loop module takes advantage of the excellent property of the current - it is well transferred over long distances; therefore, it is possible to "lead" the current out of the high-interference environment. Then it is great to use loop module to identify error states. Every measured value is linearly converted to a 4-20 mA current loop value. Values shown outside of this range are good indicators for error states.



More specifications and descriptions of modules is shown in next chapters.

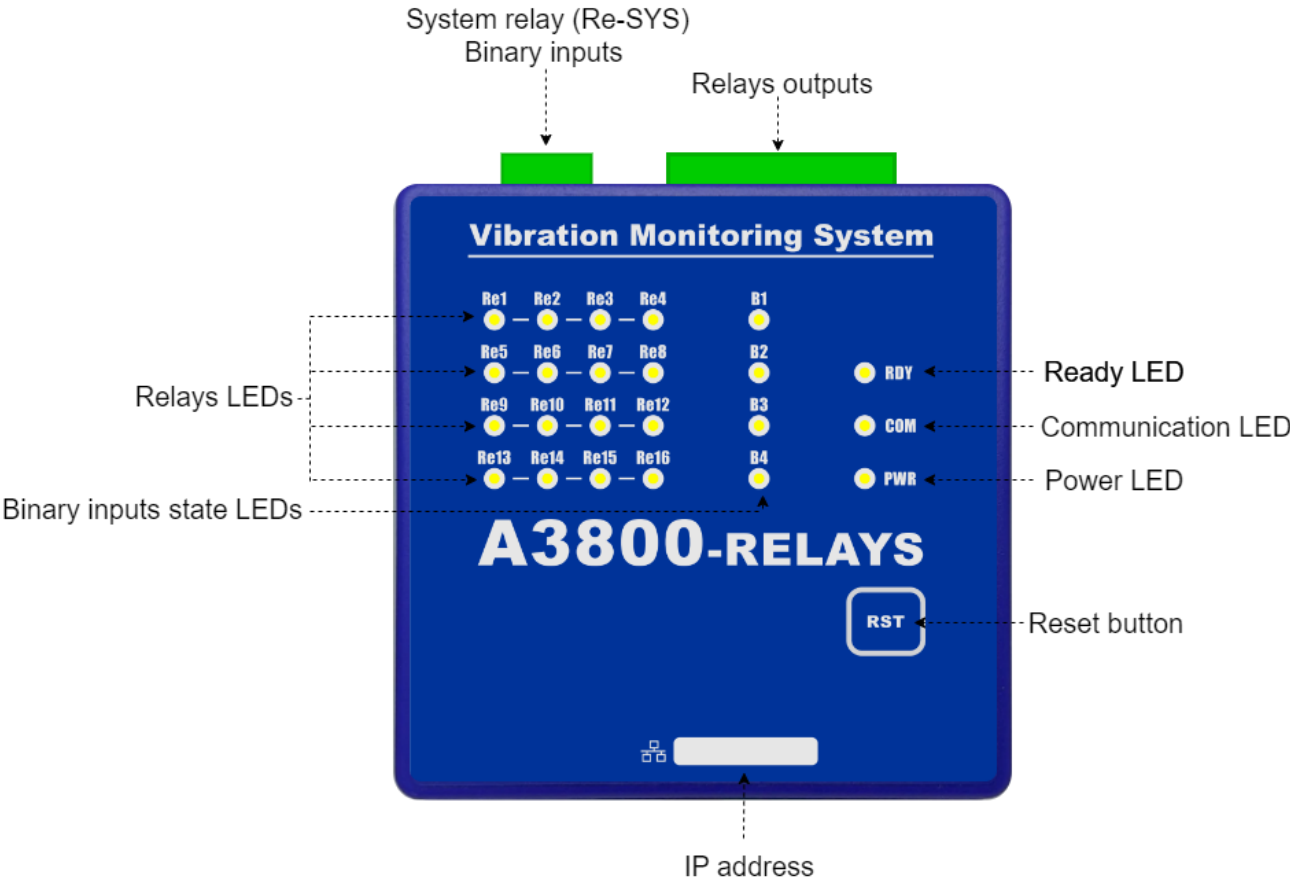
If you are interested in more information about Adash online units (A3800), you can find them in the manual for online monitoring systems – www.adash.com.



