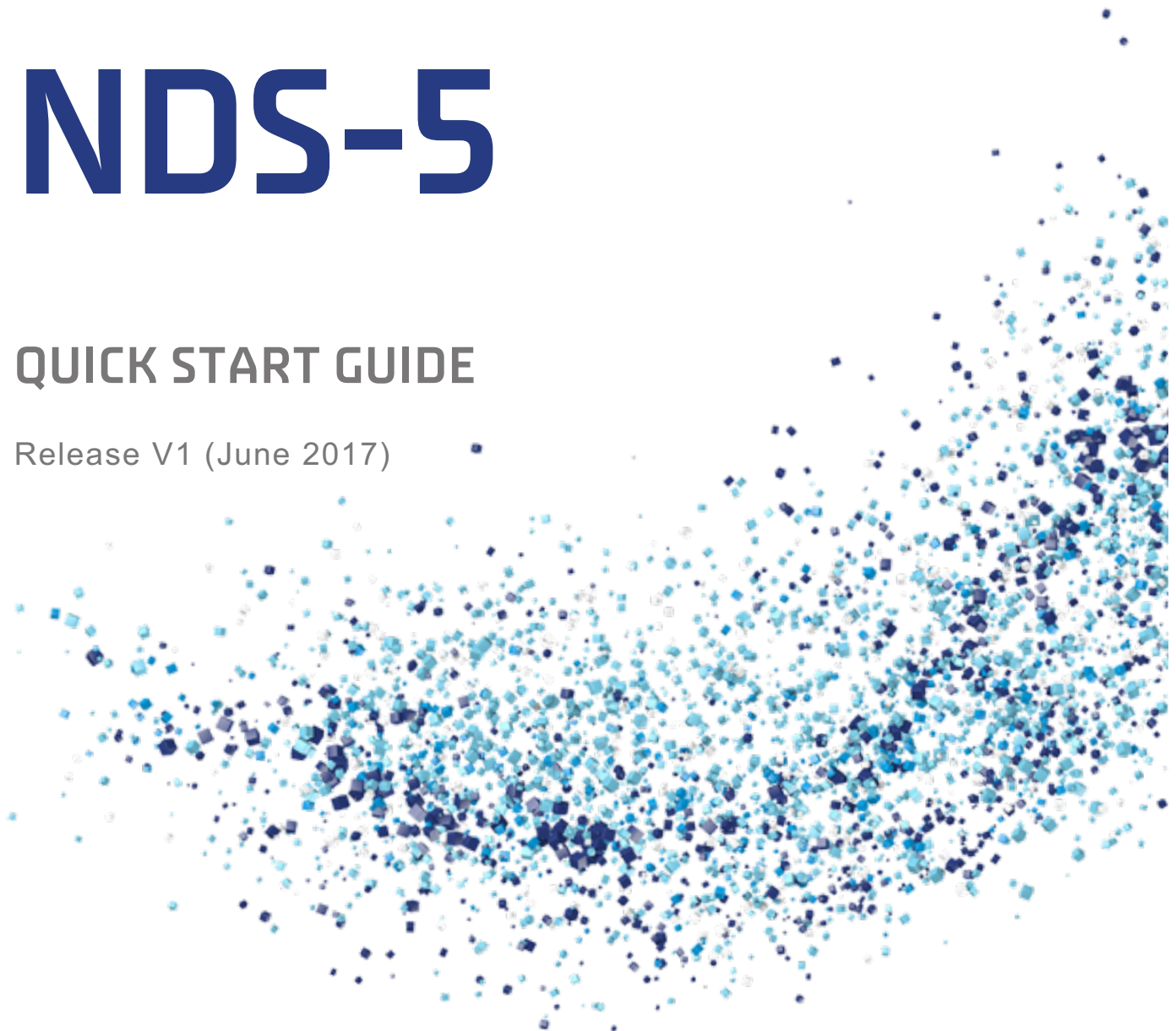


ERGONEERS
FROM SCIENCE TO INNOVATION

NDS-5

QUICK START GUIDE

Release V1 (June 2017)





