Optical Needle Stroke Detection System OptiStroke™ Generation 2

Manual P/N 7192332_07
- English -

Issued 07/24

NORDSON ENGINEERING GMBH • LÜNEBURG • GERMANY

Note

This document applies to products with the following P/Ns:

7157969	7186651						
7186109	7186682						

This equipment is regulated by the European Union under WEEE2 Directive 2012/19/EU.

See www.nordson.com for information about how to properly dispose of this equipment.

Order number

P/N = Order number for Nordson articles

http://www.nordson.com/contact-us

Table of Contents

Safety Instructions

WARNING: Please comply with the safety instructions included as a separate document and with the specific safety instructions throughout the documentation.

Introduction

Intended Use

The optical needle stroke detection system - hereafter referred to as *OptiStroke* - is designed to be used only to evaluate and process optical signals triggered by the movement of the needles in control modules.

Electromagnetic Compatibility

OptiStroke is intended to be used in industrial areas.

Limitations of Use

When operated in residential or commercial areas, *OptiStroke* may cause interference in other electrical units, e.g. radios.

Limitations of Use - Examples

OptiStroke may not be used under the following conditions:

- In defective condition
- When the device lid is open
- When changes or modifications have been made by the customer
- When the values stated under *Technical Data* are not complied with.

Residual Risks

Nordson knows of no residual risks.

What is OptiStroke?

OptiStroke is an electronic device that monitors and displays the opening and closing times of control modules on Nordson applicators. The measurements are evaluated and an alarm is triggered if the nozzle stem in a control module does not move at all or moves outside the previously set time range.

The alarm signal *No stem stroke* can be used for product ejection purposes.

Curve diagrams of the stem stroke triggered by the valve signal can be used for analysis purposes (example: Figure 2).

System Environment

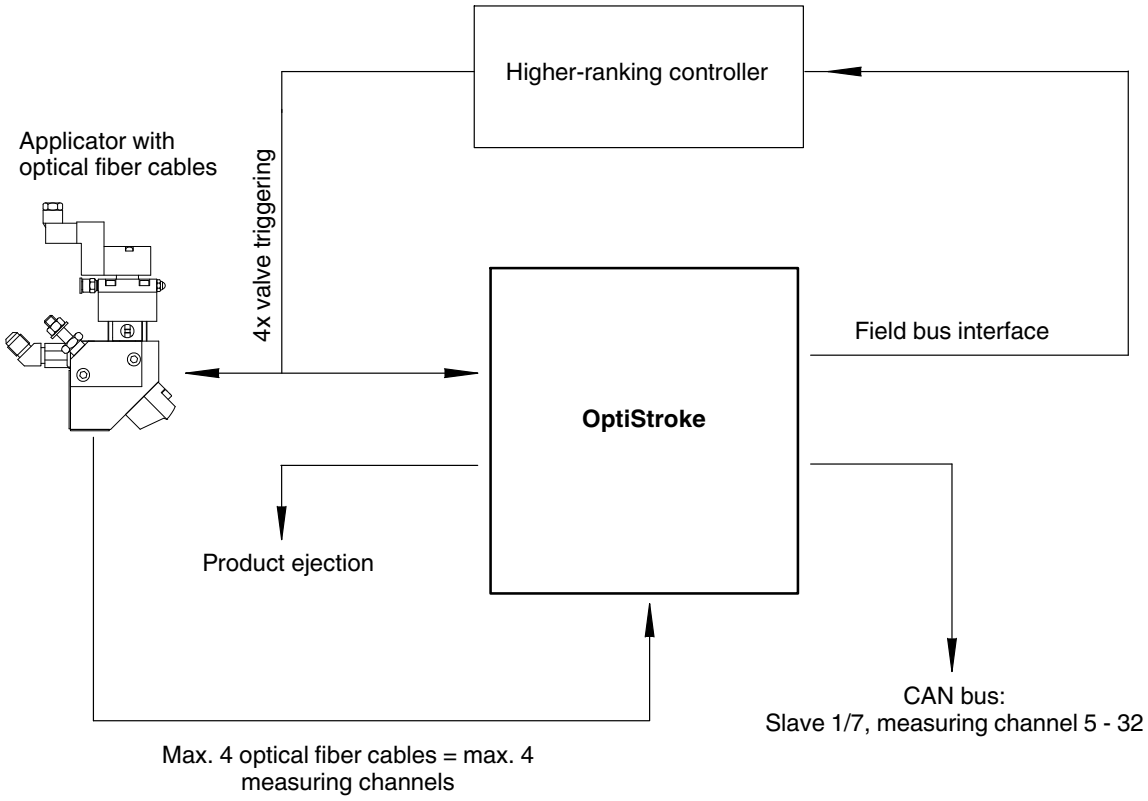
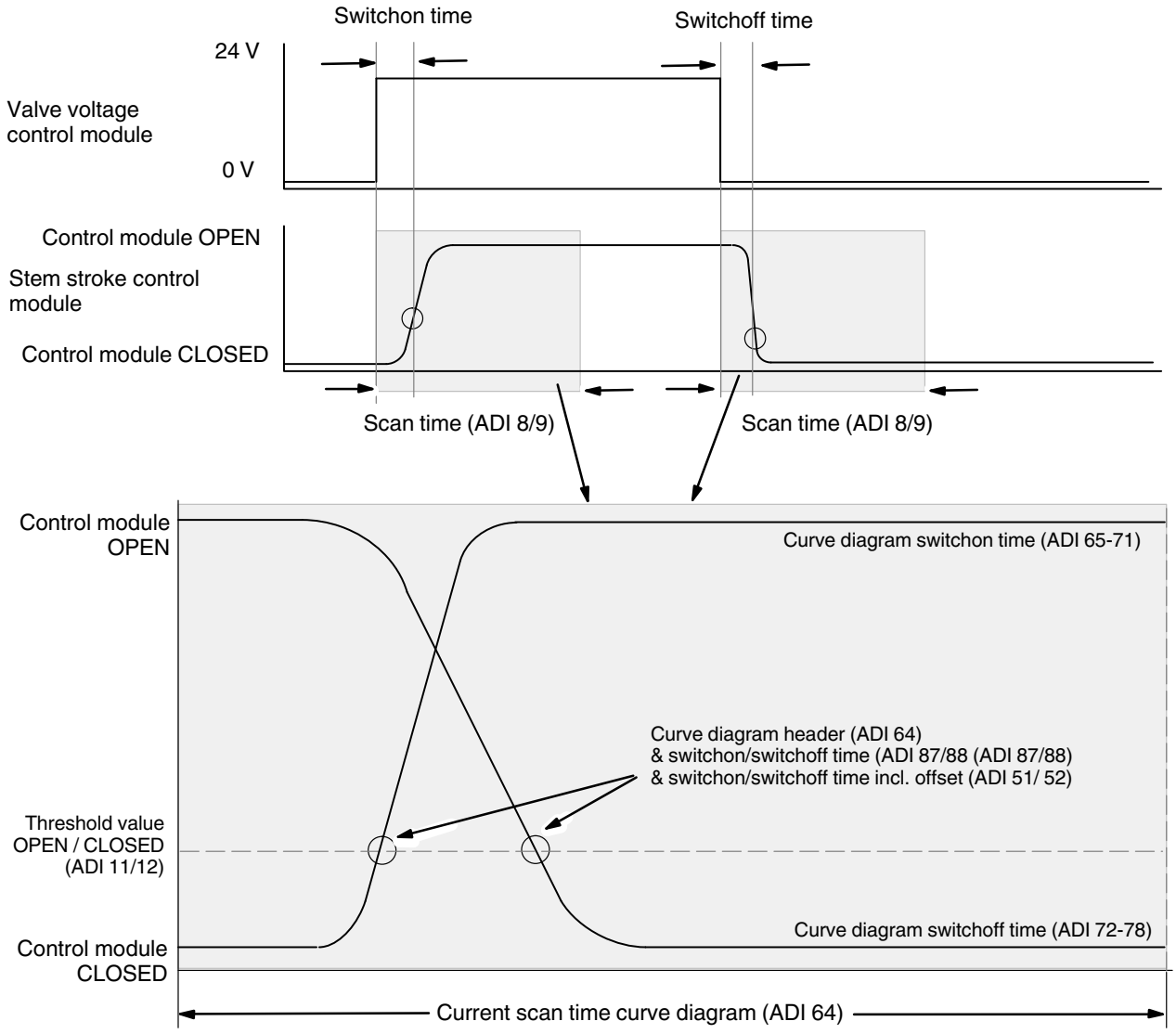


Fig. 1

Function

OptiStroke works in conjunction with an applicator. Optical fiber cables are connected to the applicator control module. The optical fiber cables compile the movement of the nozzle stems triggered by the valves and transmit it to *OptiStroke* as an optical signal. Each control module is connected to exactly one measuring channel in the *OptiStroke*.

OptiStroke converts the optical signals to digital signals (switching times [ms]). This data is made available via the field bus interface for further processing by a higher-ranking controller and can be used to form a control circuit.



Curve diagram for control module stem stroke and control module switching times

Fig. 2 Course of signal and curve diagrams

Field Bus Data Interface

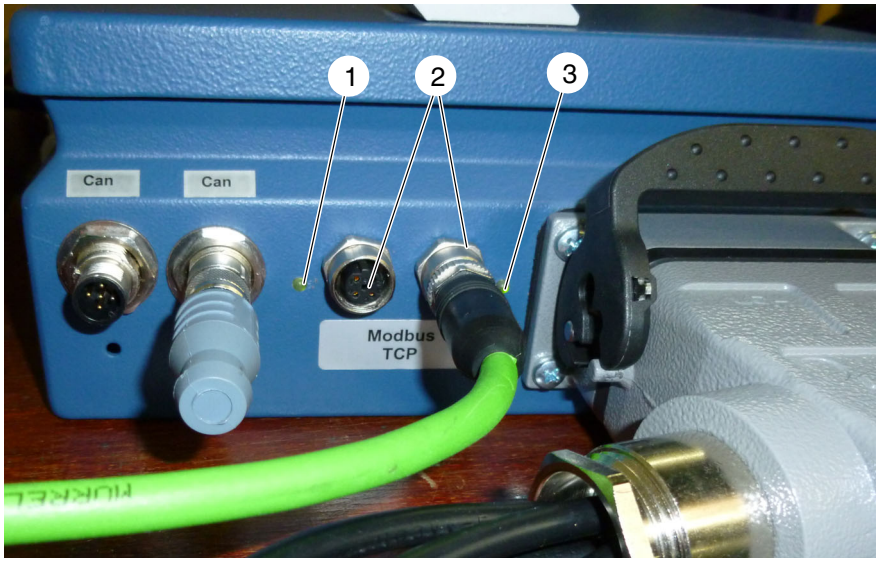


Fig. 3 Example: OptiStroke with Modbus interface

1 LED 1 (network status)
2 Field bus data interfaces
3 LED 2 (module status)

The following sections describe the meaning of the LED colors and displays for the various field buses.

OptiStroke has a field bus data interface (2, Fig. 3) that it uses for communication with a higher-ranking controller. The device is connected to one of the two receptacles.

Nordson currently supports the following interfaces:

- Modbus TCP
- EtherNet/IP

NOTE: When *OptiStroke* is operated in conjunction with a *VersaBlue Plus* melter, a field bus data interface *Modbus TCP* is used.

Alarm Outputs

Several alarm outputs ensure continuous detection of defective control modules. Realtime product ejection is also possible when the application pattern is faulty.

- Eject alarm
  (duration: default 50 ms)

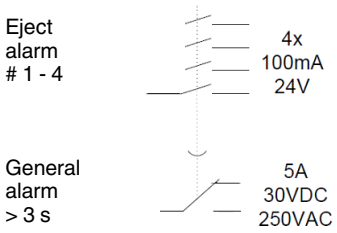
This error indication (voltage pulse) by channel can be used to activate a mechanism for product ejection.

NOTE: If during the last second of a measuring interval even a single stem stroke fault occurs, it will lead to:

- General alarm for all triggered measuring channels
  (duration: approx. 3 seconds)

Measuring channels are triggered during initialization.

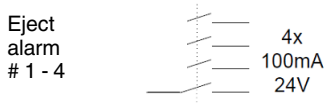
Hardware Alarms Master Box



The general alarm and the ejection alarm can be queried at a relay in the *OptiStroke* master box.

- General alarm for all channels 1 to 32
- Eject alarm for all channels 1 to 4

Hardware Alarms Slave Boxes



Only the eject alarms can be queried in the slave boxes.

- Eject alarm for all channels 1 to 4

Software Alarms via Interface

- Switching times for each channel (ADI 87 and 88)
- Switching times with offset for each channel (ADI 51 and 52)
- Missing stem stroke for each channel (ADI 56)
- Switching times are outside of defined range (ADI 55)

OptiStroke measures and reports the control module switching times. Switching times of 0.00 / 0.00 ms are considered missing stem stroke.

Function Diagram - Alarms

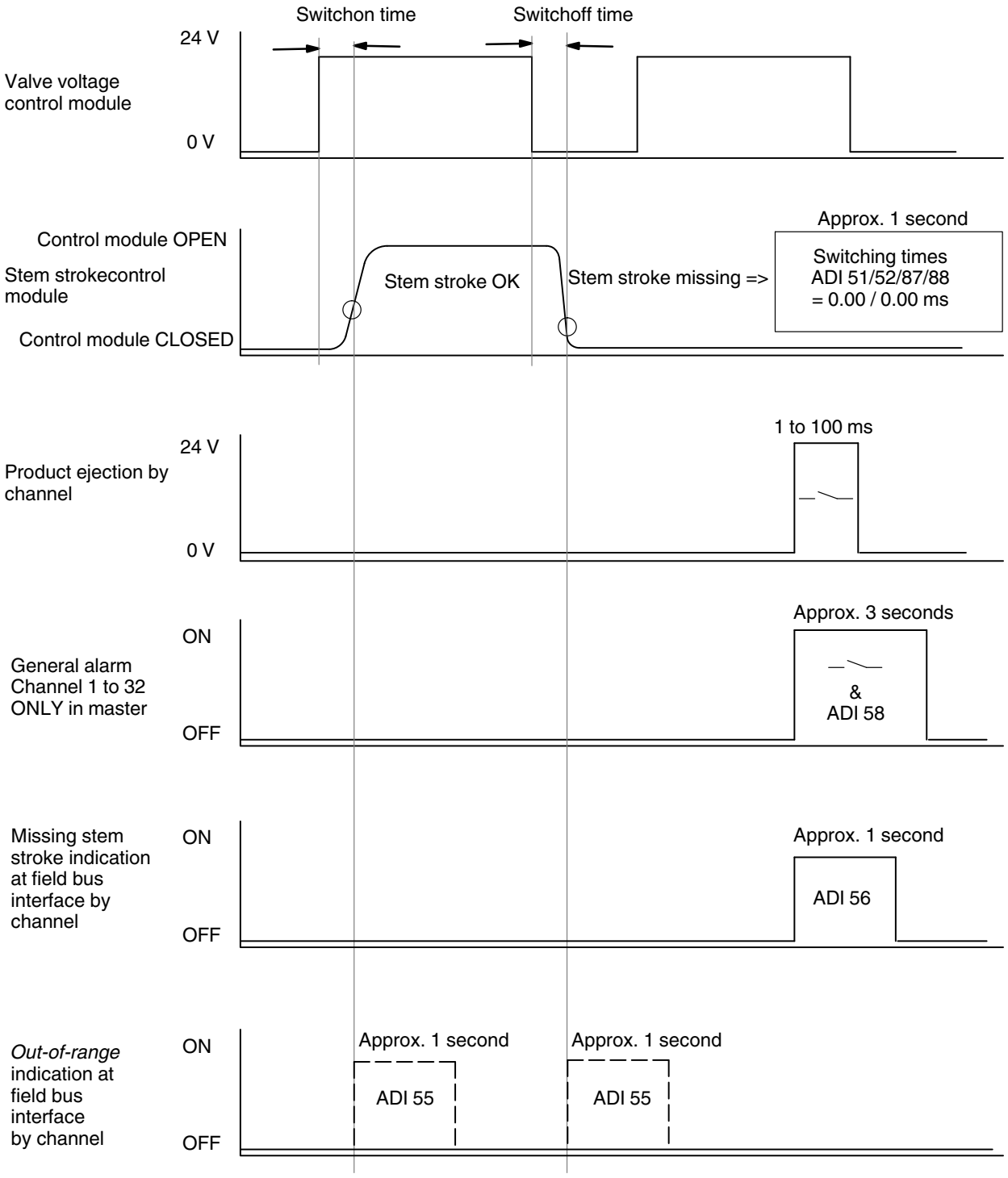
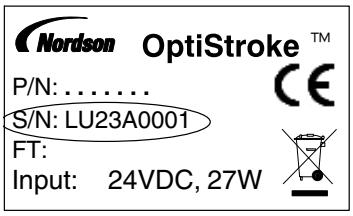


Fig. 4 Function diagram of alarm outputs

ID Plate

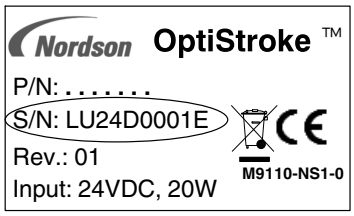
ID Plate for OptiStroke with Serial Number without E



The ID plate displays the following information:

P/N: Nordson P/N
S/N: Serial number
FT: Production date (month/year)
Input: Input voltage and power

ID Plate for OptiStroke with Serial Number with E



The ID plate displays the following information:

P/N: Nordson P/N
S/N: Serial number
FT: Production date (month/year)
Input: Input voltage and power

Installation

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

Transport

Always transport the *OptiStroke* such that it cannot sustain damage. Do not throw the *OptiStroke*. Use suitable packing material, e.g. Styrofoam and sturdy cardboard. Refer to *Technical Data* for weight.

Protect the *OptiStroke* from extreme temperature fluctuation (condensate), humidity, dust, jolts and vibrations.

Unpacking

Unpack the *OptiStroke* carefully to prevent damage. Then check for any damage caused during shipping. Check that all accessories are complete. Refer to *Accessories*.

Keep packaging material for any later use, or dispose of properly according to local regulations.

Setting Up

Protect *OptiStroke* from extreme temperature fluctuation (condensate), humidity, dust, jolts and vibrations.

Set up and install *OptiStroke* in the intended place in the application system. Use either the four mounting brackets or the four holes on the back of the box. Also refer to illustrations 15 to 17 in the section *Technical Data*.

Take into consideration the length of the optical fiber cables and the electrical lines.

Refer to *Technical Data* for IP degree of protection and dimensions.

Do not supply power to *OptiStroke* until the other connections have been made. Refer to *Electrical Connection*.

Removal

1. Disconnect the voltage supply.
2. Detach all connections from the *OptiStroke*.

Storage

Pack *OptiStroke* in suitable packing material, e.g. Styrofoam and sturdy cardboard. Protect *OptiStroke* from extreme temperature fluctuation (condensate), humidity, dust, jolts and vibrations.

Disposal

Dispose of properly according to local regulations.

Setting DIP Switches

WARNING: Voltage of 24 V_{DC} is supplied to the box. Follow all regulations regarding working on live (energized) circuits. Do not touch conductors or soldered joints!

The DIP switches determine which control modules are connected to the individual channels and which *OptiStroke* boxes are included in the *master-slave* configuration.