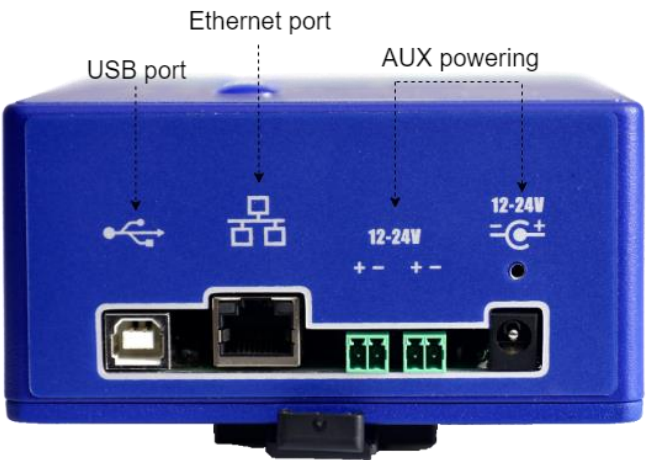
Description – relay module

Relay module is described in this chapter. Relay module specification is in chapter: Technical specifications .

Front panel of the module



Bottom panel of the module

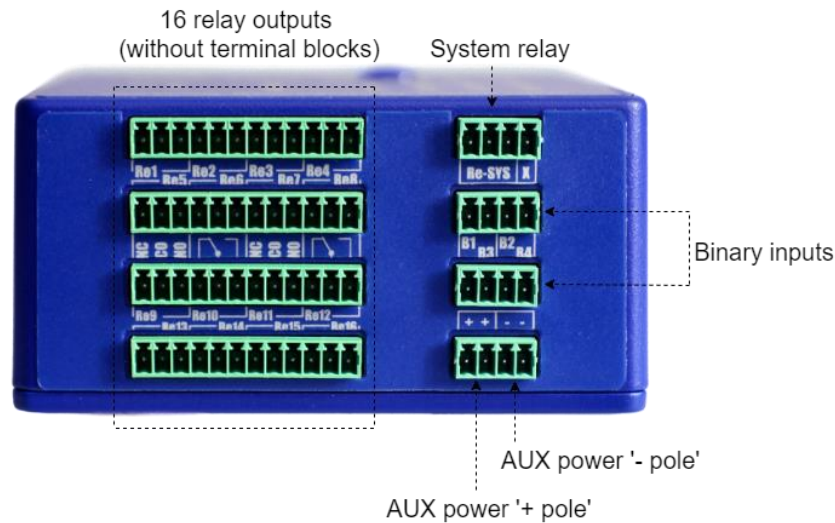


Note:
AUX power is not needed for USB connection. It is needed only for Ethernet connection.

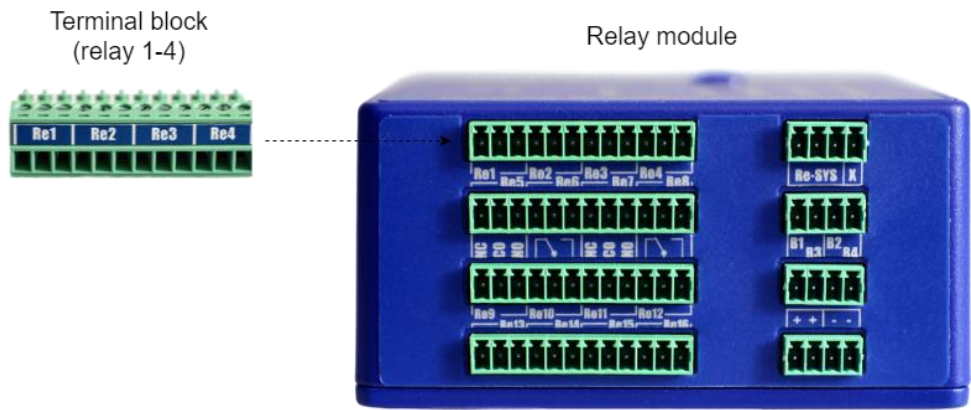


Top panel of the module

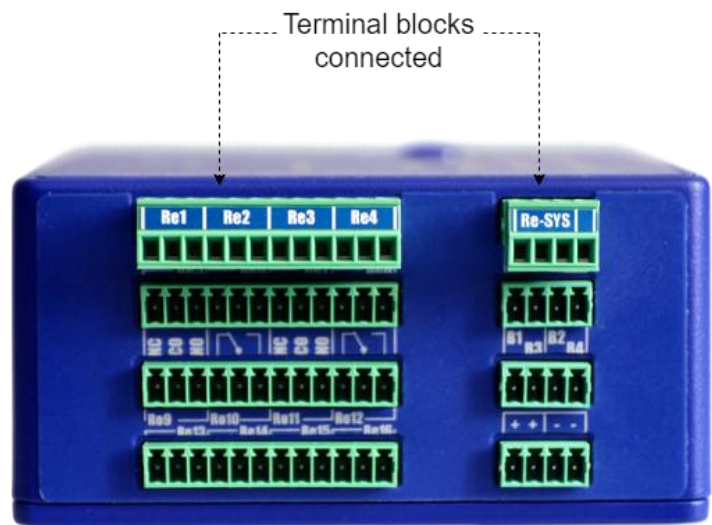
Top panel of the relay module is shown in the picture below.