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1. GENERAL

1.1 Contents of Delivery

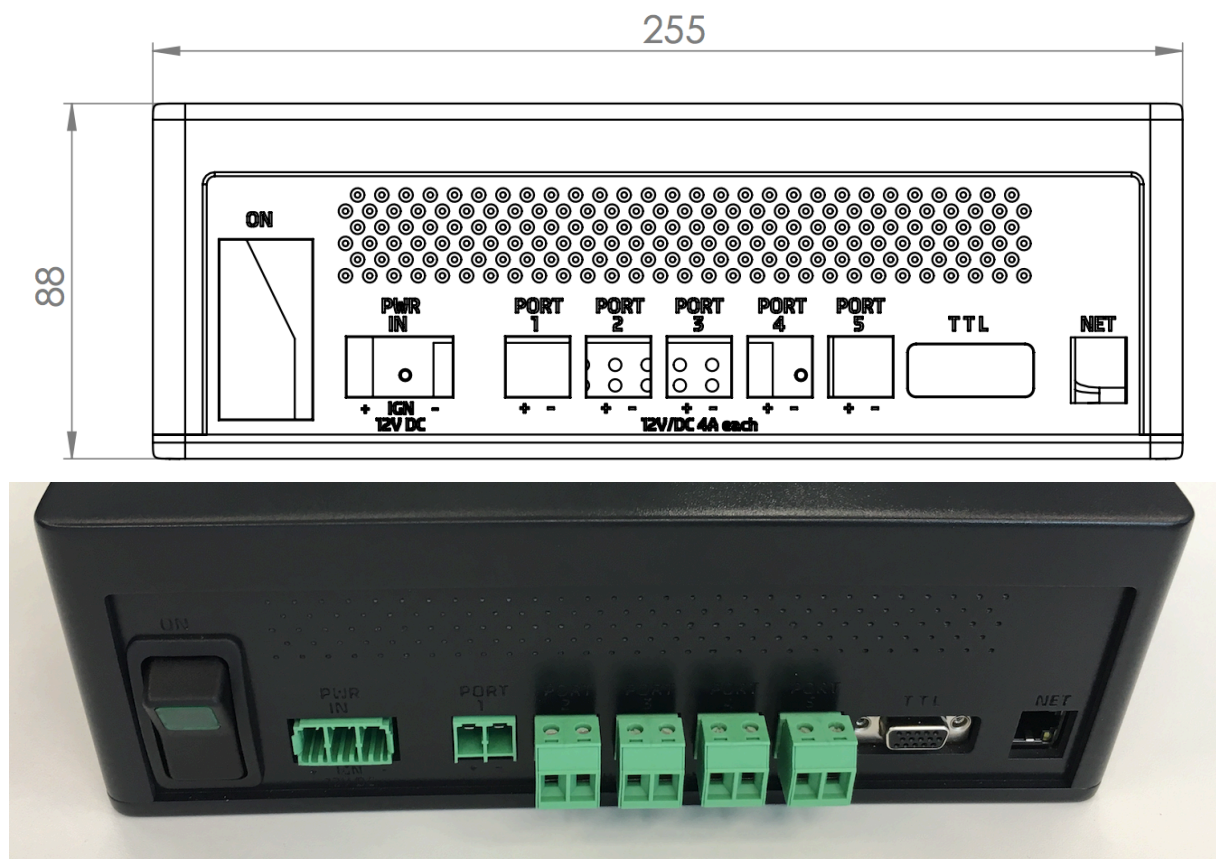
The following parts are included in your NDS-5:

- 5 Port NDS-5 box
- 1 Main Connector
- 5 Auxiliary Connectors
- Micro SD-Card with OS and Program (already installed)

1.2 Technical Specs

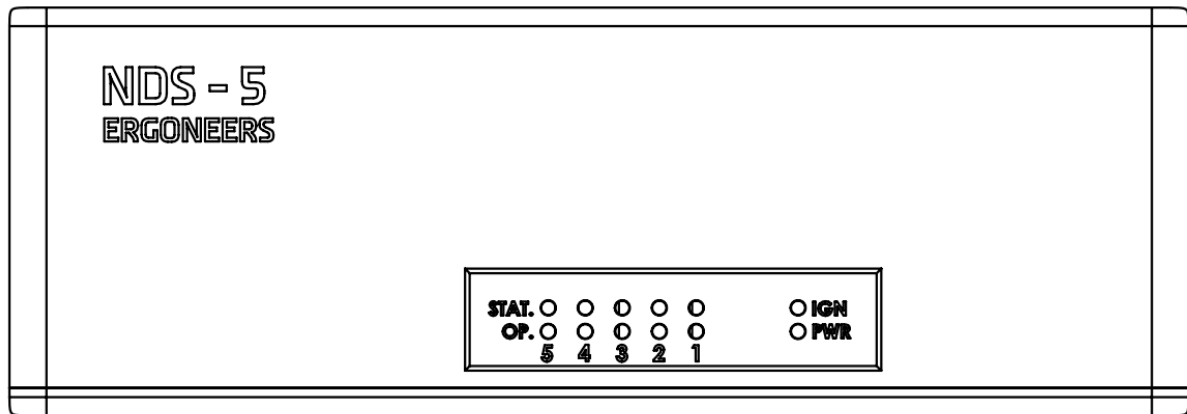
Input Voltage: 12-14V DC
Output Voltage: 12-14V DC
Main Fuse: 30A
Max current per port: 4A
Operating temp: -10°C to +45°C

1.3 Connectors



The NDS-5 main switch needs to be set to “ON” in order to function.