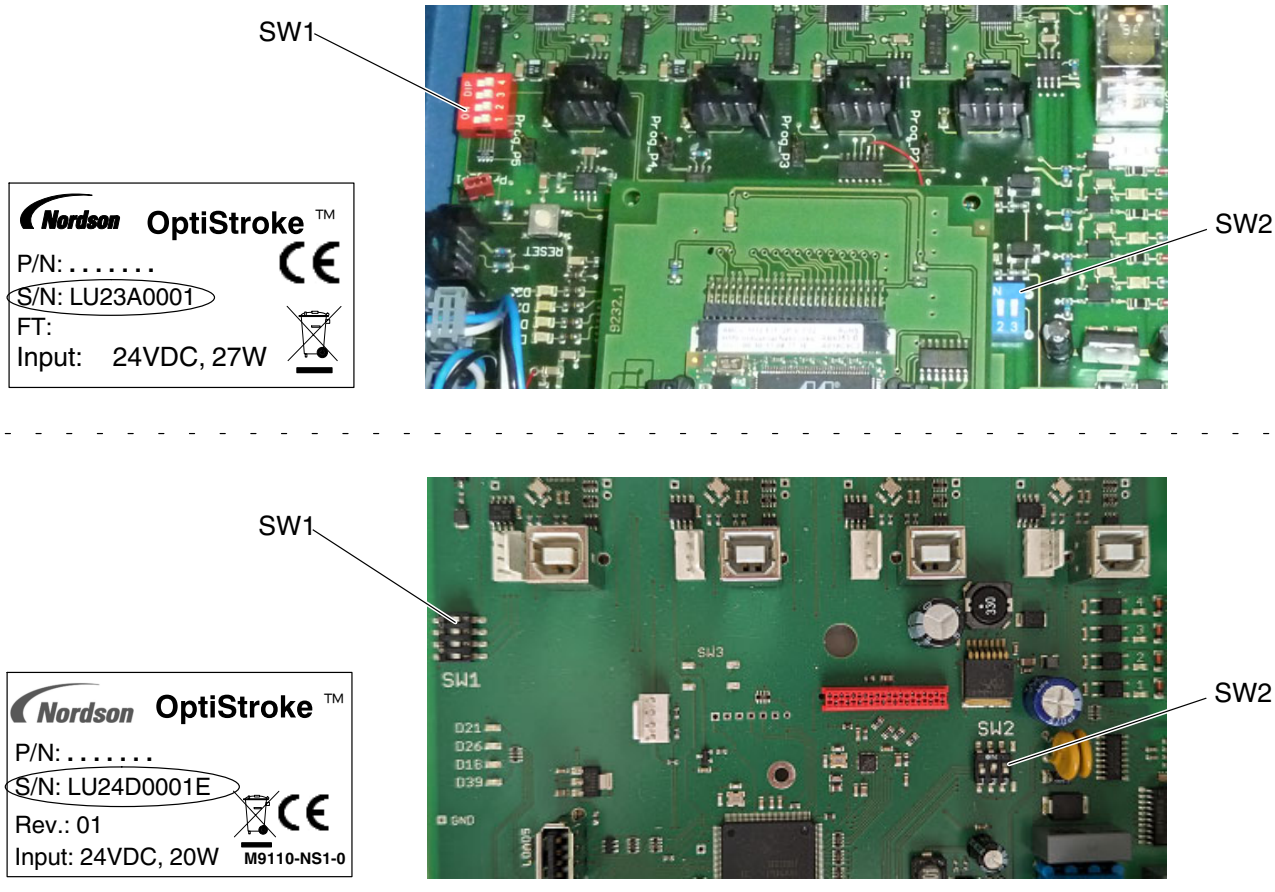
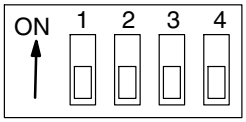


Fig. 5 DIP switches in the two different *OptiStroke* boxes (Observe the serial number!)

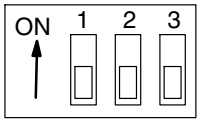
Setting Control Module Type with DIP Switch SW1



NOTE: Before starting up the *OptiStroke*, set the control module type to be evaluated for each channel:

Channel	DIP	ON	OFF
1	SW 1/1	Control module opens by moving up	Control module opens by moving down
2	SW 1/2		
3	SW 1/3		
4	SW 1/4		

Master-Slave Configuration with DIP Switch SW2



NOTE: In *master-slave* operation, one master and up to seven slave *OptiStroke* boxes are interconnected. The master and each slave monitor one to four channels.

Only one *OptiStroke* box with a bus module can act as the master; the slave units have no bus module.

On the DIP switch SW2 in the *OptiStroke* master box, set the number of slave boxes connected.

Number of slaves	SW 2/1	SW 2/2	SW 2/3
0	0	0	0
1	1	0	0
2	0	1	0
3	1	1	0
4	0	0	1
5	1	0	1
6	0	1	1
7	1	1	1

When an *OptiStroke* box is a slave, assign the slave address with DIP switch SW2.

Slave address	SW 2/1	SW 2/2	SW 2/3
Slave 1	1	0	0
Slave 2	0	1	0
Slave 3	1	1	0
Slave 4	0	0	1
Slave 5	1	0	1
Slave 6	0	1	1
Slave 7	1	1	1

Connecting Master and Slave with CAN Bus

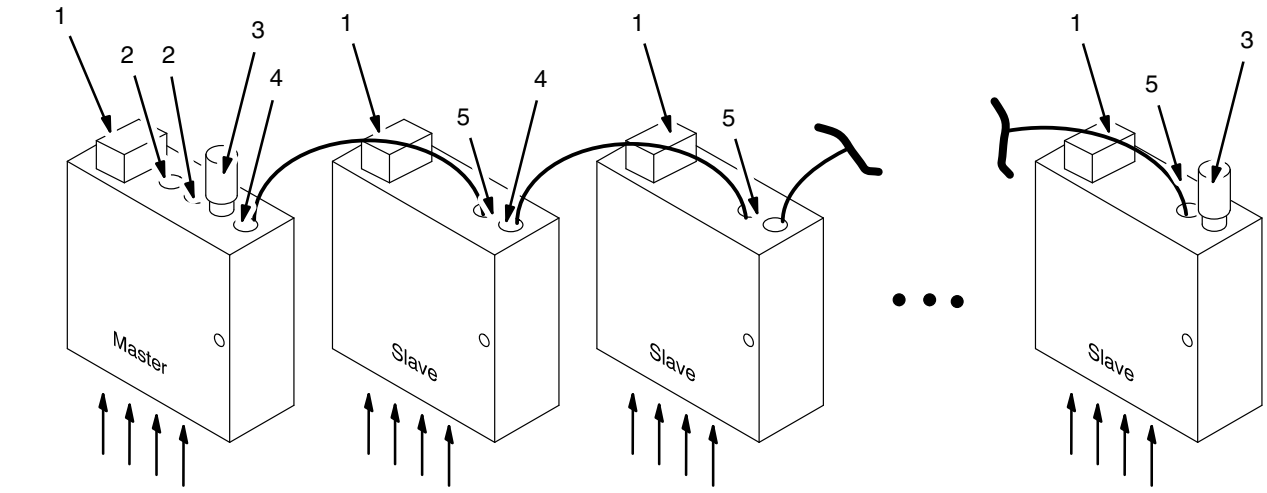


Fig. 6

1 HAN receptacle
2 Field bus interface
3 Terminating resistor
4 CAN 2
5 CAN 1

Note: CAN bus cable, refer to *Accessories*

NOTE: The network structure shown above is an example. The sequence of the master and slave boxes can be different.

1. Use CAN bus cable to connect output CAN 2 on the *master* box to input CAN 1 on the *slave* box.
2. Attach a terminating resistor to input CAN 1 on the master box.
3. Use CAN bus cable to connect output CAN 2 on the *slave* to input CAN 1 of the next *slave*.
4. Attach a terminating resistor to output CAN 2 on the last *slave*.

NOTE: The maximum bus length of the CAN bus lines used to connect all *OptiStroke* boxes is 100 m.

Electrical Connection

The *OptiStroke* is delivered ready to be connected. All connections are made with plugs. Plugs and receptacles are physically keyed.

Connecting Higher-ranking Controller

Connect *OptiStroke* to a higher-ranking controller. This can be the Nordson *VersaBlue* melter or a PLC.

NOTE: Connect *OptiStroke* with an EtherNet cable RJ45-M12 10 m (P/N 7157970).

Operating Voltage

Operating voltage (24 V_{DC}) is supplied via the HAN 24 plug.

NOTE: Use only the included optical fiber cables and connecting lines (Refer to *Parts*).

Optical Fiber Cable Channels

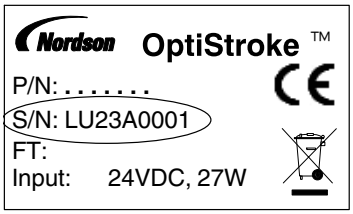
Pin	Assignment
Optical fiber cable	Channels 1 to 4 *(master)*
	Channels 5 to 8 *(slave 1)*
	Channels 9 to 12 *(slave 2)*
	Channels 13 to 16 *(slave 3)*
	Channels 17 to 20 *(slave 4)*
	Channels 21 to 24 *(slave 5)*
	Channels 25 to 28 *(slave 6)*
	Channels 29 to 32 *(slave 7)*
Note: The labels on the devices are always *K1* to *K4*.	

Pin Assignment of HAN Receptacle

NOTE: The pins are numbered.

Pin	Assignment
1	Supply voltage U = + 24 V_{DC} ± 10%
2	Supply voltage U = 0 Volt
3	Not assigned
4	Not assigned
5	Channel 1, (5), (9), trigger signal +
6	Channel 1, (5), (9), trigger signal -
7	Channel 2, (6), (10), trigger signal +
8	Channel 2, (6), (10), trigger signal -
9	Channel 3, (7), (11), trigger signal +
10	Channel 3, (7), (11), trigger signal -
11	Channel 4, (8), (12), trigger signal +
12	Channel 4, (8), (12), trigger signal -
13	Potential-free fault indication relay -C (center) (only *master)*
14	Potential-free fault indication relay -NC (normally closed) (only *master)*
15	Potential-free fault indication relay -NO (normally open) (only *master)*
16	Ejection alarm channel 1, (5), (9), + 24 V_{DC} active
17	Ejection alarm channel 2, (6), (10), + 24 V_{DC} active
18	Ejection alarm channel 3, (7), (11), + 24 V_{DC} active
19	Ejection alarm channel 4, (8), (12), + 24 V_{DC} active
20	Output 0 Volt
21	Reserved
22	Reserved
23	0 Volt (reference potential)
24	Not assigned

Changing OptiStroke IP Address (Serial Number without E)



NOTE: The procedure described in this section applies only to *OptiStroke* devices that have the ID plate shown on the left (example). The description in the next section applies to newer *OptiStroke* devices!

OptiStroke is delivered with the IP address 192.168.240.4 for Modbus or 0.0.0.0 for EtherNet/IP. This IP address can be changed.

1. Use the address configuration software *HMS-IP Config* from the included CD/DVD.

NOTE: This program is needed to gain access to the network settings of all HMS products that are connected to the network via UDP port 3250 and that support the *Host IP Configuration Protocol* (HICP).

2. Connect the gateway to a PC or laptop with an EtherNet cable.
3. Start the software *HMS-IP Config*.
   When it is started, the program automatically searches for any activated gateways; if not, press the *Scan* button.

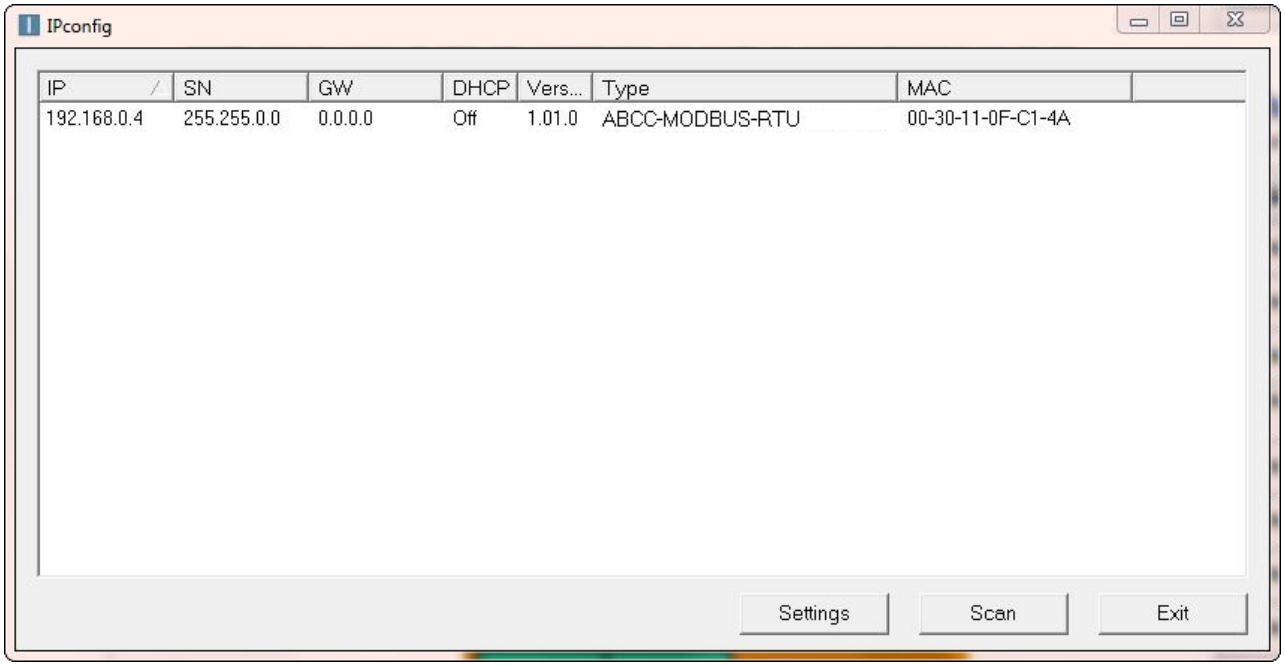


Fig. 7 Example for Modbus (EtherNet/IP: *OptiStroke EIP*)

4. (At least) one gateway appears in the scan list. Double-click the mouse to select.

NOTE: If an EtherNet board is used, the type designation is *OptiStroke EIP*.

One of the following two windows appears:

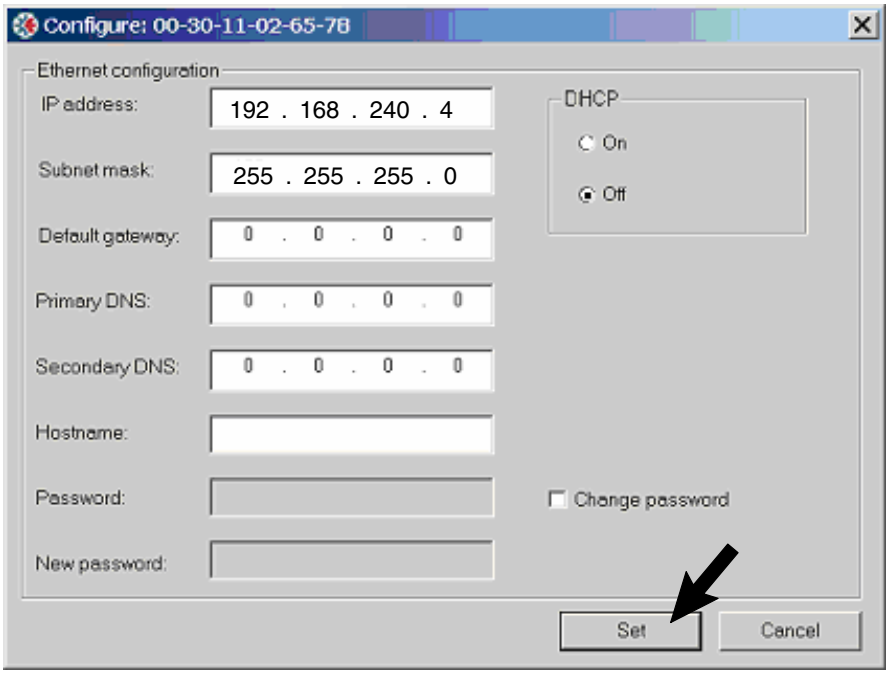


Fig. 8 Modbus

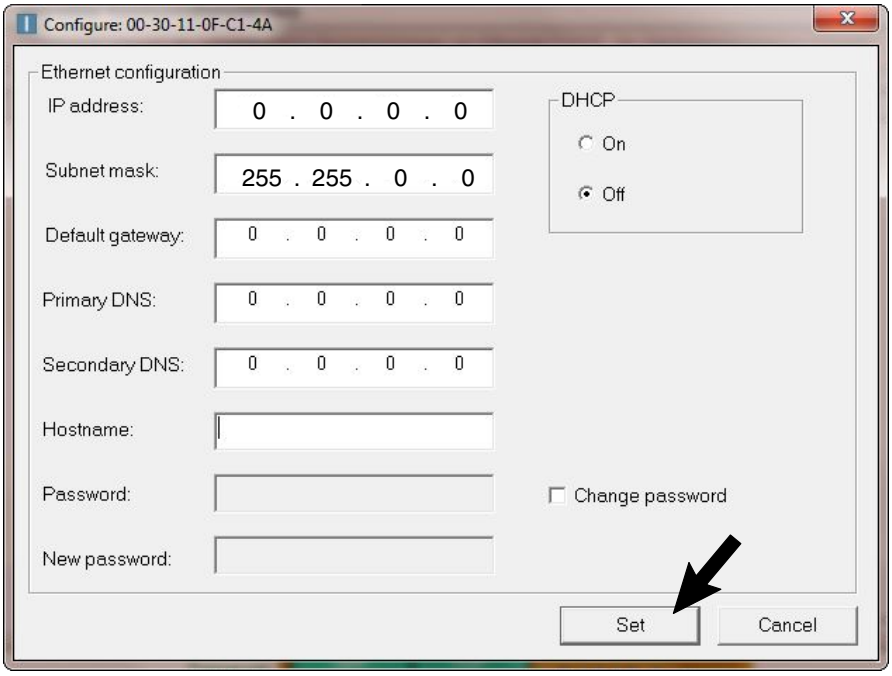
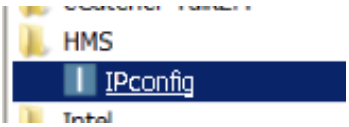