Terminal blocks are used to connect supply wire or to connect several wires together in electrical engineering. Where to connect these terminal blocks and how they look like is shown in the following picture. We connect terminal block for relay 1 – 4.



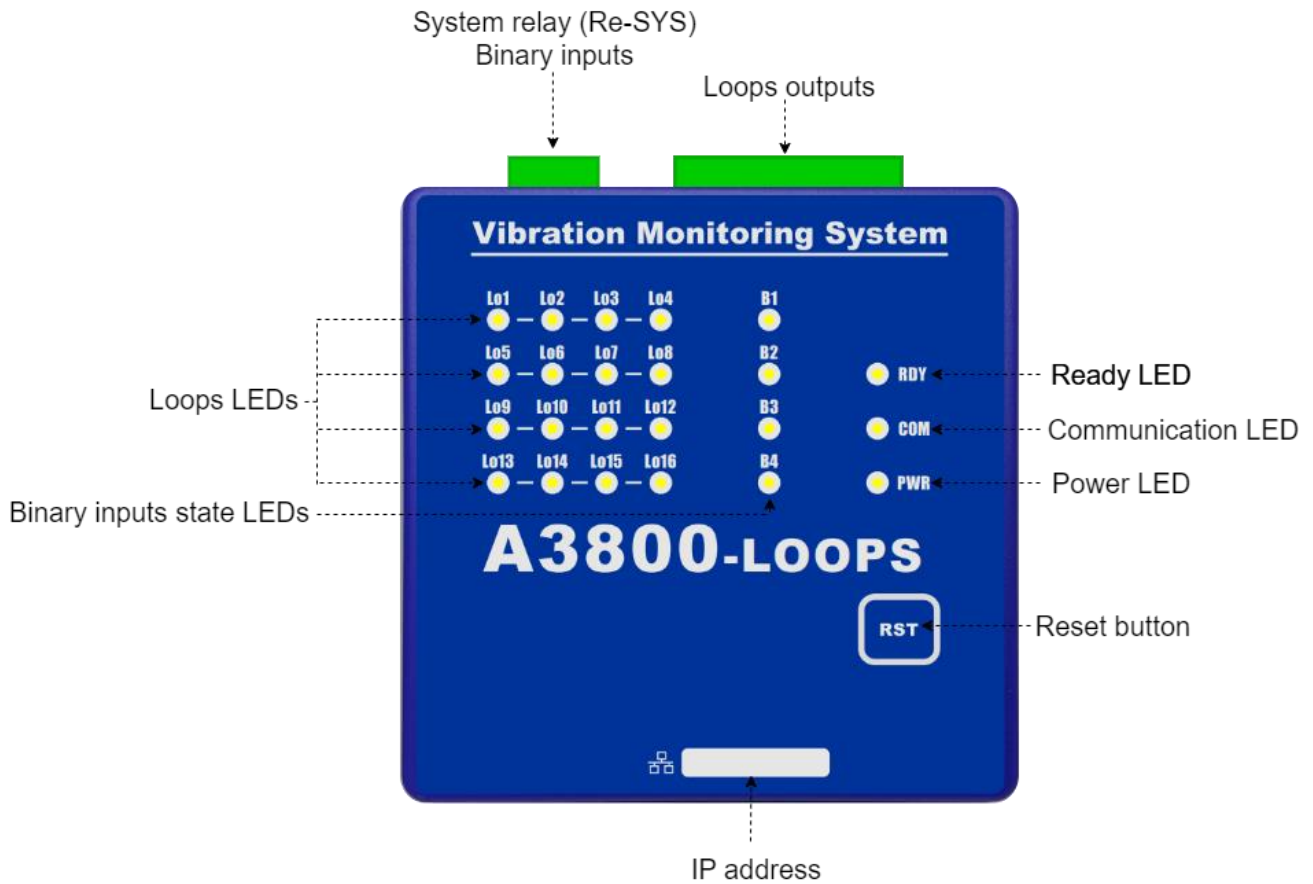
You can see top panel of relay module with terminal blocks connected in the following picture.