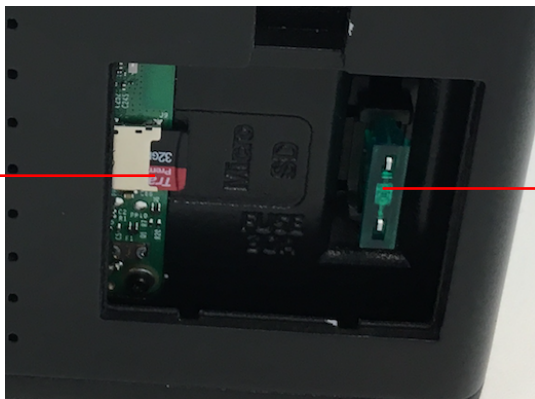
1.4 LEDs



Status of LEDs

- IGN: Vehicle/ignition is turned on
- PWR: NDS-5 has 12V power and is switched on
- STAT 1-5: Port 1-5 are turned on
- OP 1-5: Function of Port 1-5 are OK

1.5 SD-Card & Fuse



- The SD-Card contains the OS and configuration files.
- Main fuse

1.6 Error Handling

A red STAT LED and a flashing green OP LED accompanied by a buzzer sound indicates a short circuit on that port. Check connection to that port and reboot the NDS-5 if necessary.

2. Setup

2.1 Connecting Scheme

The NDS-5 must be connected at all times to the 12V power outlet of the car in order to automatically turn on all the systems upon vehicle startup. The NDS-5 CPU needs about 90 seconds to boot up. Whenever NDS-5 is disconnected from power and turned on again, allow 90 seconds to fully boot up.

DC IN : 12V directly and always connected to the 12V power of the car
IGN: Connected to "Ignition" or "Car switch on"
Port 1: Switch
Port 2: Main Unit 1
Port 3: Main Unit 2&3
Port 4: Main Unit 4
Port 5: Main Unit 5
TTL: Not connected at all
NET: Connected to switch

2.2 Switch

Port 1: Connected to NDS-5
Port 2: Connected to VTK
Port 3: Connected to Axis Main Unit 1
Port 4: Connected to Axis Main Unit 2
Port 5: Connected to Axis Main Unit 3
Port 6: Connected to Axis Main Unit 4
Port 7: Connected to Axis Main Unit 5

2.3 Vehicle Testing Kit (VTK)

The VTK needs to be connected to the 12V power of the vehicle at all times. It is set to "wake-on-LAN" mode. When disconnected from power, it needs a full restart to get back in into "wake-on-LAN". D-Lab must be set to start automatically on the VTK and remote user must be enabled.

Note: The cooling fans of the VTK will always be on once installed in the car and connected to 12V power in standby. Therefore, it continuously draws power from the vehicle battery (appr. 6W per hour). This does not cause any problems even if the car is not driven over a weekend. For longer periods, it is recommended to turn off the VTK. However, it would need to be manually started up the next time (and can be shut down without disconnecting 12V power supply) to be in a wake-on-LAN mode.

3. OPERATION

3.1 Start (1 minute after ignition)

Vehicle is turned on (NDS-5 receives 12V from vehicle)

NDS-5 will wait for 1 minute and then turn on Port 1 (switch). The switch needs around 45 seconds to power up. After 60 seconds Port 2 is turned on. All other ports (3, 4, and 5) will be turned on and the Axis main units will be powered on.

After this sequence (roughly 65 seconds) the VTK will get the Wake on LAN signal

- VTK will boot and start Windows
- Windows will start D-Lab
- NDS-5 will open/create a study
- Switch to Measure mode
- Open/create participant
- Start recording

The delays after each of these steps are listed below

command	Delay in seconds	annotation
wake on lan	30	
start D-Lab	90	
open/create study	20	
change to measure	3	delay cannot be changed in config file
open/create participant	5	
start recording	10	

3.2 Start (less than 1 minute after ignition)

If the vehicle ignition is turned off within 1 minute after starting, nothing will happen as it is below the threshold for starting up the NDS-5.

3.3 Stop (for more than 5 minutes)

When the ignition is turned off for more than 5min (vehicle is not driven) the shutdown procedure will start.

- Stop recording
- Shutdown VTK
- Switch off Port 5
- Switch off Port 4
- Switch off Port 3
- Switch off Port 2
- Switch off Port 1

The delays after each of these steps are listed below

command	Delay in seconds	annotation
stop recording	30	
shutdown VTK	40	

Device	Delay in seconds	annotation
5	1	turns off first
4	1	
3	1	
2	1	
1	1	switch, turns off last

3.4 Stop (for less than 5 minutes)

The VTK will shut down only if the vehicle ignition is turned off for more than 5 minutes. This threshold is meant to accommodate quick breaks like refueling, stopping for coffee and so on; therefore avoiding a full stop and restart of the equipment.

Therefore, only if the vehicle ignition is turned off for more than 5 minutes, the shutdown procedure will be initiated. If the vehicle is started again within the 5 minute threshold, shut down of the systems will only be initiated after the next stop that lasts longer than 5 minutes.

Ergoneers GmbH
Wöhlerweg 9
82538 Geretsried
Germany

T +49.8171.21624-0
F +49.8171.21624-11
info@ergoneers.com

Ergoneers of North America, Inc.
111 SW 5th Ave
Suite 3150
Portland, OR 97204
USA

T +1.503.444.3430
info@ergoneers.com