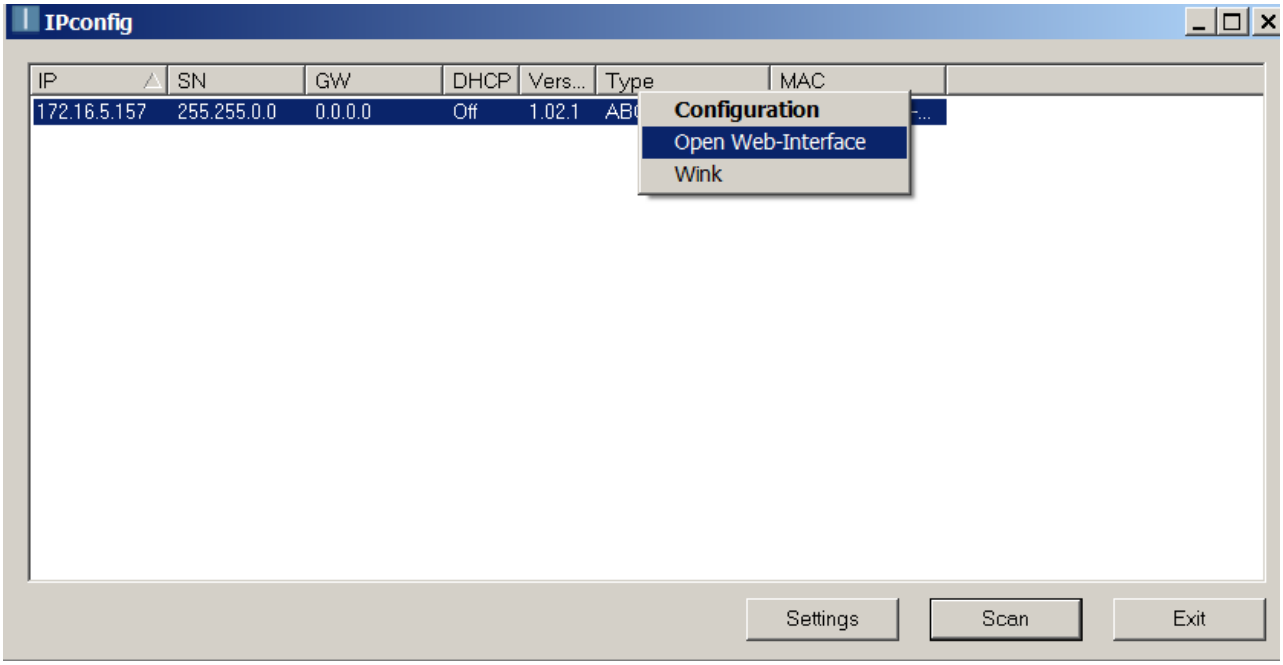
Fig. 9 EtherNet/IP

5. Set the desired IP configuration.
6. Press *Set* to close the window.

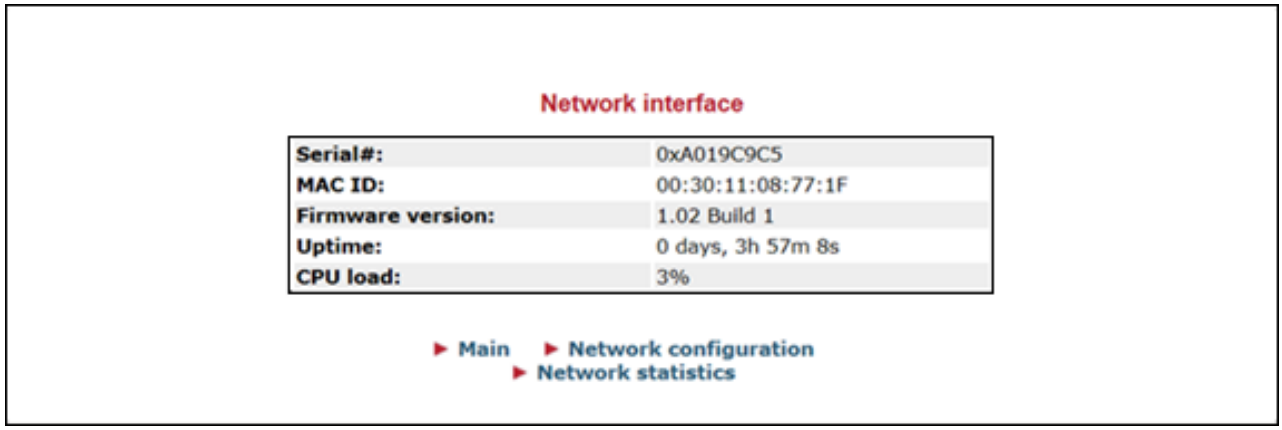
Checking and Changing OptiStroke EtherNet/IP Adapter Settings



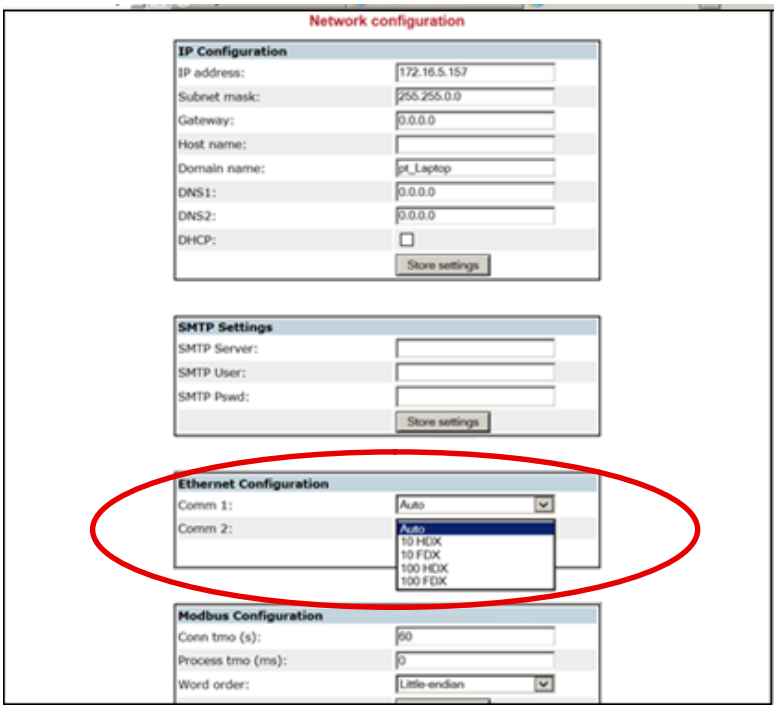
1. Start the software *HMS-IP Config*.
2. Select the *OptiStroke* found, then use the right mouse button to select *Open WEB-Interface*.



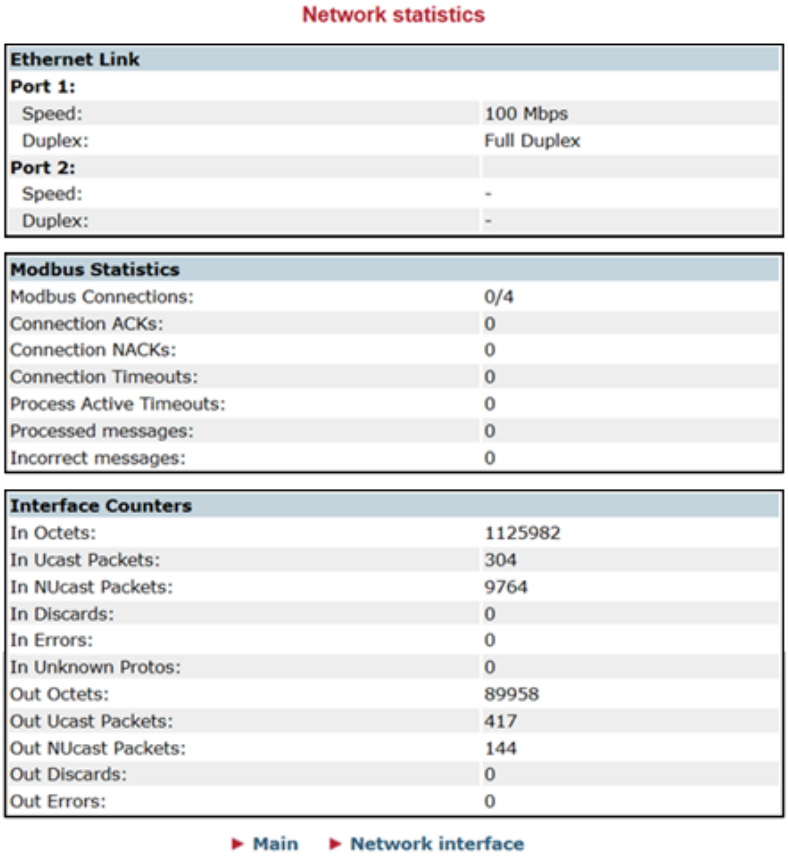
3. Select *Network configuration*.



4. Under *Ethernet configuration* (EtherNet Configuration), select *AUTO* for *Comm 1* and *Comm 2*.



NOTE: The current connection speed is shown under *Network statistics*.



Network statistics

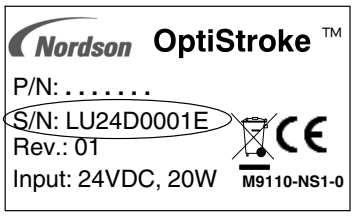
Ethernet Link	
Port 1:	
Speed:	100 Mbps
Duplex:	Full Duplex
Port 2:	
Speed:	-
Duplex:	-

Modbus Statistics	
Modbus Connections:	0/4
Connection ACKs:	0
Connection NACKs:	0
Connection Timeouts:	0
Process Active Timeouts:	0
Processed messages:	0
Incorrect messages:	0

Interface Counters	
In Octets:	1125982
In Ucast Packets:	304
In NUcast Packets:	9764
In Discards:	0
In Errors:	0
In Unknown Protos:	0
Out Octets:	89958
Out Ucast Packets:	417
Out NUcast Packets:	144
Out Discards:	0
Out Errors:	0

▶ Main ▶ Network interface

Changing OptiStroke IP Address (Serial Number with E)



NOTE: The procedure described in this section applies only to *OptiStroke* devices that have the ID plate shown on the left (example of information indicated). They can be recognized by the **E** at the end of the serial number (S/N). The description in the previous section applies to older *OptiStroke* devices!

Upon delivery, *OptiStroke* has the IP address 192.168.240.4 for Modbus-TCP and for EtherNet/IP. This IP address can be changed.

The software that has to be used depends on which *OptiStroke* box (Modbus or EtherNet/IP) is used.

Setting up IP Address of Modbus Interface

NOTE: The most recent software version can be downloaded onto a PC or laptop via the link https://nordson.info/OptiStrokeGen2_SW or by scanning the QR code application documentation (Instruction P/N 7186685).

Installing Configuration Software

1. Run the file *Modbus-IP Config-E.exe* on a PC or laptop to install the current version.
2. Click *Modbus-IP Config-E* to start the program. The following starting screen appears:

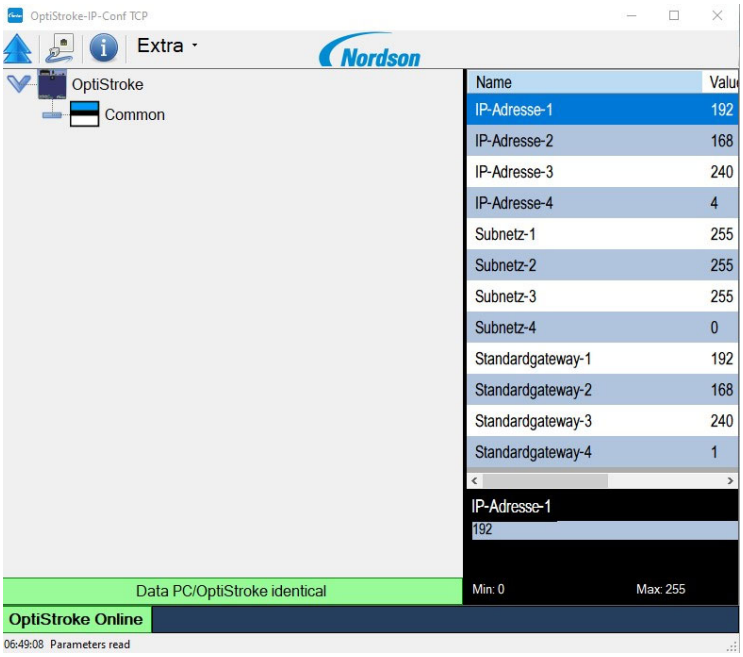
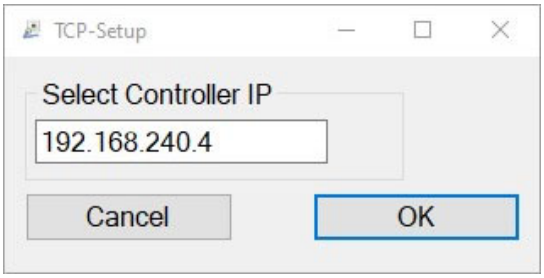


Fig. 10 Button and starting screen of configuration program

Setting Current OptiStroke IP Address

1. Click  (Fig. 10) in the starting screen. Set the current IP address in the TCP selection field.

   The following window opens:

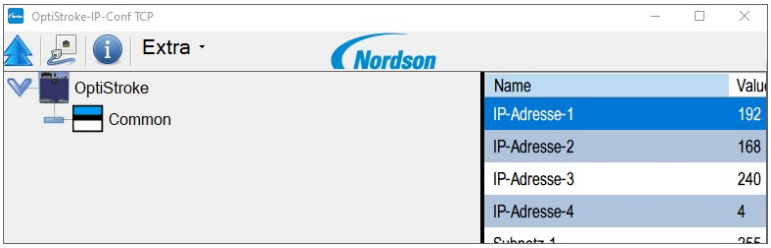


2. Enter the standard setting 192.168.240.4 and confirm with OK.
3. Switch on the *OptiStroke* box and establish an EtherNet connection to the PC/laptop to download the IP address parameters from the *OptiStroke* box.

Changing Current OptiStroke IP Address

The IP addresses are shown by line in Figure 10. Four consecutive lines form an IP address.

1. Select the first line of an IP address block, in this example: IP address 1.



The name and value of the IP address are also shown in the block at the end of the table:

2. Enter the IP address or select it with the arrow.
3. Confirm with *Enter*.
4. Repeat this procedure until all of the required IP addresses have been set.
5. Then restart the *OptiStroke* box to save the new IP addresses.

Resetting OptiStroke IP Address

If the current IP address of the *OptiStroke* box is not known, the address can be reset to 192.168.240.4.

1. Start up the *OptiStroke* box.
2. Connect the *OptiStroke* box to a PC/laptop.

Prerequisite: *OptiStroke* may not be in *Reset mode*.

WARNING: Risk of electrical shock!

Follow the safety regulations regarding working on live (energized) parts. Avoid touching conductors and open contacts.

3. Open the *OptiStroke* box.
4. Use an appropriate tool to short-circuit the two LOAD 5 pin headers for five seconds.

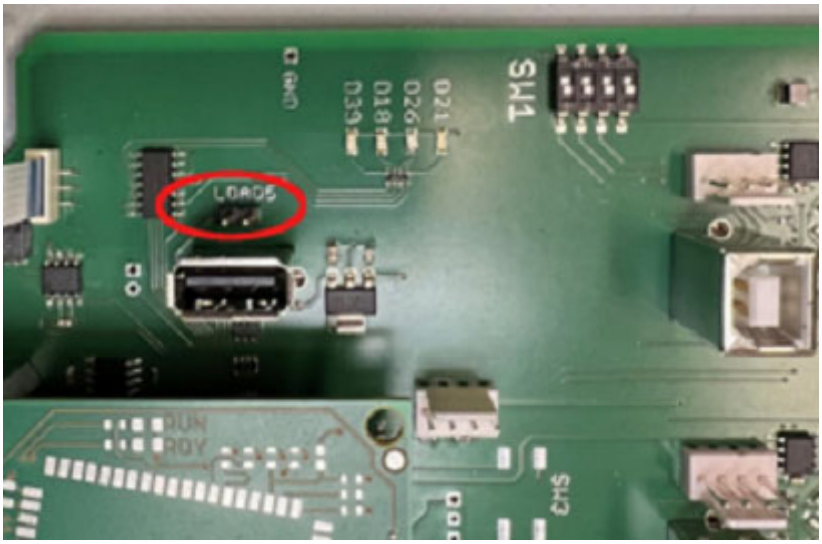


Fig. 11 Position of the two LOAD 5 pins

When D39 stops flashing and remains on, the time has been reached and the *OptiStroke* temporarily changes to the address 192.168.240.4.

NOTE: It can take about one minute until the new address is detected in the system and then shown.

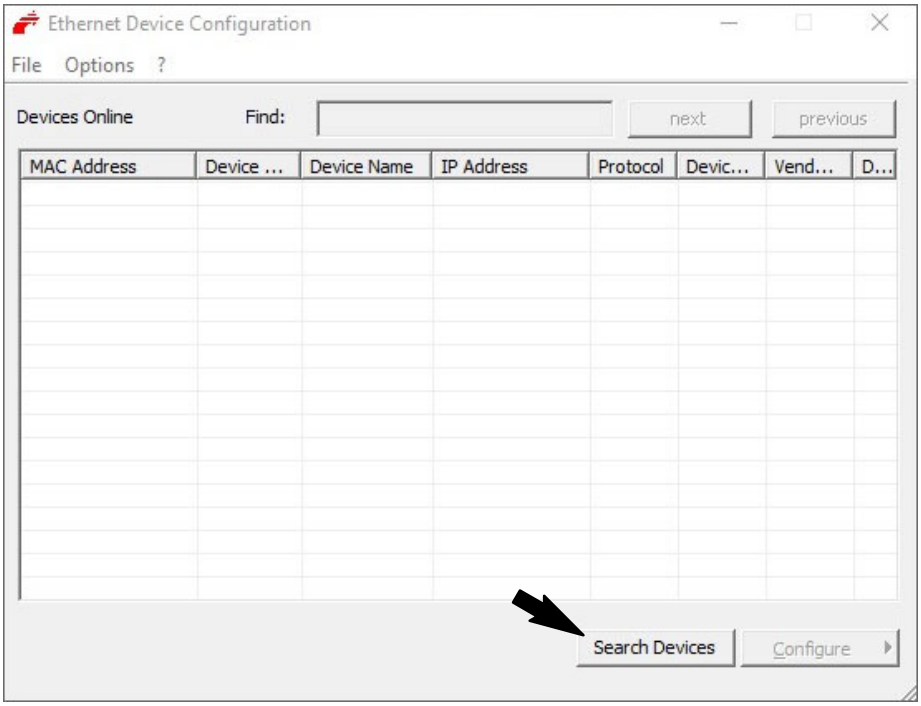
5. Enter a new IP address of your choosing using the configuration software *Modbus-IP Config-E*. Refer to *Setting Current OptiStroke IP Address*.

Setting up IP Address of EtherNet Interface

NOTE: The most recent software version can be downloaded onto a PC or laptop via the link https://nordson.info/OptiStrokeGen2_SW or by scanning the QR code application documentation (Instruction P/N 7186685).