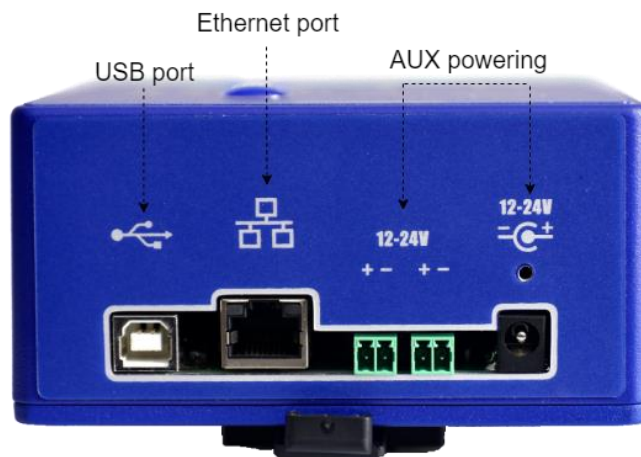
Description – loop module

Loop module is described in this chapter. Relay module specification is in chapter: Technical specifications.

Front panel of the module



Bottom panel of the module

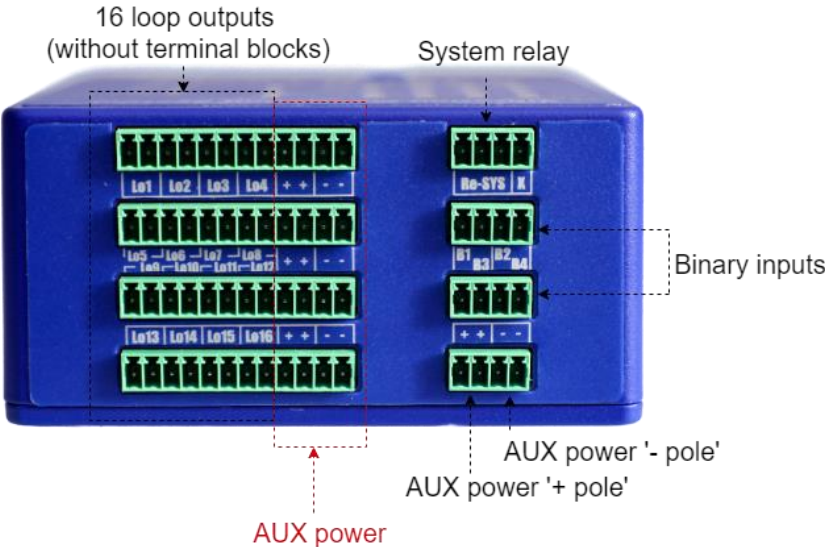


Note:

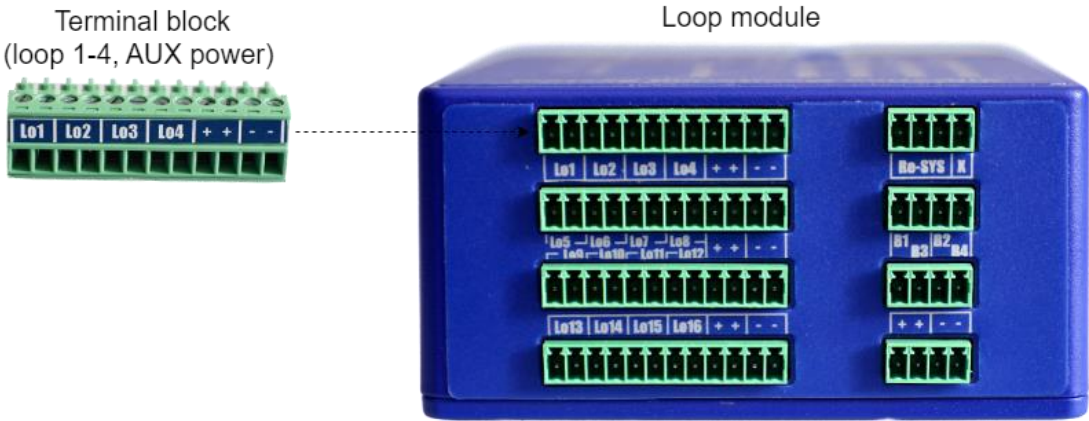
AUX power is not needed for USB connection. It is needed only for Ethernet connection.



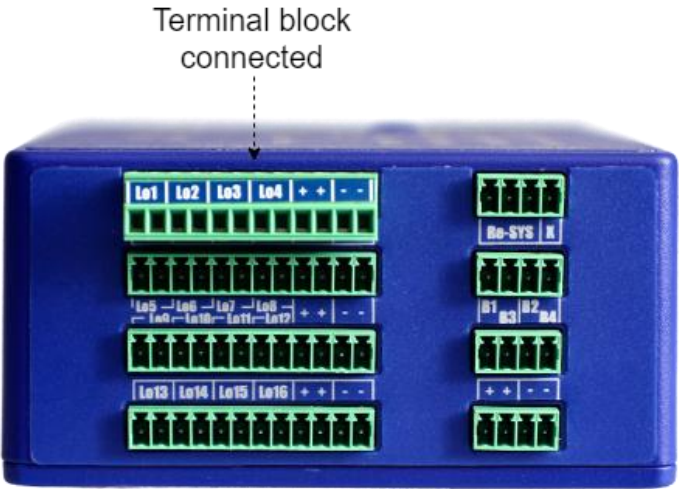
Top panel of the module



Terminal blocks are used to connect supply wire or to connect several wires together in electrical engineering. Where to connect these terminal blocks and how they look like is shown in the following picture. We connect terminal block for loop 1 – 4 and their powering.



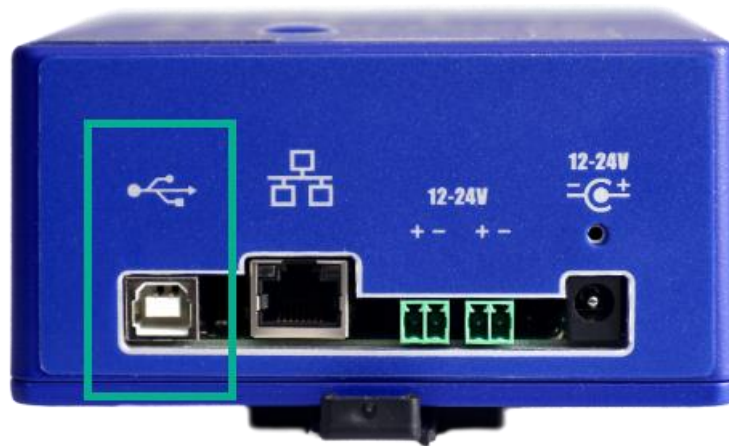
You can see top panel of loop module with terminal block connected in the following picture.



How to make module and A3800 communicate

Firstly, you need to connect module to online unit A3800. You do this with USB cable.

USB port (module):



USB port (online unit A3800):



Next steps described below are for modules which were not set by Adash. Modules and online units A3800 are configured by Adash in production when you order them together.

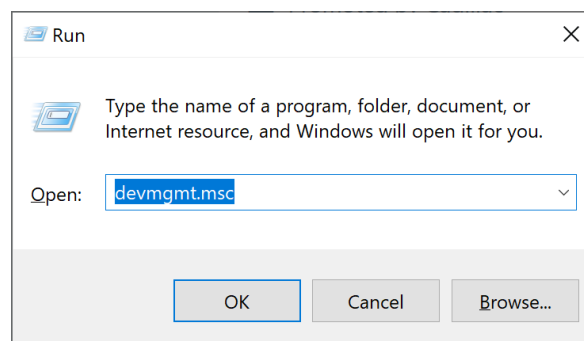
When module is ordered separately and you already have A3800, you need to configure it by yourself. See following steps to proceed with it further.

Connect to online unit with remote desktop connection. Once you are connected you need to open device manager to configure communication ports (between online unit and module).

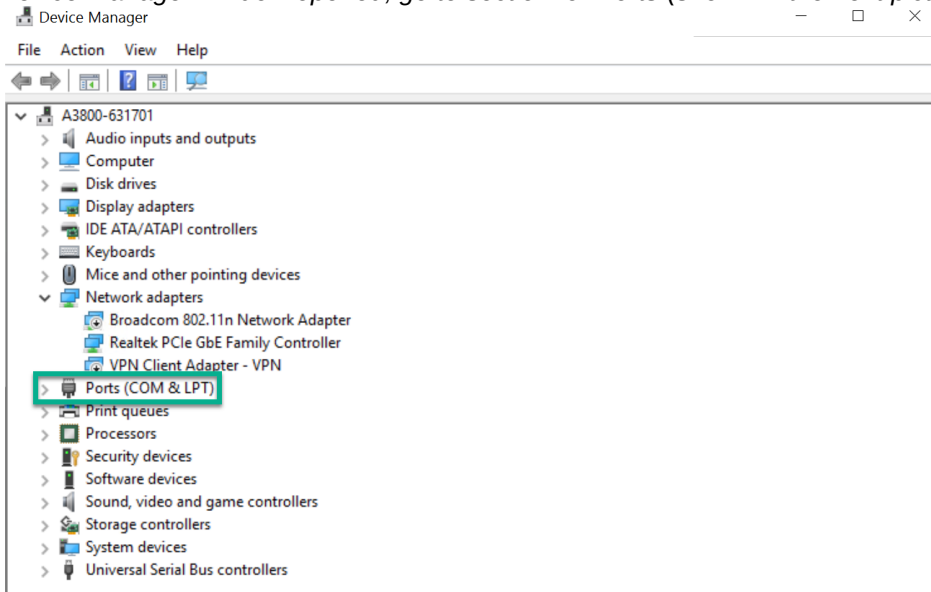
There is a different guide how to open device manager based on version of operating system in your online unit.