Installing Configuration Software

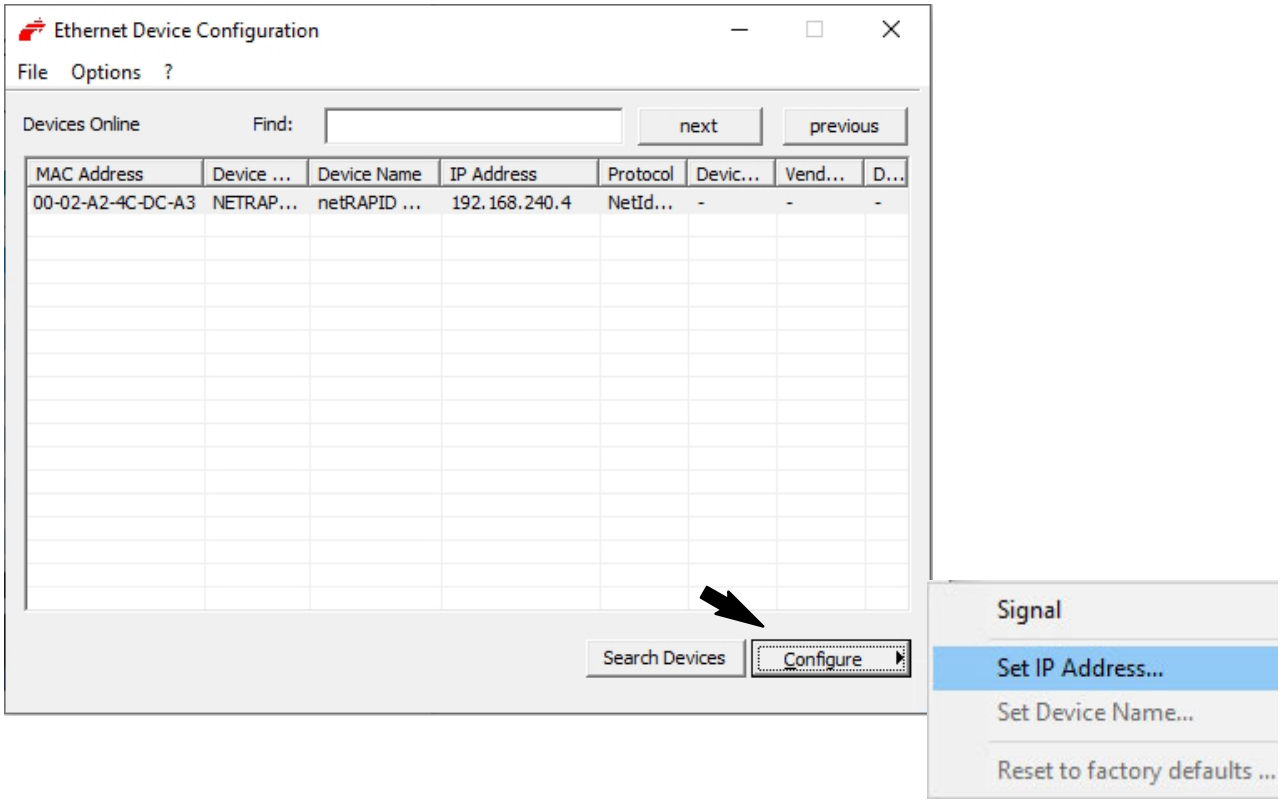
1. Run the *Ethernet-IP Config-E* file on a PC or laptop to install the current version of *OptiStroke-IP-Config*.
2. Click *Ethernet-IP Config-E* to start the configuration program. The following starting screen appears:



3. Click *Search Devices* at the bottom of the screen.

A list opens:

4. Select the desired device (in this case, the first line).

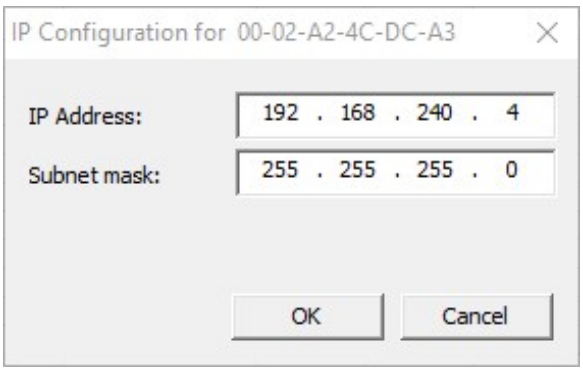


5. Click *Configure*.

A list opens:

6. Select *Set IP Address ...*.

An input window opens:



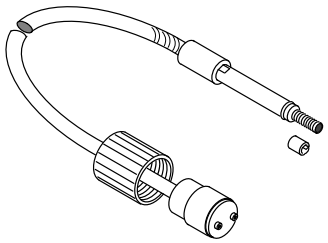
7. Enter the IP address 192.168.240.4 and confirm with OK.
8. If there are multiple *OptiStroke* boxes, repeat the procedure with different IP addresses.

Addition or Modification of Control Modules

If *OptiStroke* is to be used and the control modules are not yet equipped with a threaded bore for optical fiber cables, add either suitable control modules or module caps to the existing control modules.

CAUTION: These tasks may be performed only by qualified personnel, following the instructions in the manual for the respective applicator!

Connecting Optical Fiber Cables



The optical fiber cables provide the optical connection between the control modules on the applicator and the *OptiStroke*.

1. Wipe the end of the optical fiber cable with a clean, lint-free cloth.
2. Screw the optical fiber cable (*sensor)* into the corresponding control module or into the module cap on the corresponding control module.

NOTE: Max. torque: 1.0 - 1.5 Nm (8.85 - 13.3 lb-in).

CAUTION: Optical fiber cables may be connected to Speed-Coat control modules **only** with the spacing sleeve (Refer to *Accessories*). This prevents the optical fiber cable from bumping into the nozzle stem.

3. Connect the other end of the optical fiber cable to the corresponding receptacle on the *OptiStroke* box and secure with the sleeve nut.

Operation

WARNING: Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

1. Switch on the customer's 24 V_{DC} voltage supply via the receptacle HAN for *OptiStroke* .
2. Verify that the system environment (controller, melter, heated hoses, applicator) is ready.
3. Start material application.
4. Switch off when production is finished.

Maintenance

OptiStroke

OptiStroke requires no maintenance.

Optical fiber cable inputs not in use should be closed with suitable dust caps to keep them clean.

Optical Fiber Cable

When a control module is replaced and the same optical fiber cable is to be used for the new module, wipe the end of the optical fiber cable with a clean, lint-free cloth.

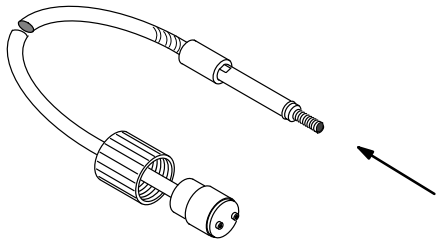


Fig. 12 End of optical fiber cable

NOTE: A dirty optical fiber cable may cause excessive transmitted light (greater than 99%). Correct measured values are guaranteed as long as the transmitted light is less than 100%.

Troubleshooting

NOTE: When in doubt, observe the troubleshooting instructions contained in the manuals for the other components of the hot melt application system.

Inside View

NOTE: The *OptiStroke* board is equipped with LEDs indicating various states.

The *OptiStroke* box has to be opened to be able to see these LEDs. The two LEDs (5, Figures 13 and 14) are located on the field bus board.

WARNING: Risk of electrical shock! Do not touch the board!

OptiStroke Box (Serial Number without E)

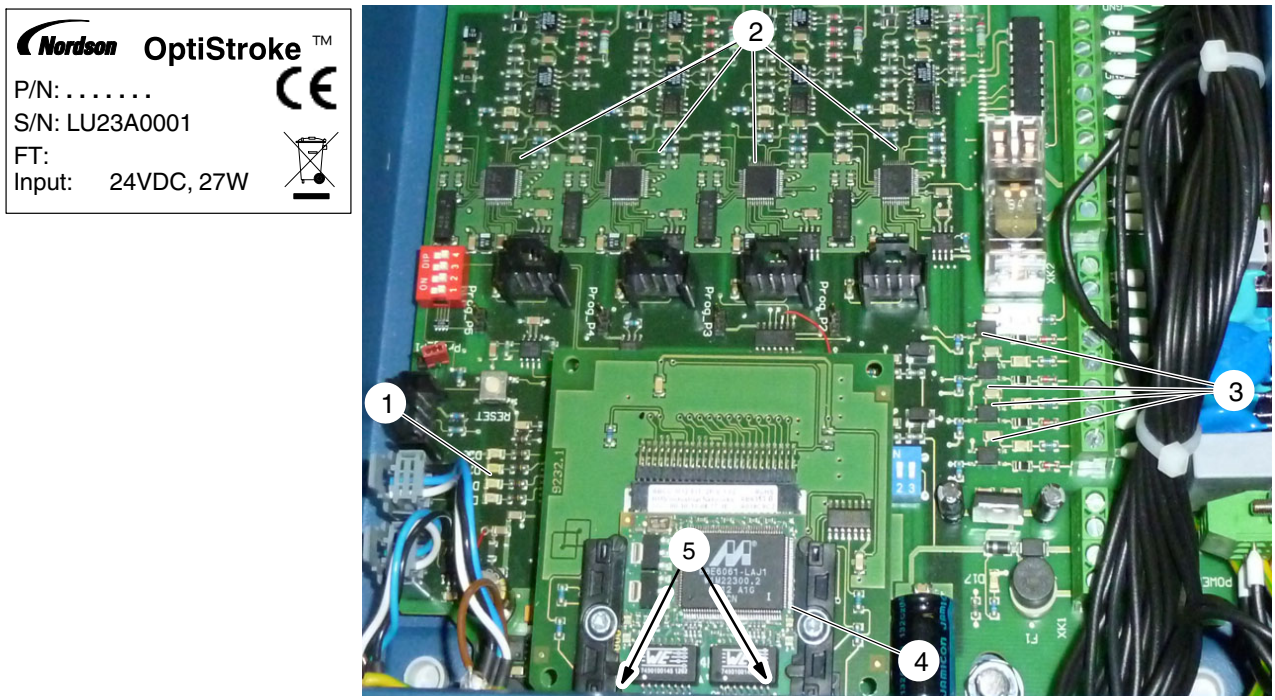


Fig. 13 Overview of the key components

1 Indicator beacon LEDs (D39, D18, D26, D21)
2 Transmitted light LEDs (D22 to D25)
3 Trigger LEDs (D27 to D30)
4 Field bus module
5 Link/Activity LEDs (not visible in the illustration)

OptiStroke Box (Serial Number with E)

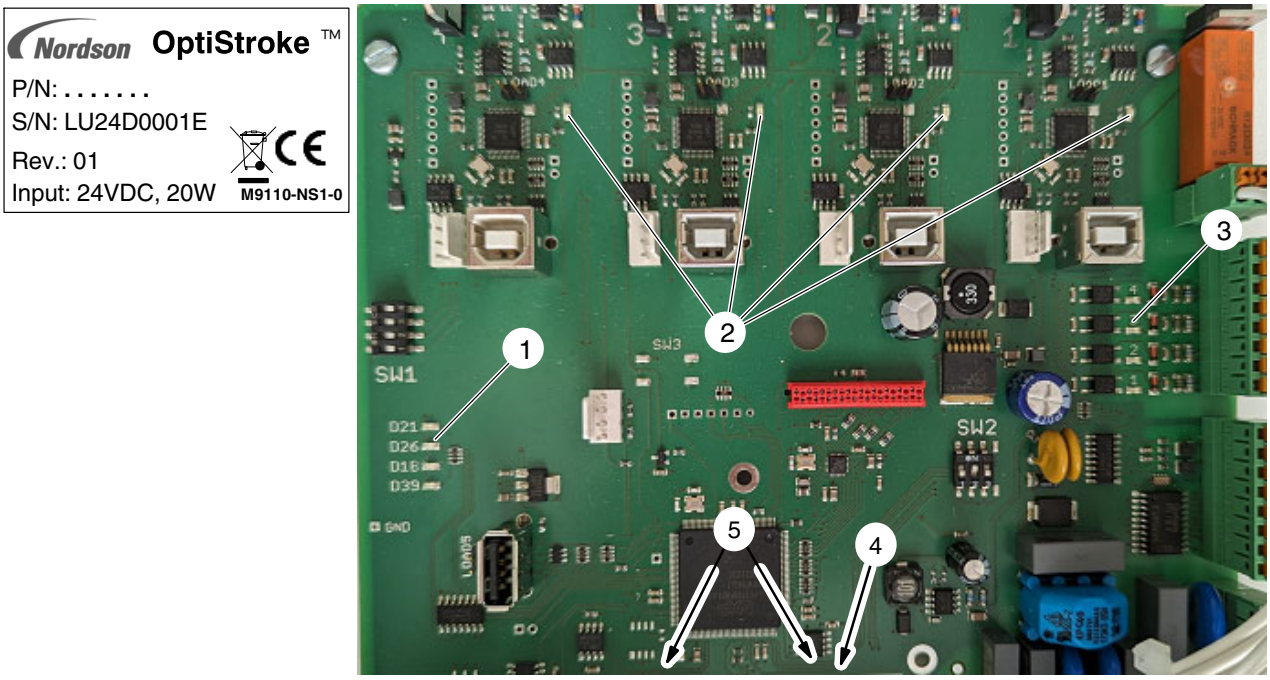


Fig. 14 Overview of the key components

1 Indicator beacon LEDs (D39, D18, D26, D21)
2 Transmitted light LEDs (load 1 to 4)
3 Trigger LEDs (1 to 4)
4 Field bus board (not visible in the illustration)
5 Link/Activity LEDs (not visible in the illustration)

Indicator Beacon LEDs

The indicator beacons (1, Figures 13 and 14) supply information on the internal state of the program sequence. If all four LEDs are always dark, the program is not running.

Possible causes:

- No voltage supplied
- The microcontroller is not programmed
- The Reset prog jumper is still plugged into *Prog*.

Green LED (D39) - communication master-slave	
Flashing (every 250 ms)	Microcontroller working

Green LED (D18) - communication master-slave	
Flashing slowly (every 250 ms)	Internal CAN bus okay
Flashing quickly (every 100 ms)	Internal CAN bus not okay - Replace *OptiStroke*

Yellow LED (D26) - master	
Off	No Com slave logged in
Flashing slowly (every 250 ms)	External CAN bus okay
Flashing quickly (every 100 ms)	External CAN bus not okay - Activate DIP switch for terminating resistor - Check connecting line, replace if necessary - Replace *OptiStroke*
Yellow LED (D26) - slave	
Off	Com slave number = 0
Flashing slowly (every 250 ms)	External CAN bus okay (master is connected)
Flashing quickly (every 100 ms)	External CAN bus not okay (master is not connected)

Red LED (D21) - master	
Off	External CAN bus okay
Flashing (every 200 ms)	External CAN bus not okay (an external CAN node is missing)
Yellow LED (D21) - slave	
Off	External CAN bus okay (master is connected)
Flashing (every 200 ms)	External CAN bus not okay (master is not connected)

Transmitted Light LEDs

NOTE: Also refer to 2, Figures 13 and 14.

Green LEDs (Fig. 13: D22 to D25 and Fig. 14: Load 1 to 4)	
Not illuminated	Transmitted light OK (< 100%)
Lit	Transmitted light not okay (> 95%) (e.g. optical fiber cables polluted)

Trigger LEDs

NOTE: Also refer to 3, Figures 13 and 14.

Green LEDs (Fig. 13: D27 to D30 and Fig. 14 1 to 4)	
Not flashing	There is no trigger signal - Connect or switch on the higher-ranking controller
Lightening (at trigger frequency)	The polarity of the trigger inputs may be reversed
Flashing (at trigger frequency)	The trigger LEDs indicate the trigger state

Link/Activity LEDs for Port 1 and 2

NOTE: Also refer to 5, Figures 13 and 14.

Signal	State of field bus board
Off	No connection, no activity
Illuminated green	Connection (100 Mbit/s) made
Flickers green	Operating (100 Mbit/s)
Illuminated yellow	Connection (10 Mbit/s) made
Flickers yellow	Operating (100 Mbit/s)

Technical Data

Casing dimensions	approx. 20 cm x 9 cm x 24 cm (W x H x D)		
Weight	approx. 1.5 kg		
Number of channels	*Master* unit - 4 channels		
	Slave unit - 4 channels		
	Max. 7 *slave* units per *master* unit - max. 32 channels		
Voltage supply	+24 V_{DC} ± 10%		
Maximum connected load	27 W		
Degree of protection	IP 54		
Permitted ambient temperature	At optical fiber cable	Up to 230 °C	Up to 446 °F
	At casing	- 5 to 50 °C	23 to 122 °F
Permitted storage temperature		- 45 to 75 °C	- 50 to 167 °F
Maximum height above zero		3000 m	9840 ft
Humidity	10 to 95 %, not condensing		