OS – Windows 10/11: click to Windows start button with right mouse button and go to Device manager.

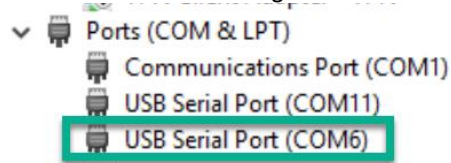
OS – Windows 7: press Win + R and fill in **devmgmt.msc** command (see screenshot below). Confirm with OK and device manager opens.



Once you have Device manager window opened, go to section for Ports (shown in the next picture).

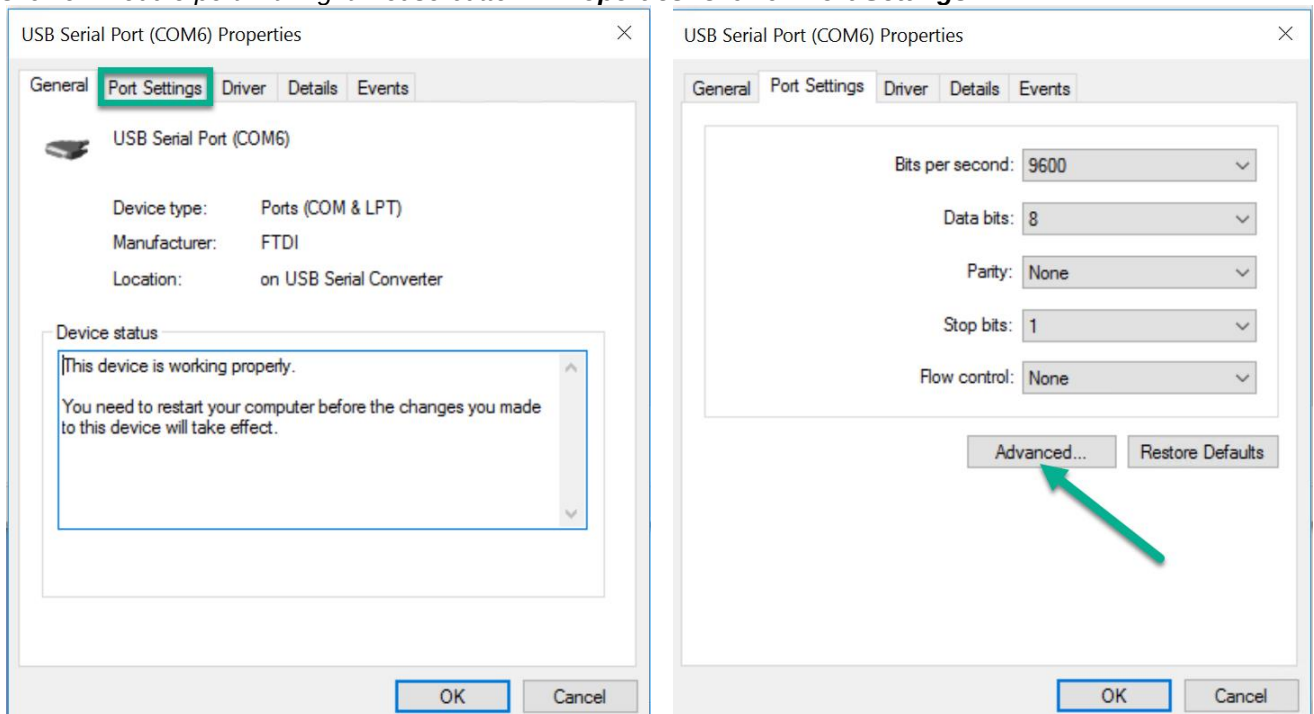


Find the port where your relay/loop module is connected (in our case it is port COM6). **On which port your module is connected?** Open Ports tab in device manager as shown in the following picture.



Then disconnect the module from online unit. You can see which COM port number is shown/hidden when you connect/disconnect your module.

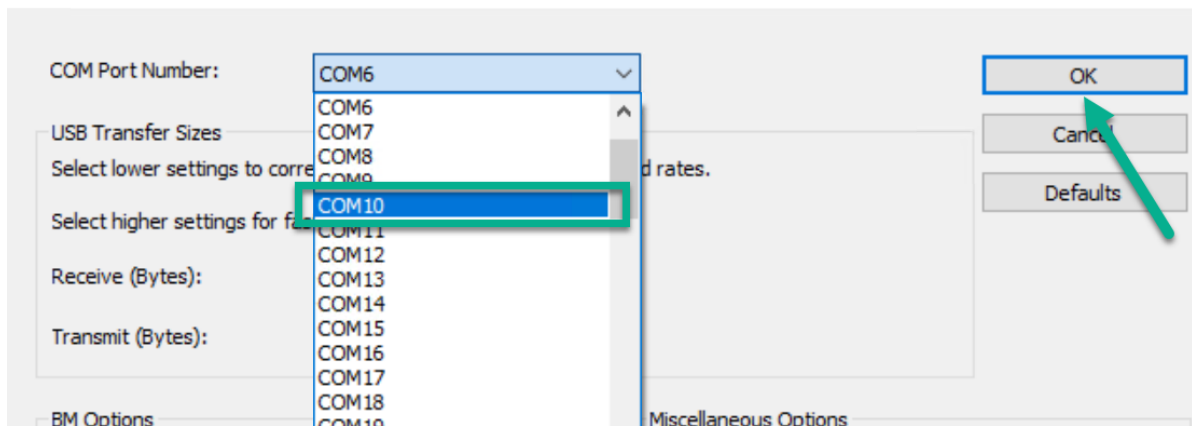
Click on module port with right mouse button – **Properties**. Click on **Port Settings**.



Click on **Advanced**.

COM Port Number set to COM10 as below (it is default port set for communication between A3800 and module).

Advanced Settings for COM6



Confirm with **OK** button (confirm also the 'Properties' window).

Now you need to change config file for online unit. You can find it in this location C:\A3716\data. There is config file with name **VA4.cfg**. Open it with notepad. You need to change this part in config file:

[ONLINE BOARD]

port=-1

Port value set to -1 means that online board is not connected. So, we need to change it like this:

[ONLINE BOARD]

port=10

baud=115200

wdt=10000

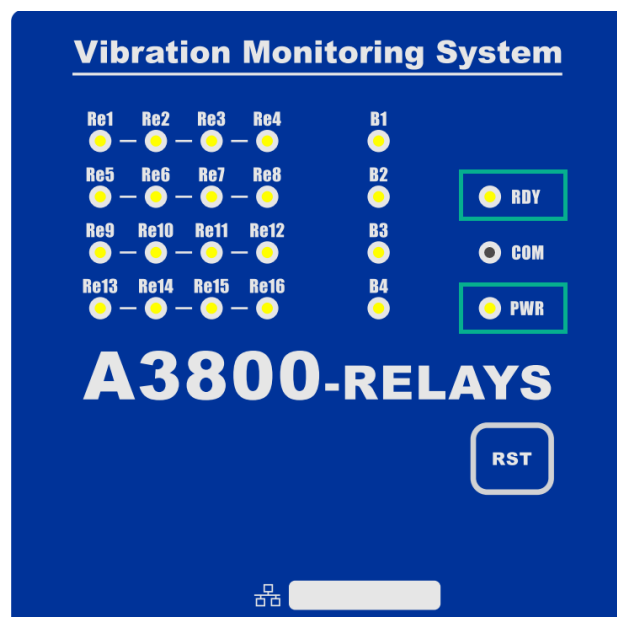
keep vals=off

turn off when icp error=1

Once you paste this into config file, save the changes.

The next step is to create database in DDS and send this project to online unit A3800 (in other words – start data collection – DDS – Online tab – Start) – how to create database in DDS is described in manual for online monitoring systems.

When correct communication between online unit A3800 and module is established you can see LED light on for **RDY** and **PWR**.



More settings

Next parameters for loops and relays are set in DDS software. More information (how to do it, which parameters are set and what they mean) you can find in DDS manual – www.adash.com .

DDS window for loop setting:

Overall Data Cell ✕

Name [ID: 2]

ISO RMS

OK

Cancel

Reading Template (available only for empty cell)

ISO RMS

Delete Template

Save as Template

Properties

Route

Limits

Data

Reference

Online

Min. relative change [%]	
Min. absolute change	
Min. interval(HH:MM)	< None >
Loop	
Loop	1
4 mA [mm/s]	0,0
20 mA [mm/s]	10
Lower Value	4 mA
Higher Value	22 mA
Signal Overload	24 mA
ICP Error	3.5 mA
Relay	

DDS window for relay setting:

Overall Data Cell ✕

Name [ID: 2]

ISO RMS

OK

Cancel

Reading Template (available only for empty cell)