Casing Dimensions

OptiStroke with Mounting Tabs

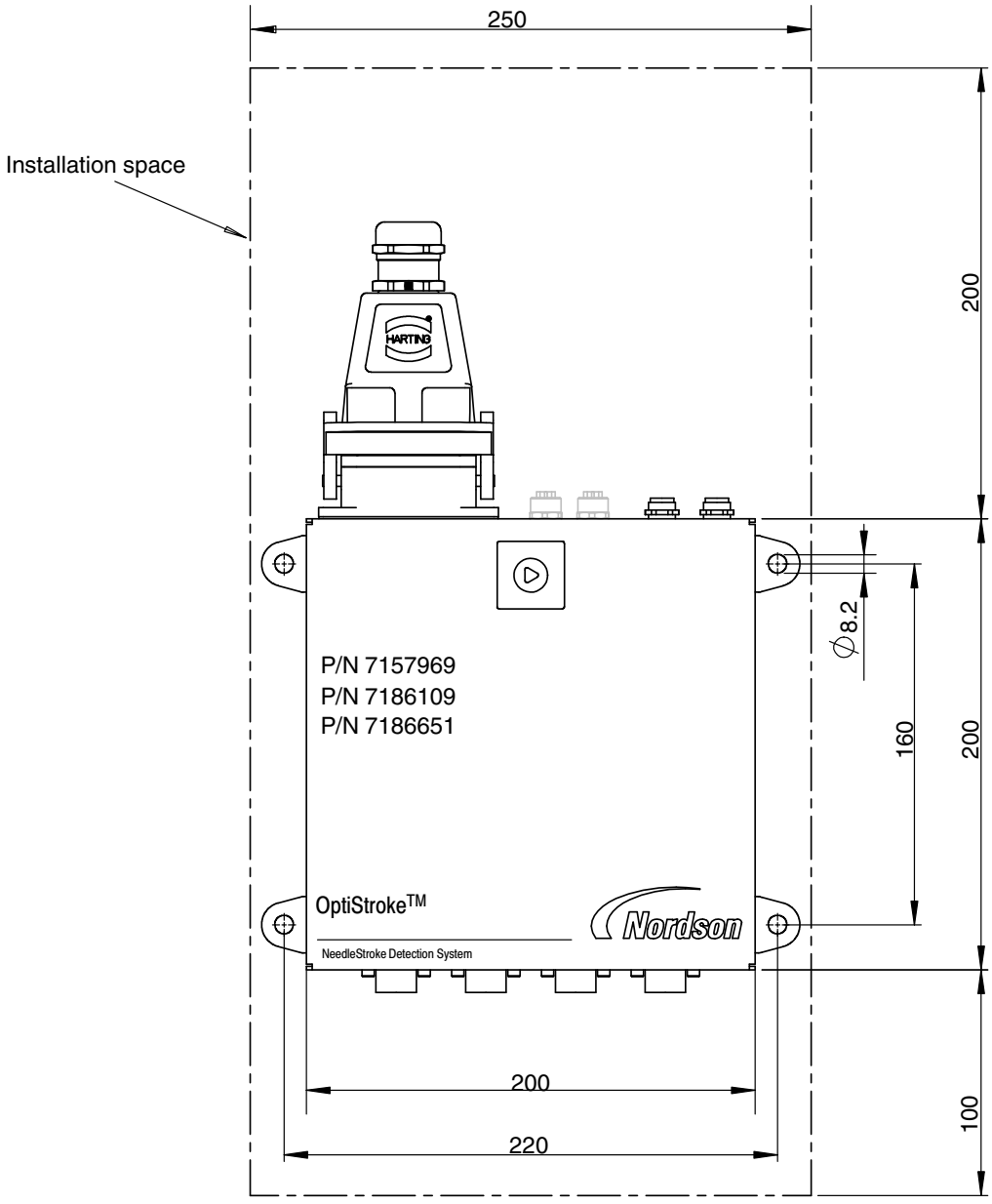


Fig. 15 Front view

Drilled Holes on Back Panel

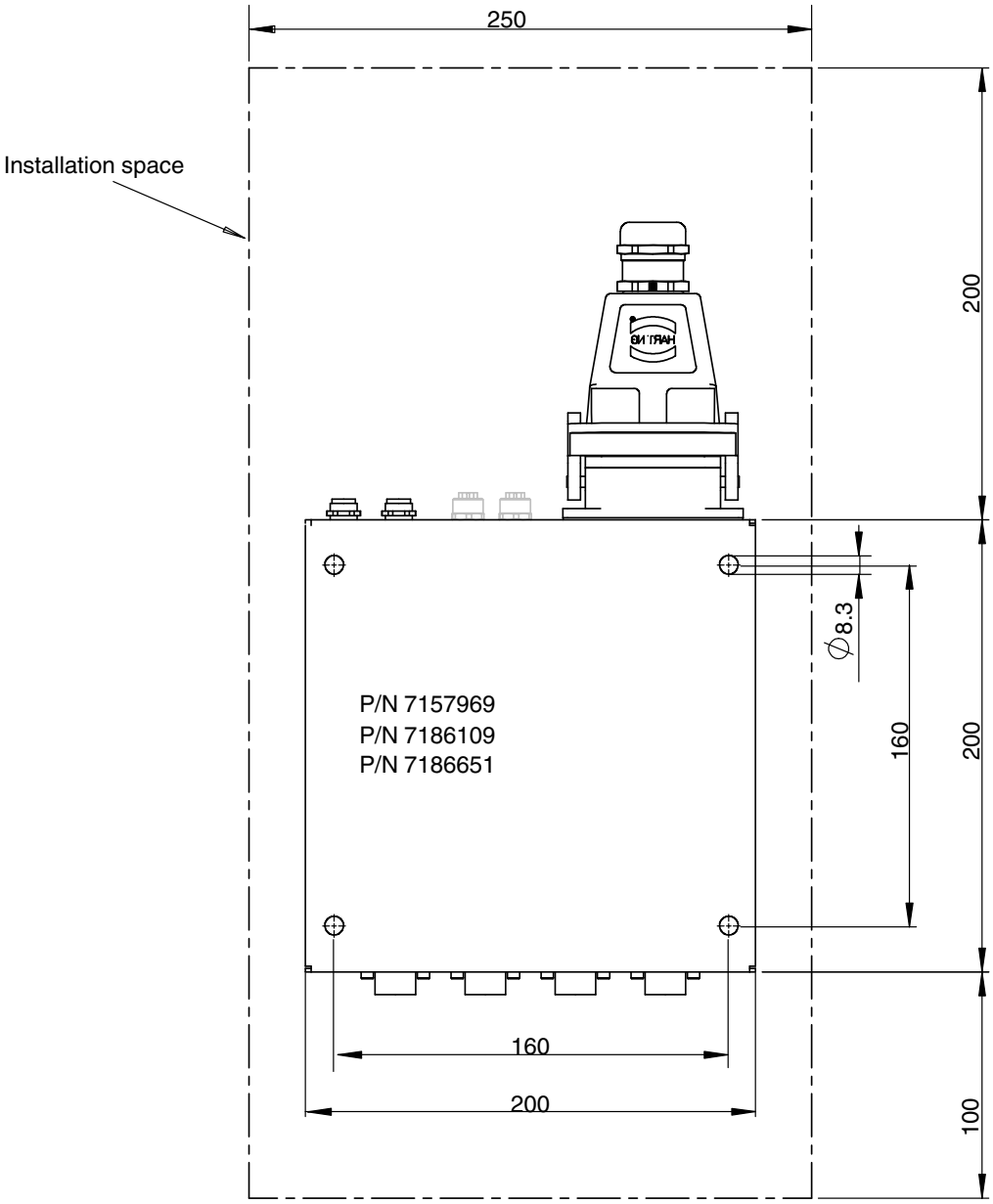


Fig. 16 Back view

Drilled Holes and Mounting Tabs (Back Panel)

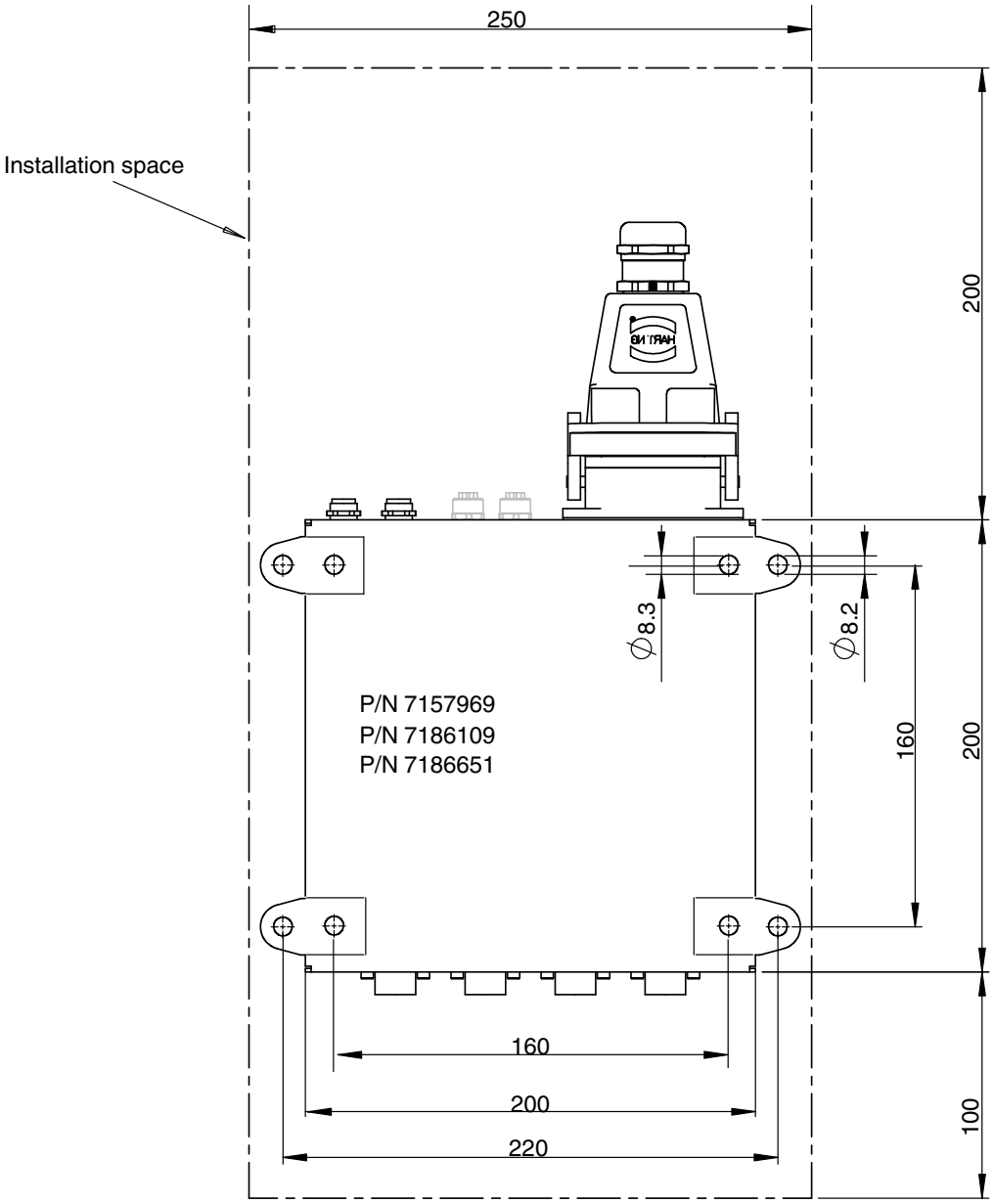


Fig. 17 Back view

Parts

Modbus TCP - Master

P/N	Description
7157969	OptiStroke Gen. 2 Master kit w. Modbus TCP
7157968	• OptiStroke Gen. 2 Master control unit, 4 channels, 24 V_{DC} w. Modbus TCP
-	• Socket insert HAN24DD, 24-pole, 10A, 250V
-	• Bush housing HAN06E, 06-pole, 16 A, M 32
-	• Reducing ring metal, M 32 x 1,5 / M 25 x 1,5
-	• Conduit connection, metal M25, Skintop
-	• Contact female, 1,00,qmm, CRIMP, silver
207880	• Plug, CAN-Bus, M12, terminating resistor
7186528	• Socket, CAN-Bus, M12, terminating resistor
7186685	• CD w.OptiStroke Gen.2 Docu - no longer available beginning August 2024 - Replaced by: • Instruction OptiStroke Gen. 2 Tools/Docu

EtherNet/IP - Master

P/N	Description
7186651	OptiStroke Gen. 2 Master kit w. EtherNet/IP
7186650	• OptiStroke Gen. 2 Master control unit, 4 channels, 24 V_{DC} w. EtherNet/IP
-	• Socket insert HAN24DD, 24-pole, 10A, 250V
-	• Bush housing HAN06E, 06-pole, 16 A, M 32
-	• Reducing ring metal, M 32 x 1,5 / M 25 x 1,5
-	• Conduit connection, metal M25, Skintop
-	• Contact female, 1,00,qmm, CRIMP, silver
207880	• Plug, CAN-Bus, M12, terminating resistor
7186528	• Socket, CAN-Bus, M12, terminating resistor
7186685	• CD w.OptiStroke Gen.2 Docu - no longer available beginning August 2024 - Replaced by: • Instruction OptiStroke Gen. 2 Tools/Docu

Expansion Kit (for Both Field Buses)

P/N	Description
7186109	OptiStroke Gen.2 Expansion Kit
7186108	• OptiStroke control unit, 4 channels, 24 V_{DC}
-	• Socket insert HAN24DD 24-pole 10A 250V
-	• Bush housing HAN06E 06-pole 16A M32
-	• Reducing ring metal M32x1,5/M25x1,5
-	• Conduit connection,metal M25 Skintop
-	• Contact female 1,00qmm CRIMP silver

Optical Fiber Cables

P/N	Description
462885	Optical fiber cables, length = 1 m
462886	Optical fiber cables, length = 2 m
462887	Optical fiber cables, length = 3 m
462888	Optical fiber cables, length = 4 m
462889	Optical fiber cables, length = 5 m
Note:	All optical fiber cables are incl. adapter bushing for OptiStroke Sensor

Accessories

P/N	Description
730185	Cable CAN-Bus M12 socket / plug 4,0m
7115693	Cable CAN-Bus M12 socket / plug 6,0m
7117152	Cable CAN-Bus M12 socket / plug 8,0m
730829	Cable CAN-Bus M12 socket / plug 10,0m
466480	Cable CAN-Bus M12 socket / plug 15,0m
7122114	Cable CAN-Bus M12 socket / plug 20,0m
7157970	Ethernet cable RJ45-M12 10m
207880	Plug, CAN-Bus, M12, terminating resistor
7186528	Socket, CAN-Bus, M12, terminating resistor
7103663	Adapter bushing for OptiStroke Sensor - **NOTE:** For all optical fibers on SpeedCoat modules!

Modbus TCP

WARNING: Comply with all safety instructions and regulations concerning energized unit components (active parts). Failure to observe may result in an electric shock.

General Information

The Modbus TCP interface is used to centrally compile and process process data. Data is exchanged between the customer's machine and *OptiStroke* via ADIs (Application Data Instances).

NOTE: Modbus TCP does not support real cyclical data exchange.

Modbus TCP is based on the master/slave architecture. The customer's control system must also have a Modbus TCP master interface.

Modbus TCP complies with the standard IEC 61158.

Interface Features

- Data:
  - Status information
  - Alarms and errors
  - Control signals
  - Actual values
  - Setpoints
  - Limit parameters
- The byte sequence of the data in *Word* format is based on the Intel format (least significant byte first, 16 bit signed integer).

Interface

- Hardware: Field bus interface in the *OptiStroke* casing
- Classification: Slave
- Data transmission rate: 10 to 100 MBit/s
- Connection method: M 12, twisted pair line - 10baseT-UTP, located at the gateway in the electrical cabinet

OptiStroke Address

Each unit on the *Modbus* needs its own IP address for communication purposes. Each address may be assigned only once in the entire network.

- Default of Modbus in *OptiStroke*

  IP address 192.168.240.4

- Address setting

  Refer to *Installation - Changing OptiStroke IP Address* earlier in this customer product manual.

Installation

WARNING: Before opening the electrical cabinet: Disconnect the electrical cabinet from the line voltage.

Connecting Modbus Line

CAUTION: Lay the Modbus cable in the system such that there is no risk of stumbling over it.

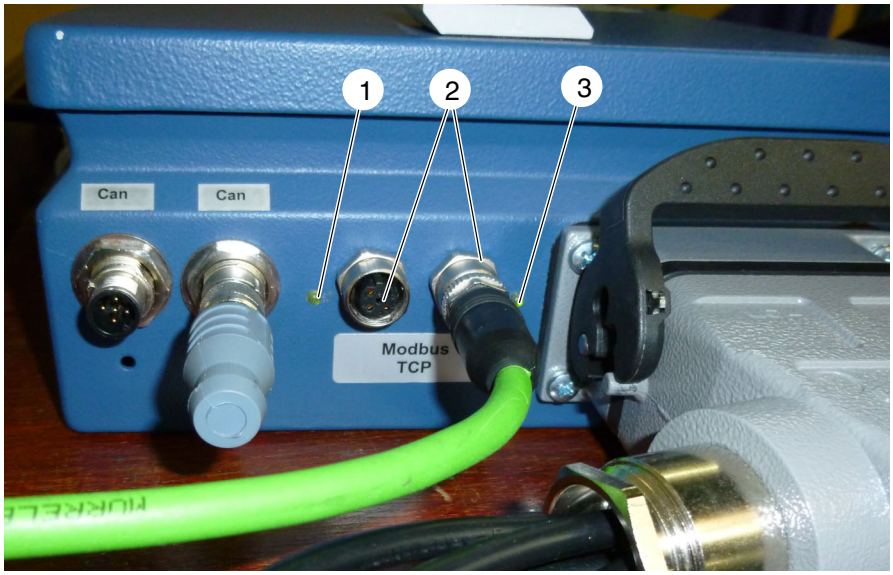


Fig. 1

1 LED 1 (network status)
2 Field bus data interfaces
3 LED 2 (module status)

1. Connect the Modbus line to the network receptacle (2).
2. Connect the free end of the Modbus line to the customer's controller.

Meaning of LEDs

LED 1 (1, Fig. 1) and LED 2 (3, Fig. 1) indicate the operating modes of the *OptiStroke* field bus data interface:

NOTE: The LEDs are tested during startup.

LED 1 - Network Status

Signal	OptiStroke operating mode
Off	No operating voltage or no IP address
Lights up green	Bus module is active or idle
Flashing green	Bus module waiting for connection
Lights up red	Network address assigned twice or grave fault
Flashing red	Time limit exceeded

LED 2 - Module Status

Signal	OptiStroke operating mode
Off	No operating voltage
Lights up green	Operating
Lights up red	Grave fault
Flashing red	Minor fault

Modbus TCP Features

Modbus TCP Data Exchange

The following Modbus TCP functions are implemented in the module (important functions **bold**):

Number	Function
1	Read outputs
2	Read inputs
3	**Read output data (status data, ADI 50 - 88)**
4	**Read input data (parameter data, ADI 1 - 16)**
5	Write single output
6	Write single data
15	Write multiple outputs
16	**Write multiple data (parameter data, ADI 1 - 16)**
23	Read/write multiple data
43	Read unit identification

Status and Parameter Data

Range	Contents
0000h - 00FFh	Read process data
0100h - 01FFh	Write process data
0200h - 0202h	(Reserved)
0203h	Process active timeout
0204h	Beginning/end waiting mode
0205h - 020Fh	(Reserved)
0210h - 022Fh	**ADI no. 1**
0230h - 024Fh	**ADI no. 2**
. . .	**. . .**
0CF0h - 0D0Fh	**ADI no. 88**

Example: Range for ADI 51

Start address = (51 - 1) x 32 + 528 = 2128 = 850h

End address = (51 - 1) x 32 + 528 + 31 = 2159 = 86Fh

EtherNet/IP

WARNING: Comply with all safety instructions and regulations concerning energized unit components (active parts). Failure to observe may result in an electric shock.

General Information

The EtherNet/IP interface is used to quickly transmit cyclical I/O (input/output) data and acyclical parameter data (*explicit messaging*).

EtherNet/IP was developed by Rockwell Automation and the ODVA (Open DeviceNet Vendor Association), and it was standardized according to IEC 61158.

The CIP protocol (Common Industrial Protocol) is used as the application protocol.

EtherNet/IP is based on the master/slave architecture. The customer's control system must also have an EtherNet/IP master interface.

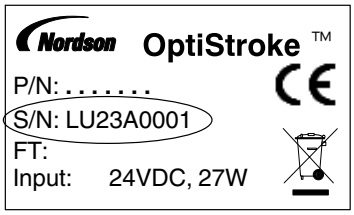
Interface Features

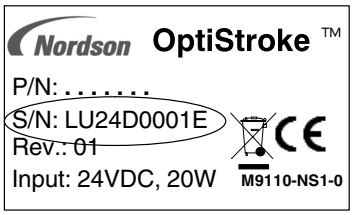
- Data:
  - Status information
  - Alarms and errors
  - Control signals
  - Actual values
  - Setpoints
  - Limit parameters
- The byte sequence of the data in *Word* format is based on the Intel format (least significant byte first, 16 bit signed integer).

Interface

- Hardware: Field bus interface in the *OptiStroke* casing
- Classification: Slave
- Data transmission rate: 10 to 100 MBit/s
- Connection method: M 12, twisted pair line - 10baseT-UTP, located at the gateway in the electrical cabinet

OptiStroke Address





Each unit on the *EtherNet/IP* needs its own IP address for communication purposes. Each address may be assigned only once in the entire network.

- Default of Modbus in *OptiStroke*

  IP address 0.0.0.0 (*OptiStroke* boxes with serial number **without** E)

  IP address 192.168.240.4 (*OptiStroke* boxes with serial number **with** E)

- Address setting

  Refer to *Installation - Changing OptiStroke IP Address* earlier in this customer product manual.

NOTE: The most recent version of EDS File can be downloaded onto a PC or laptop via the link https://nordson.info/OptiStrokeGen2_SW or by scanning the QR code application documentation (Instruction P/N 7186685).

Installation

WARNING: Before opening the electrical cabinet: Disconnect the electrical cabinet from the line voltage.

Connecting EtherNet Line

CAUTION: Lay the EtherNet cable in the system such that there is no risk of stumbling over it.

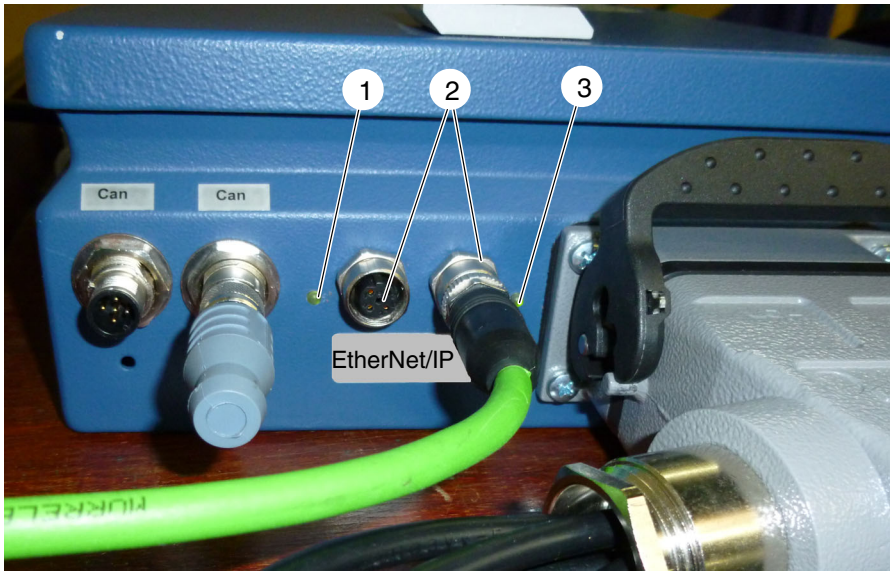


Fig. 1

1 LED 1 (network status)
2 Field bus data interfaces
3 LED 2 (module status)

1. Connect the EtherNet line to the network receptacle (2).
2. Connect the free end of the EtherNet line to the customer's controller or the switches.

Meaning of LEDs

LED 1 (1, Fig. 1) and LED 2 (3, Fig. 1) indicate the operating modes of the *OptiStroke* field bus data interface:

NOTE: The LEDs are tested during startup.

LED 1 - Network Status

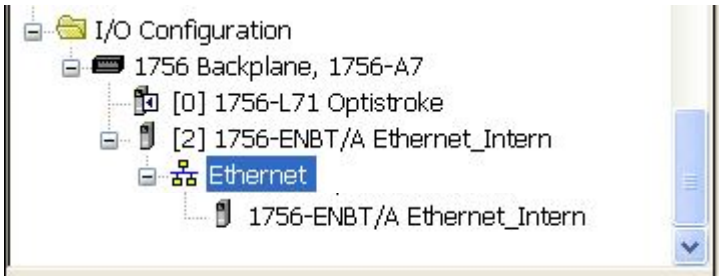
Signal	OptiStroke operating mode
Off	No operating voltage or no IP address
Lights up green	Bus module is ready. Connection has been made
Flashing green	Bus module waiting for connection
Lights up red	Network address assigned twice or grave fault
Flashing red	Fault: Connection - time exceeded

LED 2 - Module Status

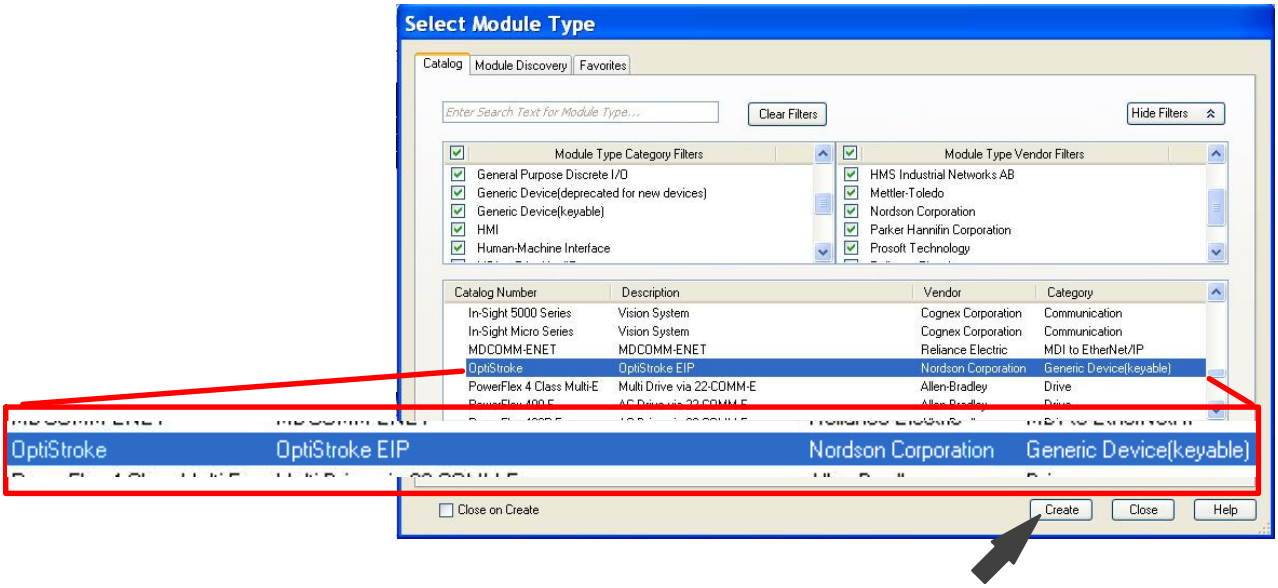
Signal	OptiStroke operating mode
Off	No operating voltage
Lights up green	Operating
Flashing green	Bus module not configured or scanner in idle mode
Lights up red	Grave fault
Flashing red	Minor fault

Incorporating OptiStroke with EtherNet/IP Interface in an RSLogix Project

1. Install the EDS file with the aid of the *EDS Hardware Installation* Tools.
2. Add the EtherNet module to the software.
3. In the software, go to *EtherNet* and click the right mouse key to add a new EtherNet module.



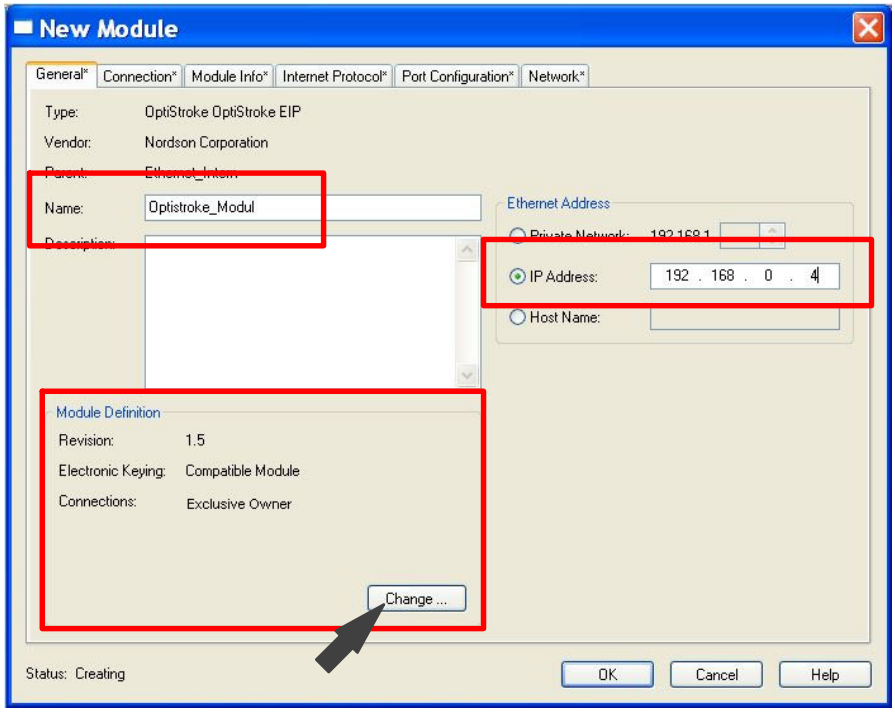
4. Find the EtherNet module *OptiStroke EIP* in the *Select Module Type* window.



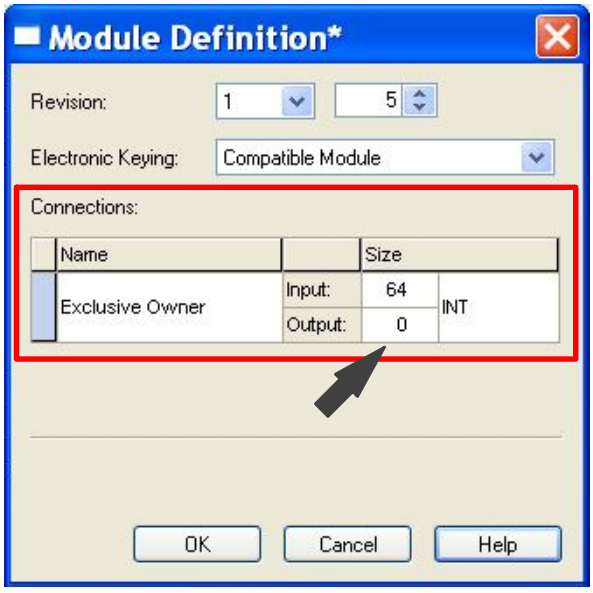
5. Click the button *Create* for the EtherNet module to be added to the I/O configuration.

6. Enter the name and the IP address for the new module in the input frame *New Module*.

   A name such as *OptiStroke_Module* can be entered. The IP address used must suit the properties of the customer's company intranet.



7. Click the button *Change* in the *Module Definition* box.
8. In the following screen, change *Input* from 16 to 64 and *Output* from 16 to 0, then enter INT in the last column.

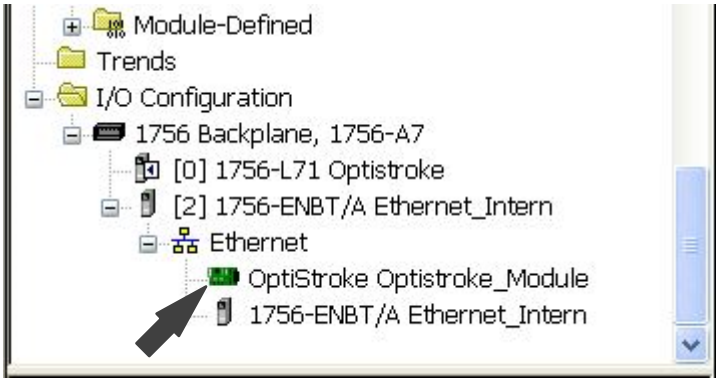


The *64 Words Input* in the illustration is the sum of the 32 words for ADI 51 and the 32 words for ADI 52:

- ADI 51: Module Opening time for channels 1 to 16
- ADI 51: Module Closing time for channels 1 to 16
- ADI 52: Module Opening time for channels 17 to 32
- ADI 52: Module Closing time for channels 17 to 32.

Also refer to the *Communication Data List* at the end of this customer product

When these various definitions have been completed, the *I/O Configuration* list has a new entry: ABCC Optistroke_Module

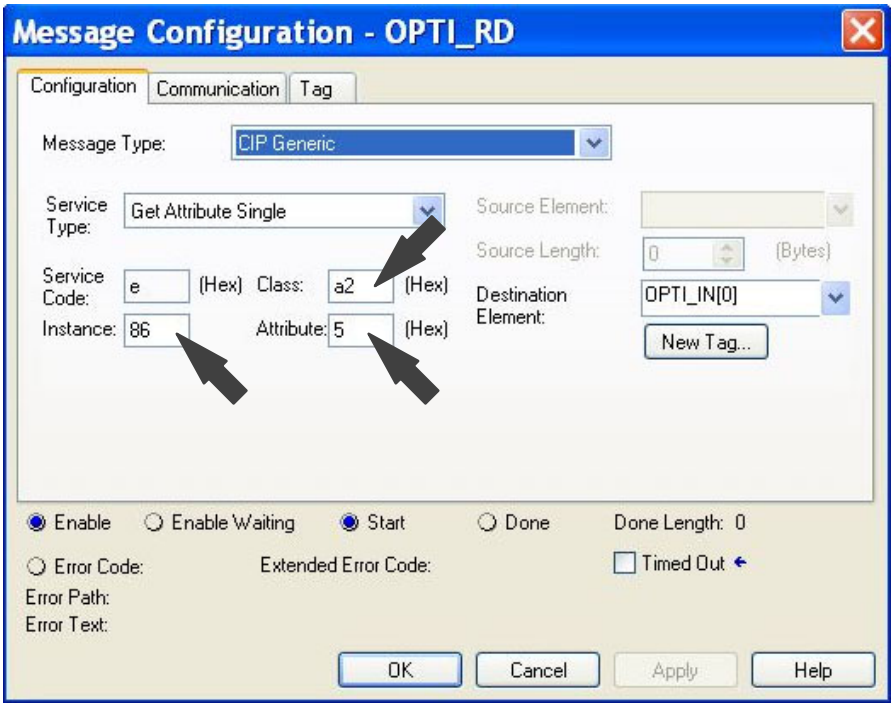


Reading Files

Data is read with the aid of the so-called *Message* commands.

The following illustration shows the read (RD = Read) settings that have to be changed:

1. Enter the value a2 for all parameters in the *Class* field.
2. Enter the value 5 *(Get/Set Value)* in the *Attribute* field.
3. *Instance* is an abbreviation of the *Application Data Instances* or ADIs shown here. They are explained later in this manual, in the Communication Data List.

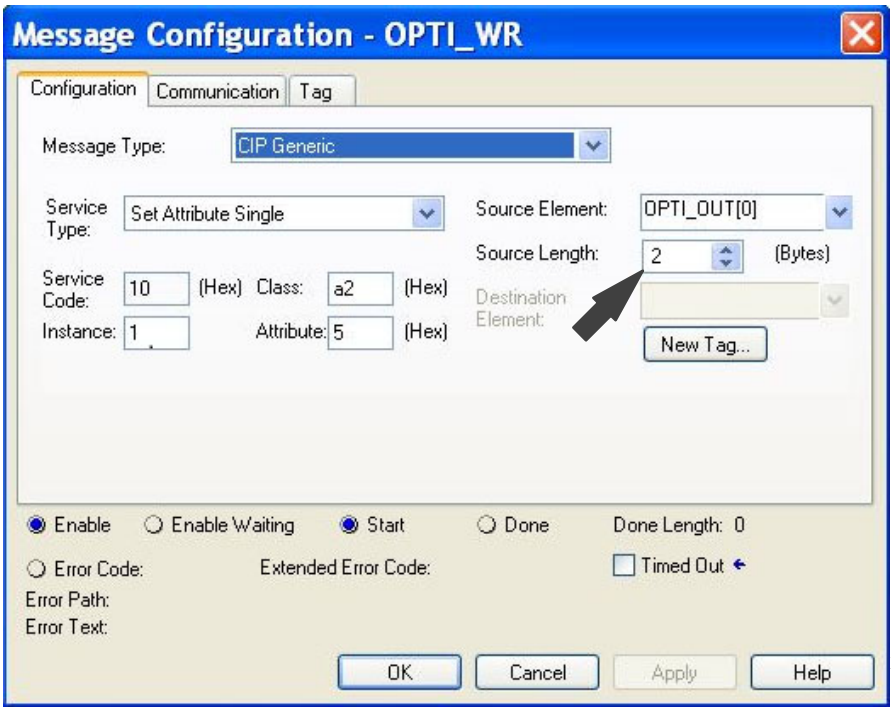


Writing Files

Data is written with the aid of the so-called *Message* commands.

The following illustration shows the write (WR = Write) settings.

The *Source Length* has to be entered when the data is write-protected.



Examples

ADI	Length in bytes
1	2
4	64
8	32
10	1

NOTE: Only data bytes are valid, not fill bytes!

Sample Programs for Reading and Writing All Parameters (Controller Tag Listing)

OPTISTROKE-Controller Tags Listing
OptiStroke (Controller)

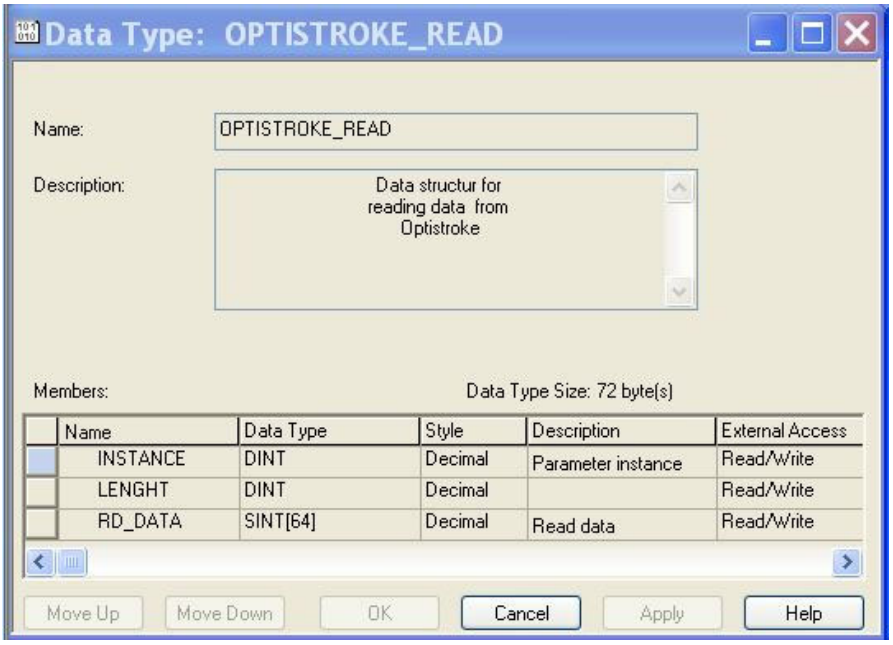
Page 1
21.07.2015 11:24:27
W:DatenControlloxicOptistroke2.ACD

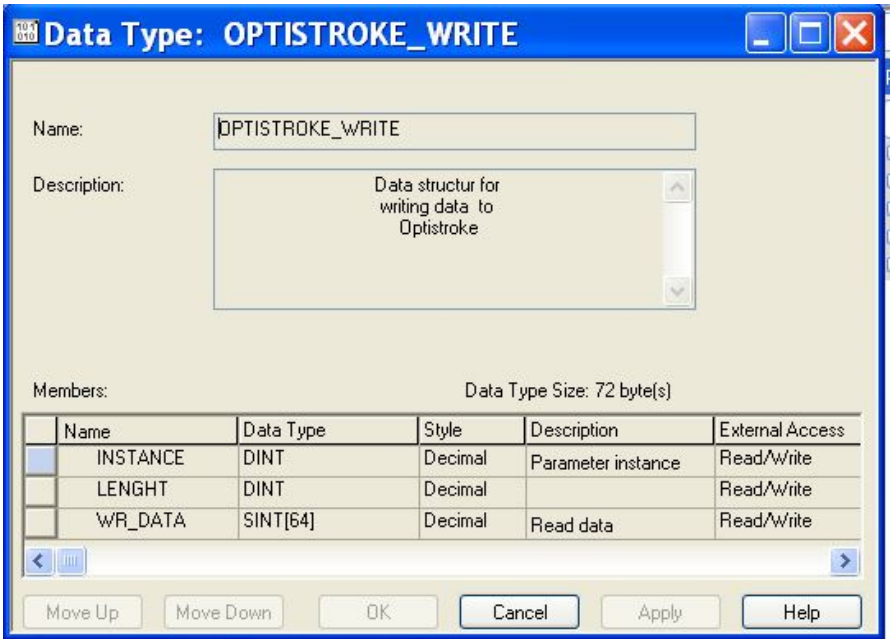
Show: All Tags
Sort by Name

Name	Data Type	Description
⊞-CNT_RD	DINT	Counter for reading orders
⊞-DELAY1	TIMER	Delay time, before reading received data
⊞-OPTI_IN	SINT[64]	
⊞-OPTI_OUT	SINT[64]	
⊞-OPTI_RD	MESSAGE	Mesage for reading data from optistroke
⊞-OPTI_WR	MESSAGE	Mesage for writing data to optistroke
⊞-OPTISTROKE_DATA_IN	OPTISTROKE_READ[50]	Data structur for reading data from Optistroke
⊟-Optistroke_Modul:I	_005A:ABCC_206C6173:I:0	
├-Optistroke_Modul:I.ConnectionFaulted	BOOL	
⊞-Optistroke_Modul:I.Data	INT[64]	
READ_DONE	BOOL	Reading order is finished
⊞-CNT_WR	DINT	counter for writing orders
⊞-OPTISTROKE_DATA_OUT	OPTISTROKE_WRITE[16]	Data structur for writing data to Optistroke
⊞-DELAY2	TIMER	delay time before enabling the mesage after writing the settings
WRITE_OK1	BOOL	parameters for writing order are set