ISO RMS

Delete Template

Save as Template

Properties

Route

Limits

Data

Reference

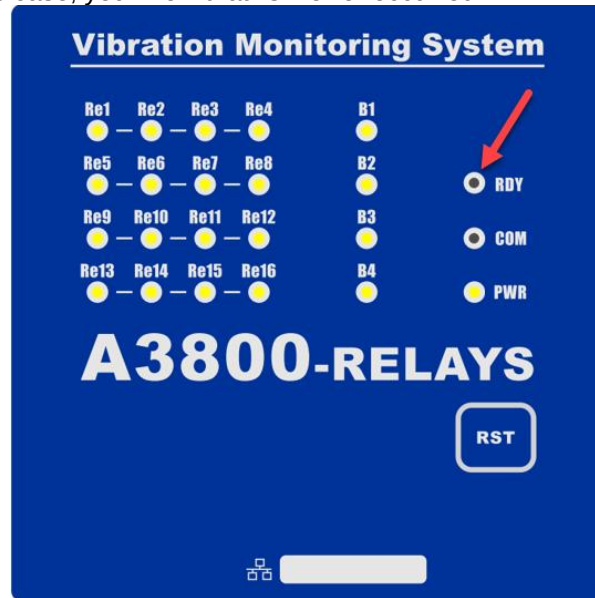
Online

Signal Overload	24 mA
ICP Error	3.5 mA
Relay	
Relay	1
Activation Value [mm/s]	1
Activation Status	Energized
Activation Delay [s]	0
Deactivation Delay [s]	0
Latch	No
Logical Function	OR
Control Data Cell	
Ctl. Cell ID	< None >



ICP error signalization

In case of relay module, there is an option to signalize ICP error for sensors. For example, if the cable is corrupted or sensor is not working you can use this option of relay disconnection. What this actually means? When you turn on this function and cable connected to relay is corrupted, the system relay is closed (disconnected). It means that RDY LED turns off. In this case, you know that ICP error occurred.



How to set it correctly in configuration file?

As mentioned in chapters above, it depends if you order module with online unit A3800 or separately. If module is already set from production, this function (to disconnect the relay) is automatically turned on. If you order module separately, you need to set it according to following steps.

Go to config file – you find it in this location C:\A3716\data – config file is named VA4.cfg.

Find section for online board:

[ONLINE BOARD]

port=-1

This section you need to change.

[ONLINE BOARD]

port=10

baud=115200

wdt=10000

keep vals=off

turn off when icp error=1



Technical specifications

Relay – specifications

OUTPUTS

Outputs: 16x relay SPDT
 Switch. voltage MAX: 125 VAC, 60 VDC
 Switch. current MAX: 1 A

Sys Output: 1x relay SPDT
 Switch. voltage MAX: 125 VAC, 60 VDC
 Switch. current MAX: 1 A

INPUTS

4x isolated binary – ON (1)/OFF (0) state
 In. voltage ON state: 5-24V DC
 In. current ON state: 1.5 mA max

POWER

from USB: 5V/0.4A max
 from AUX: 12-24V DC/2W

Dimensions (box): 120x130x60 mm
 Outline dimensions: 120x145x70 mm

Connections:

Re1 ... Re16 16x relay
 Re-SYS relay System Ready
 CO COM contact (center)
 NC Norm. closed contact
 NO Norm. open contact
 X term. not connected

Bi1 ... Bi4 4x binary inputs
 Binary inputs range: 5-24 V
 1,4 mA max

++ AUX power „+ pole”
 -- AUX power „- pole”

USB data + power connection
 Ethernet for future use
 AUX PWR AUX power

Note:

All „+ pole” terminals are connected.
 All „- pole” terminals are connected.
 AUX power is needed only without USB connection.

Loops – specifications

OUTPUTS

Outputs: 16x current loop
 passive, isolated
 Current range: 3.5-22mA
 Input voltage: 7V-24V DC

Sys Output: 1x relay SPDT
 Switch. voltage MAX: 125 VAC, 60 VDC
 Switch. current MAX: 1 A

INPUTS

4x isolated binary – ON (1)/OFF (0) state
 In. voltage ON state: 5-24V DC
 In. current ON state: 1.5 mA max

POWER

from USB: 5V/0.2A max
 from AUX: 12-24V DC/2W

Dimensions (box): 120x130x60 mm
 Outline dimensions: 120x145x70 mm

Connections:

Lo1 ... Lo16 16x current loop
 Re-SYS relay System Ready
 CO COM contact (center)
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Bi1 ... Bi4 4x binary inputs
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++ AUX power „+ pole”
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USB data + power connection
 Ethernet for future use
 AUX PWR AUX power

Note:

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