RSLogix5000

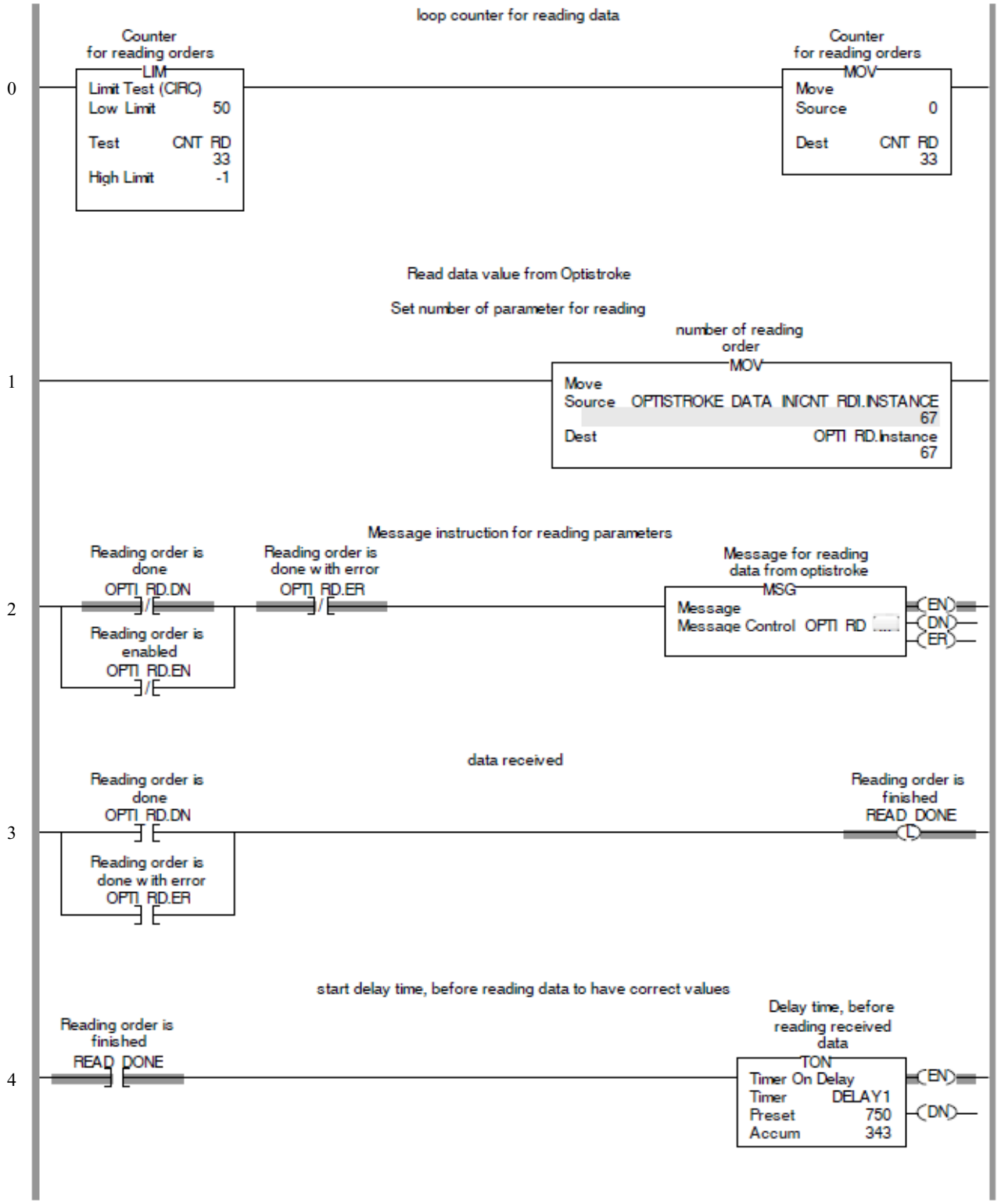
User Defined Data Types





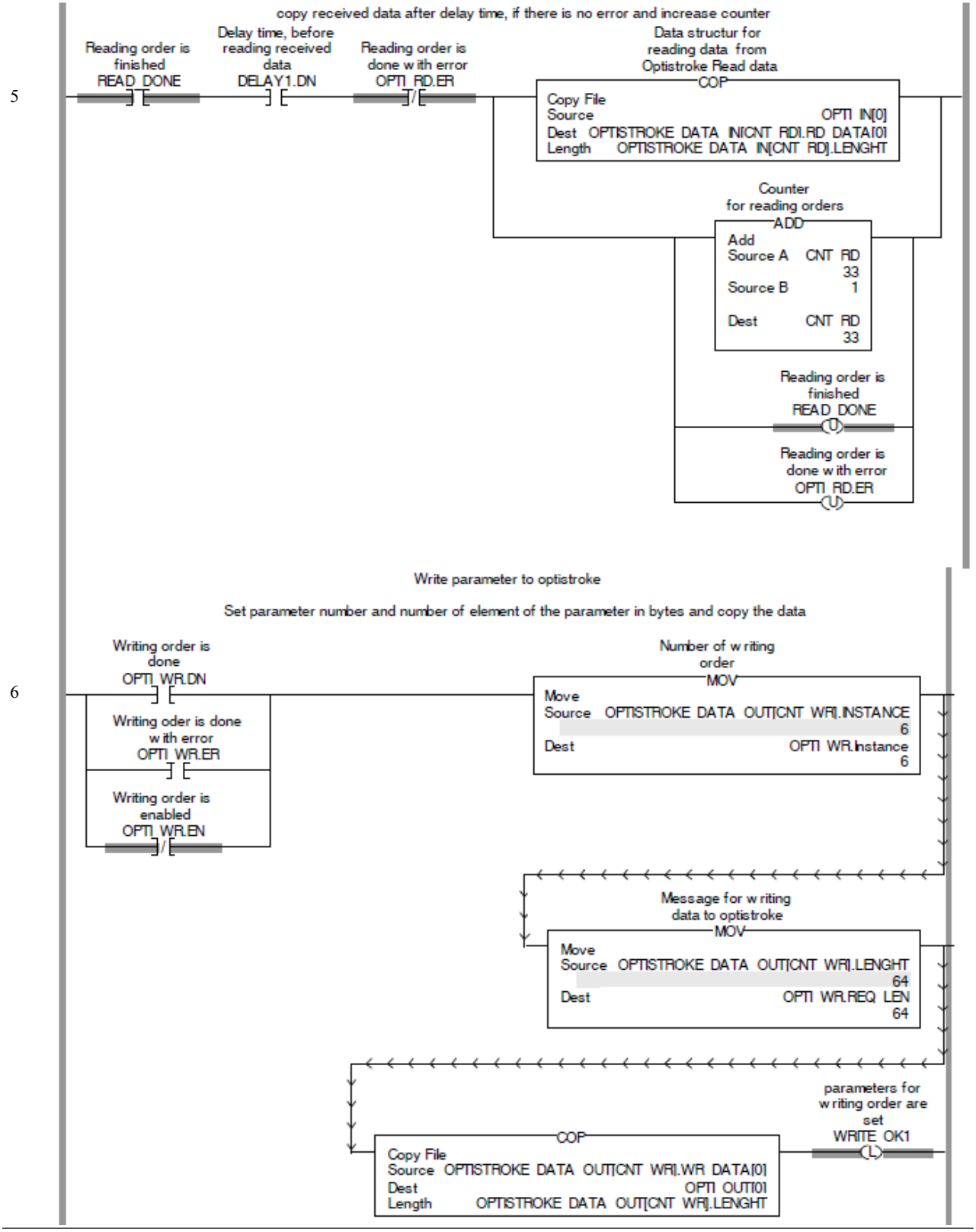
Program File / Ladder File

OPTISTROKE Ladder Diagram **Page 1**
OptiStroke:MainTask:MainProgram 21.07.2015 11:48:13
Total number of rungs in routine: 10 W:DatenControlloxicOptistroke2.ACD



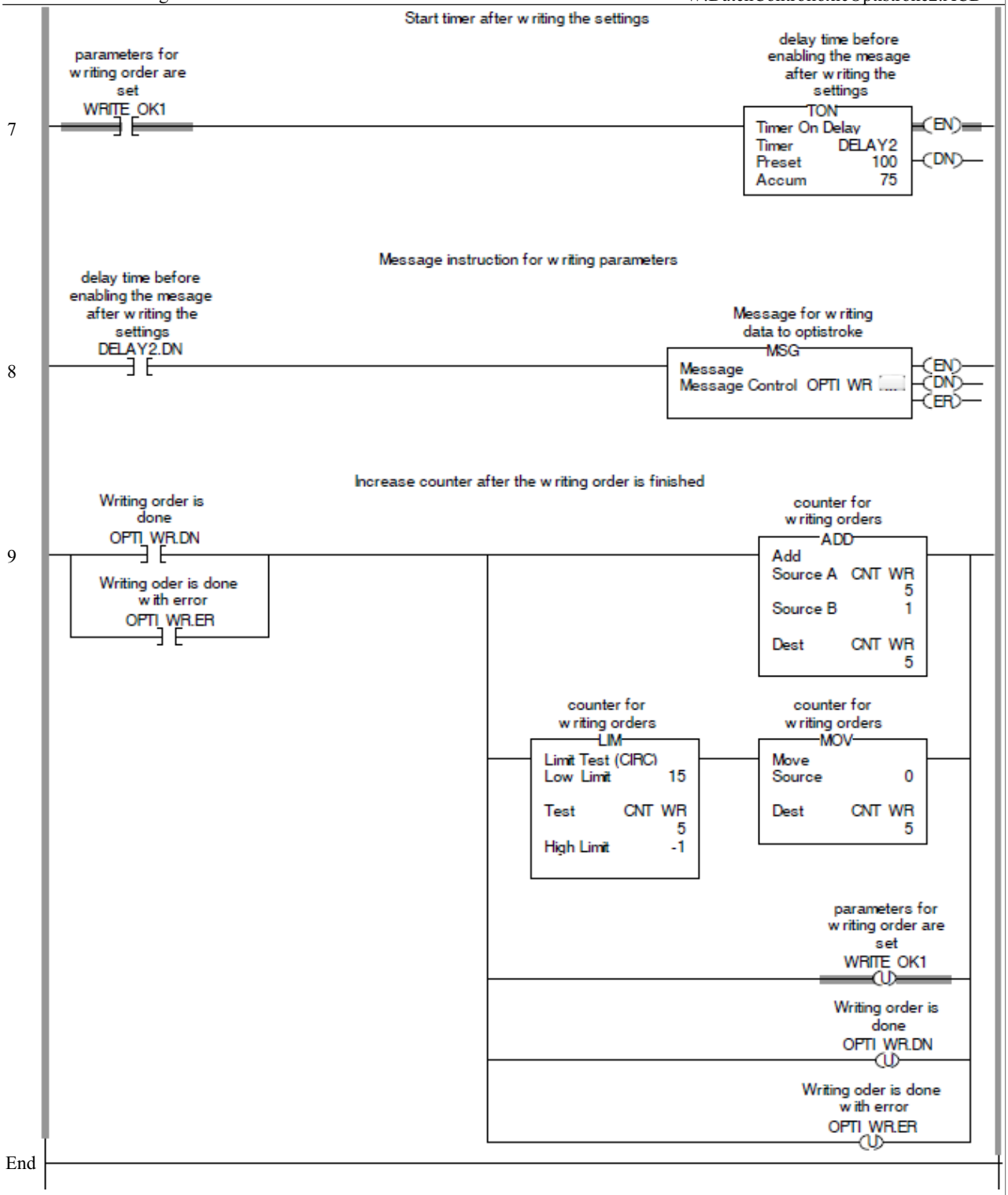
RSLogix5000

OPTISTROKE Ladder Diagram **Page 2**
OptiStroke:MainTask:MainProgram 21.07.2015 11:48:13
Total number of rungs in routine: 10 W:DatenControlloxicOptistroke2.ACD



RSLogix5000

OPTISTROKE Ladder Diagram **Page 3**
OptiStroke:MainTask:MainProgram 21.07.2015 11:48:13
Total number of rungs in routine: 10 W:DatenControlloxicOptistroke2.ACD



RSLogix5000

Communication Data List and ADIs

NOTE: The communication data list is intended for qualified personnel with experience dealing with the PLC programming for various interfaces.

The field bus interface is used to centrally compile and process process data.

The section *Communication Data List* applies to the field buses Modbus TCP and EtherNet/IP.

The customer's control system must have the respective interface.

And the customer must have a programming environment that can process the data via the interface. Nordson cannot offer any information on how the *OptiStroke* data is processed, because it is different for each customer.

Data Interface

With the aid of the communication module, the *OptiStroke* master box exchanges cyclical and acyclical process data as well as acyclical parameter data via the field bus.

- Cyclical process data: ADI 51 / 52

NOTE: Modbus TCP does not support real cyclical data exchange.

- Acyclical parameter data: ADI 1 - 16 (read/write)
- Acyclical process data: ADI 50 - 88 (read)

ADI (Application Data Instance)

NOTE: In the AllenBradley/Rockwell controller, the *Application Data Instances* are referred to simply as *Instance*.

When data is exchanged between the customer's machine and *OptiStroke*, the data is accessed via ADIs (Application Data Instances or Instances).

- Length of an ADI: 64 bytes
- Input (parameter data): ADI 1 to ADI 16
- Output (status data): ADI 50 to ADI 88

All of the communication data is collected in the communication data list.

General Information

- Transmittal data with decimal places must be multiplied by a factor.
- Received data with decimal places must be divided by a factor.

With one decimal place: ×10 or ÷10

With two decimal places: ×100 or ÷100

Internal *OptiStroke* Parameter Data

Note	ADI	Data designation	Quantity	Format	Setting range, resolution	
Read/ write	1	**Graph Analysis Needle Stroke**				
		Graph Data Request	1	Byte	0 / 1	0
		0: No request				
		1: Graph data request				
		Channel Number Requested	1	Byte	1 - 32	1
		Fill bytes	62	Byte	-	0
	2	**Opening Time Offset**	32	Word	-100.0 - 100.0 ms	0
	3	**Closing Time Offset**	32	Word	-100.0 - 100.0 ms	0
	4	**Min. Alarm Value Opening Time**	32	Word	0.1 - 100.0 ms	1.5
	5	**Max. Alarm Value Opening Time**	32	Word	0.1 - 100.0 ms	10
	6	**Min. Alarm Value Closing Time**	32	Word	0.1 - 100.0 ms	1.5
	7	**Max. Alarm Value Closing Time**	32	Word	0.1 - 100.0 ms	10
	8	**Scan Time Mode**	32	Byte	0 / 1	1
		0: Manual				
		1: Automatic				
		Fill bytes	32	Byte	-	0
	9	**Scan Time In Manual Mode**	32	Byte	1 - 10	10
		1: 5.0 ms				
		2: 7.5 ms				
		3: 10 ms				
		4: 15 ms				
		5: 20 ms				
		6: 30 ms				
		7: 40 ms				
		8: 50 ms				
		9: 75 ms				
		10: 100 ms				
		Fill bytes	32	Byte	-	0

Continued…

Note	ADI	Data designation	Quantity	Format	Setting range, resolution	
Read/ Write	10	**Opening/Closing Times Averaged**	1	Byte	1 - 20	9
		Fill bytes	63	Byte	-	0
	11	**Needle Stroke Opening Threshold**	1	Byte	15 - 90 %	15
		Fill bytes	63	Byte	-	0
	12	**Needle Stroke Closing Threshold**	1	Byte	15 - 90 %	15
		Fill bytes	63	Byte	-	0
	13	**Threshold Missing Needle Stroke**	32	Byte	8 - 60 %	20
		Fill bytes	32	Byte	-	0
	14	**Eject Signal Duration**	1	Byte	1 - 100 ms	50
		Fill bytes	63	Byte	-	0
	15	**Set Factory Settings**	1	Byte	0 / 1	0
		0: Off				
		1: Set to factory settings				
		Fill bytes	63	Byte	-	0
	16	**Chart Analysis Switching Times**	1	Byte	0 / 1	0
		0: Off				
		1: On				
		Fill bytes	63	Byte	-	0

Internal *OptiStroke* Status Data

Note	ADI	Data designation	Quantity	Format	Setting range, resolution	
Read	50	**Master Slaves Detected**				
		Number of OptiStroke Slaves (DIP Switch Master)	1	Byte	0 - 7	-
		OptiStroke Master Communication Processor	1	Byte	0 / 1	-
		0: Not Detected				
		1: Detected				
		OptiStroke Slave 1 Communication Processor	1	Byte	0 / 1	-
		0: Not Detected				
		1: Detected				
		OptiStroke Slave 2 Communication Processor	1	Byte	0 / 1	-
		0: Not Detected				
		1: Detected				
		OptiStroke Slave 3 Communication Processor	1	Byte	0 / 1	-
		0: Not Detected				
		1: Detected				
		OptiStroke Slave 4 Communication Processor	1	Byte	0 / 1	-
		0: Not Detected				
		1: Detected				
		OptiStroke Slave 5 Communication Processor	1	Byte	0 / 1	-
		0: Not Detected				
		1: Detected				
		OptiStroke Slave 6 Communication Processor	1	Byte	0 / 1	-
		0: Not Detected				
		1: Detected				
		OptiStroke Slave 7 Communication Processor	1	Byte	0 / 1	-
		0: Not Detected				
		1: Detected				
		Fill bytes	55	Byte	-	0

Continued…

Note	ADI	Data designation	Quantity	Format	Setting range, resolution	
Read cycl.	51	**Module Opening/Closing Time, Offset Included #1-16**				-
		Module Opening Time, Offset Included (#1 - 16)	16	Word	0.00 - 200.00 ms	-
		Module Closing Time, Offset Included (#1 - 16)	16	Word	0.00 - 200.00 ms	-
	52	**Module Opening/Closing Time, Offset Included #17-32**				-
		Module Opening Time, Offset Included (#17 - 32)	16	Word	0.00 - 200.00 ms	-
		Module Closing Time, Offset Included (#17 - 32)	16	Word	0.00 - 200.00 ms	-
Read	53	**Light Emission**	32	Byte	0 - 100 %	-
		Fill bytes	32	Byte	-	0
	54	**Module Type**	32	Byte	0 / 1	-
		0: Downstroke opened				
		1: Downstroke closed				
		Fill bytes	32	Byte	-	0
	55	**Module Action Time Out Of Set Range**	32	Byte	0 - 3	-
		0: No Warning				
		1: Opening Warning				
		2: Closing Warning				
		3: Opening/Closing Warning				
		Fill bytes	32	Byte	-	0
	56	**Needle Stroke Missing**	32	Byte	0 / 1	-
		0: No Warning				
		1: Warning				
		Fill bytes	32	Byte	-	0
	57	**Counter Trigger Slopes In Initialization Phase 2**	32	Byte	0 - 255	-
		Fill bytes	32	Byte	-	0
	58	**General Alarm**	1	Byte	0 / 1	-
		0: No Warning				
		1: Warning				
		Fill bytes	63	Byte	-	0
	59	**Chart Analysis Switching Times #1 - 8**				-
		Counter	8	Word	0 - 65535	0
		Opening Time		Word	0.00 - 100.00 ms	0
		Closing Time		Word	0.00 - 100.00 ms	0
		Fill bytes	16	Byte	-	0

Continued…

Note	ADI	Data designation	Quantity	Format	Setting range, resolution	
Read	60	**Chart Analysis Switching Times #9 - 16**				-
		Counter	8	Word	0 - 65535	0
		Opening Time		Word	0.00 - 100.00 ms	0
		Closing Time		Word	0.00 - 100.00 ms	0
		Fill bytes	16	Byte	-	0
	61	**Chart Analysis Switching Times #17 - 24**				-
		Counter	8	Word	0 - 65535	0
		Opening Time		Word	0.00 - 100.00 ms	0
		Closing Time		Word	0.00 - 100.00 ms	0
		Fill bytes	16	Byte	-	0
	62	**Chart Analysis Switching Times #25 - 32**				-
		Counter	8	Word	0 - 65535	0
		Opening Time		Word	0.00 - 100.00 ms	0
		Closing Time		Word	0.00 - 100.00 ms	0
		Fill bytes	16	Byte	-	0
	63	**Graph Data Ready**				
		Graph Data Ready	1	Byte	0 / 1	0
		0: Not Ready				
		1: Ready				
		Scan Time (Graph Data)	1	Byte	1 - 10	-
		1: 5.0 ms				
		2: 7.5 ms				
		3: 10 ms				
		4: 15 ms				
		5: 20 ms				
		6: 30 ms				
		7: 40 ms				
		8: 50 ms				
		9: 75 ms				
		10: 100 ms				
		Fill bytes	62	Byte	-	0

Continued…

Note	ADI	Data designation	Quantity	Format	Setting range, resolution	
	64	**Header Graph Data**				
		Scan Time (Graph Data)	1	Byte	1 - 10	-
		1: 5.0 ms				
		2: 7.5 ms				
		3: 10 ms				
		4: 15 ms				
		5: 20 ms				
		6: 30 ms				
		7: 40 ms				
		8: 50 ms				
		9: 75 ms				
		10: 100 ms				
Read		Needle Stroke Not Detected Flag	1	Byte	0 / 1	-
		0: No Warning				
		1: Needle Stroke Not Detected				
		Factor, Opening Time Detected	1	Byte	0 - 200	-
		Factor, Closing Time Detected	1	Byte	0 - 200	-
		Fill bytes	2	Byte	-	0
		Light Emission	1	Word	0.0 - 100.0 %	-
		AD Converter, Upper Signal Level (Module Opening)	1	Word	0 - 1023 digits	-
		AD Converter, Lower Signal Level (Module Opening)	1	Word	0 - 1023 digits	-
		AD Converter, Upper Signal Level (Module Closing)	1	Word	0 - 1023 digits	-
		AD Converter, Lower Signal Level (Module Closing)	1	Word	0 - 1023 digits	-
		Fill bytes	48	Byte	-	0

Continued…

Note	ADI	Data designation	Quantity	Format	Setting range, resolution	
Read	65	**Graph Data Rising Slope (1)**	32	Word	0 - 1023 digits	-
	66	**Graph Data Rising Slope (2)**	32	Word	0 - 1023 digits	-
	67	**Graph Data Rising Slope (3)**	32	Word	0 - 1023 digits	-
	68	**Graph Data Rising Slope (4)**	32	Word	0 - 1023 digits	-
	69	**Graph Data Rising Slope (5)**	32	Word	0 - 1023 digits	-
	70	**Graph Data Rising Slope (6)**	32	Word	0 - 1023 digits	-
	71	**Graph Data Rising Slope (7)**	8	Word	0 - 1023 digits	-
		Fill bytes	48	Byte	-	0
	72	**Graph Data Falling Slope (1)**	32	Word	0 - 1023 digits	-
	73	**Graph Data Falling Slope (2)**	32	Word	0 - 1023 digits	-
	74	**Graph Data Falling Slope (3)**	32	Word	0 - 1023 digits	-
	75	**Graph Data Falling Slope (4)**	32	Word	0 - 1023 digits	-
	76	**Graph Data Falling Slope (5)**	32	Word	0 - 1023 digits	-
	77	**Graph Data Falling Slope (6)**	32	Word	0 - 1023 digits	-
	78	**Graph Data Falling Slope (7)**	8	Word	0 - 1023 digits	-
		Fill bytes	48	Byte	-	0
	81	**Life Toggle Bit**	32	Byte	0 / 1	-
		0:				
		1:				
		Fill bytes	32	Byte	-	0
	82	**Phase (0 - 4)**	32	Byte	0 - 4	-
		Fill bytes	32	Byte	-	0
	86	**Firmware**				
		Firmware Measurement Processor	32	Byte	Firmware Version high nibble.low nibble	-
		Firmware Communication Processor	8	Byte	Firmware Version high nibble.low nibble	-
		Fill bytes	24	Byte	-	0
	87	**Module Opening/Closing Time #1 - 16**				
		Module Opening Time (#1 - 16)	16	Word	0.00 - 100.00 ms	-
		Module Closing Time (#1 - 16)	16	Word	0.00 - 100.00 ms	-
	88	**Module Opening/Closing Time #17 - 32**				
		Module Opening Time (#17 - 32)	16	Word	0.00 - 100.00 ms	-
		Module Closing Time (#17 - 32)	16	Word	0.00 - 100.00 ms	-

Internal *OptiStroke* Parameter Data - Explanation

ADI 1: Graph Analysis Needle Stroke - Graph Data Request

For analysis purposes, *OptiStroke* can scan the stem motion of the selected control module and display it as a curve diagram array. Refer to *Appendix* for an example.

Data for a single channel or for all channels can be called up.

1 channel

ADI 2 and ADI 3: Opening/Closing Time Offset

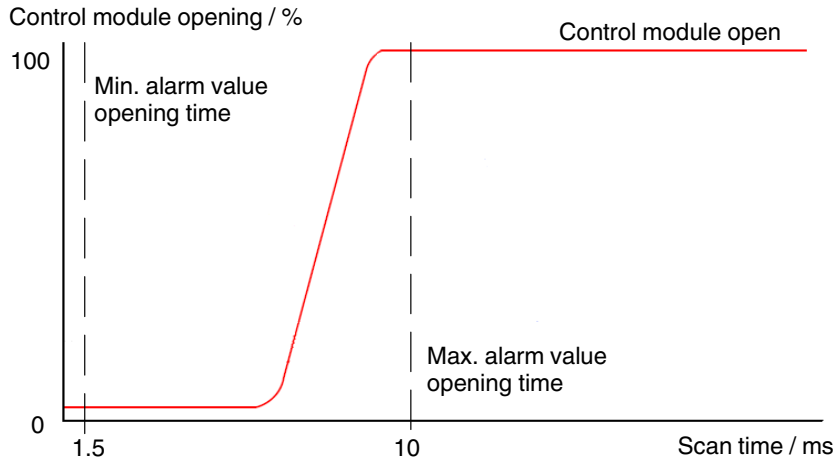
Additional offset values can be entered for the switching times determined by *OptiStroke*.

- For any compensation that the customer's machine may need
- Consideration of the additional flight time of the material in spray applications from the nozzle tip to the substrate.

0 ms

ADI 4 and ADI 5: Min./Max. Alarm Value Opening Time

The limits for the control module opening times define the range for the switchon times that the controller uses without an alarm message being issued at ADI 55.

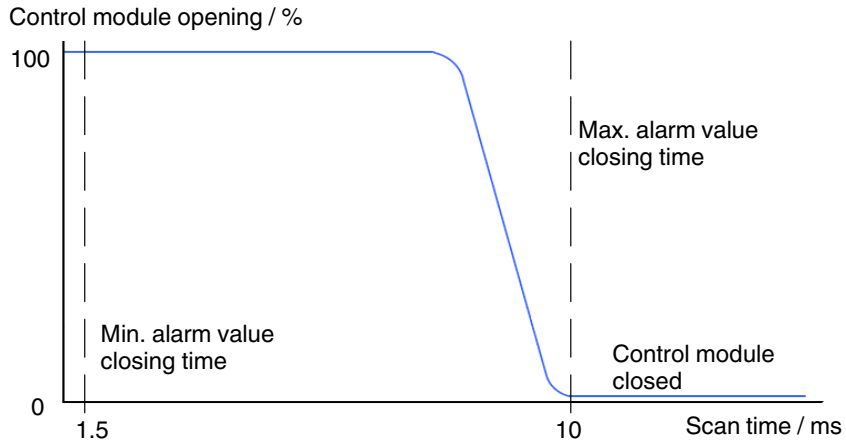


Min. alarm value opening time: 1.5 ms

Max. alarm value opening time: 10 ms

ADI 6 and 7: Min./Max. Alarm Value Closing Time

The limits for the control module closing times define the range for the switchoff times that the controller uses without an alarm message being issued at ADI 55.



Min. alarm value opening time: 1.5 ms

Max. alarm value opening time: 10 ms

ADI 8: Scan Time Mode

The scan time is the duration of a measuring time interval. Fixed or automatically adapted scan times can be set for each channel.

The scan time should be set to automatic. The controller then works with optimized scan times.

1 (automatic)

ADI 9: Scan Time in Manual Mode

The manual setting can be selected. Ten different scan times between 5 and 10 ms can be selected.

NOTE: The fixed scan time must be larger than the anticipated switching times of the control modules used.

10 (100 ms)

ADI 10 Opening/Closing Times Averaged

OptiStroke averages the compiled switching times and shows them. Nordson recommends averaging the switching times when the system is controlled.

 9

The number indicates the number of switching times used for averaging.

ADI 11: Needle Stroke Opening Threshold

The set threshold corresponds to the degree to which the nozzle stem is open, stated as a percent value, at which the control module is considered to be open.

Adjusting the threshold value changes the measured switchon time. The switchon time measured by *OptiStroke* is the time between generation of the signal to open and detection of the stem stroke threshold (when the control module is considered to be open).

 15%

ADI 12: Needle Stroke Closing Threshold

The set threshold corresponds to the degree to which the nozzle stem is open, stated as a percent value, at which the control module is considered to be closed.

Adjusting the threshold value changes the measured switchoff time. The switchoff time measured by *OptiStroke* is the time between generation of the signal to close and detection of the stem stroke threshold (when the control module is considered to be closed).

 15%

ADI 13: Threshold Missing Needle Stroke

The limit at which a stem stroke is considered to be missing can be selected as desired and is stated as a percent (%). A complete stem stroke is defined as 100%.

 20%

ADI 14: Eject Signal Duration

If the stem stroke is missing or incomplete, an electrical signal (voltage pulse) is emitted and can be used e.g. for product rejection.

The signal duration for rejection must be such that the customer's machine detects it.

50 ms

ADI 15: Set Factory Settings

In the event that various values were changed, causing the controller to no longer work optimally, all of the values can be reset to the defaults.

0 (off)

ADI 16: Chart Analysis Switching Times

With this feature, the higher-ranking controller demands from *OptiStroke* continuously updated single switching times (ADI 59 - 62), without taking into consideration any offset values (ADI 2 and 3) that may have been set.

The individual control module switching times are displayed as data in a table.

0 (off)

Internal OptiStroke Status Data - Explanation

ADI 50: Master/Slaves Detected

The *OptiStroke* controller must detect the number of slave boxes in the system. The number of slaves is set with the DIP switches SW2 in the *OptiStroke* hardware.

Refer to *Installation - Master-Slave Configuration with DIP Switch SW2*.

The DIP switch setting can be queried via the interface and shown individually for each customer. *OptiStroke* reports the number of slaves connected and whether their communication processor is detected.

ADI 51: Module Opening/Closing Time, Offset Included, #1 - 16

OptiStroke supplies measured values by channel for the switchon and switchoff times of the individual control modules with offset time. This offset time can be entered individually for each customer. Refer to the description of *ADI 2* and *ADI 3*.

The data of the first 16 channels (master and 3 slaves) is transmitted with this ADI.

ADI 52: Module Opening/Closing Time, Offset Included, #17 - 32

OptiStroke supplies measured values by channel for the switchon and switchoff times of the individual control modules with offset time. This offset time can be entered individually for each customer. Refer to the description of *ADI 2* and *ADI 3*.

The data of the following 16 channels (4 slaves) is transmitted with this ADI.

ADI 53: Light Emission

OptiStroke automatically regulates light emission. If the light received is insufficient, the amount of light emitted increases automatically.

Light emission values greater than 99% should be processed by the customer's controller as a warning message.

Potential sources of excessive light emission:

- Dirt on the light sensor surface
- Sensor not positioned correctly (reflections not received)
- *OptiStroke* not yet in phase 3 or 4.

NOTE: The values for light emission from the calibration phase 1 and 2 by channel are not yet reliable and should not be considered (Refer to *Phase Model*).

ADI 54: Module Type

The type of control module used must be stated for the *OptiStroke* controller to be able to correctly detect the nozzle stem motion. This is done with the DIP switches in the *OptiStroke* hardware.

This setting can be queried via the interface and shown individually for each customer.

ADI 55: Module Action Time Out of Set Range

OptiStroke evaluates the individual switching times to determine whether they are within the defined range.

OptiStroke differentiates between the following nozzle stem movements:

- Open
- Close
- Open **and** close.

Software alarm outputs are switched that can be processed by the customer's controller.

ADI 56: Needle Stroke Missing

If *OptiStroke* measures a stem stroke that is less than the pre-selected threshold value for the missing stem stroke (ADI 13), the alarm *Missing stem stroke* appears.

ADI 57: Counter Trigger Slopes in Initialization Phase 2

OptiStroke counts the trigger signals transmitted by the customer's machine during the initialization phase (*phase model*: phase 2). Each trigger signal triggers a stabilization attempt.

The respective channel should normally be stable after about 1 to 10 attempts and *OptiStroke* should move to phase 3.

Potential causes of failed stabilization attempts:

- Optical fiber cable is not connected
- Optical fiber cable is polluted
- Nozzle stem does not move in control module

ADI 58: General Alarm

During the initialization phase triggered channels lead to a general alarm. The switching times with and without offset are set to *0.00 / 0.00 ms*.

The general alarm is reset after the initialization phase. It is triggered next when a fault occurs (missing stem stroke, communication fault, etc.).

With a general alarm, the hardware outputs on the fault relay are also switched (Refer to *Introduction - Alarm Outputs*).

ADI 59 - ADI 62: Chart Analysis Switching Times #1 - 8. #25 - 32

OptiStroke maintains the individual switchon and switchoff times of the various control modules as data at the interfaces. The data from eight channels is reported for each of the four ADIs.

Even if averaged values are (or should be) used for stabilization, the data consists of single values that can be differentiated by the accompanying counter.

The data can be queried by the customer's controller and displayed as a table. Showing the switching times in a table enables faults to easily be identified:

- Defective control modules
- Measuring channels not connected
- Defective measuring channels

NOTE: If only one *OptiStroke* box is connected, only zeros (0.00 / 0.00) appear in the channels #5 to 32.

ADI 63: Graph Data Ready

OptiStroke maintains the individual switchon and switchoff times of the various control modules as graphical data at the interfaces. After a request at ADI 1, *OptiStroke* reports that the respective stem stroke curve diagrams are ready at ADIs 64 to 78.

Refer to *Appendix* for an example.

ADI 64: Header Graph Data

With the ADI 64 *OptiStroke* supplies various data that can be used for graphical curve diagram analysis:

- Scan time
- Indication of potential missing stroke of a control module
- A conversion factor to determine the true switchon and switchoff time
- Light emission
- Values for analog/digital converter

The conversion factor is used to calculate a switching time in ms using the 200 words transmitted for a measuring scan and the current measuring time (Refer to ADI 65 to ADI 71).

Example: A scan consists of 200 words and scan time is 20 ms. *OptiStroke* reports with word 50 that the control module has opened.

This corresponds to a switchon time of 5 ms.

ADI 65 - 71: Graph Data Rising Slope (1 - 7)

OptiStroke transmits a total of 200 words into the seven sequential ADIs 65 to 71 (as switchon data curve diagram array) for a switchon stroke.

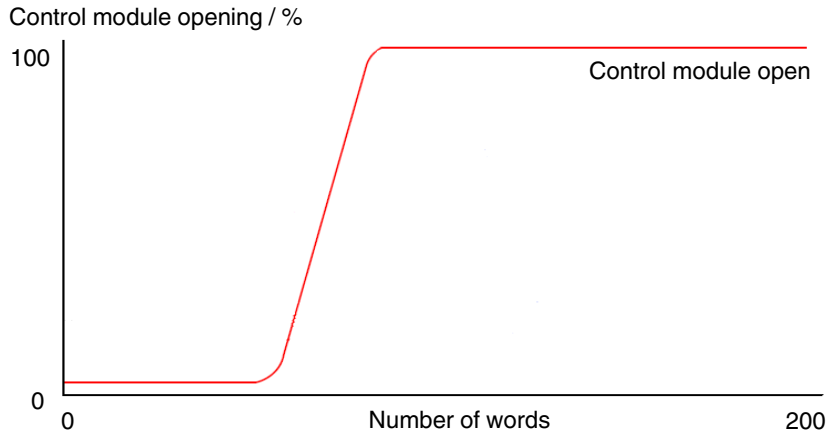


Fig. 2

These 200 words (switchon data curve diagram array) must be scaled with the applicable scan time (ADI 64).

ADI 72 - 78: Graph Data Falling Slope (1 - 7)

OptiStroke transmits a total of 200 words into the seven sequential ADIs 65 to 71 (as switchoff data curve diagram array) for a switchoff stroke.

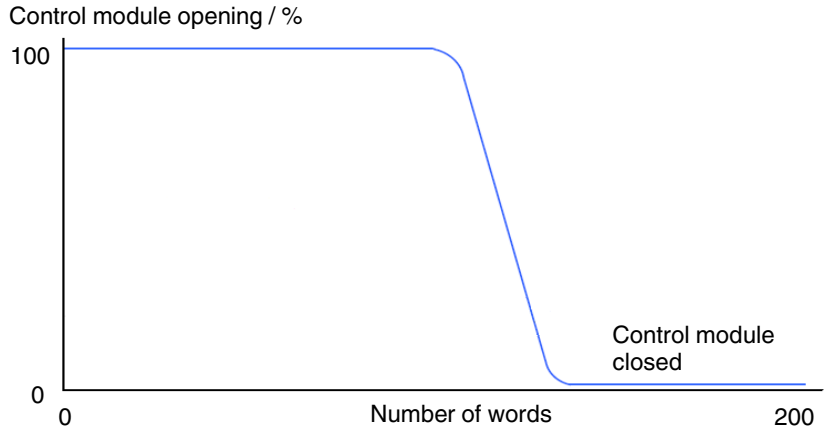


Fig. 3

These 200 words (switchoff data curve diagram array) must be scaled with the applicable scan time (ADI 64).

ADI 81: Life Toggle Bit

OptiStroke transmits the life toggle bit for each of the 1 to 8 communication processors and for each of the 1 to 32 measurement processors.

The life toggle bit status constantly alternates between 0 and 1, and then back to 0. If this does not happen, the corresponding processor is defective. The respective *OptiStroke* box must then be replaced.

ADI 82: Phase (0 - 4)

OptiStroke transmits the number of the phase (0 - 4) in which the channel is. This number must be evaluated so the light emission can be properly assessed. Also refer to *Phase Model.*

- The light emission in phases 1 and 2 is not reliable
- Light emission greater than 99% in phases 3 and 4 should lead to a warning message
- Phase 3 and 4: The melter is ready for operation.

ADI 86: Firmware

The Firmware version of the measurement and communication processor is transmitted to the customer's controller. The versions can range from 01.01 to 15.15. The versions are compatible only when the numbers **before** the dot match.

Examples:

- Vers. 03.11 is compatible with vers. 03.22
- Vers. 03.11 is **not** compatible with vers. 05.11

ADI 87: Module Opening/Closing Time #1 - 16

OptiStroke compiles the switching times by channel and shows them.

These true switching times are needed to be able to evaluate individual control modules.

The switching times of the first 16 channels (master and 3 slaves) are transmitted with this ADI.

ADI 88: Module Opening/Closing Time #17 - 32

OptiStroke compiles the switching times by channel and shows them.

These true switching times are needed to be able to evaluate individual control modules.

The switching times of the following 16 channels (4 slaves) are transmitted with this ADI.

Appendix

Example of Processing Graph Data Requests (ADI 1)

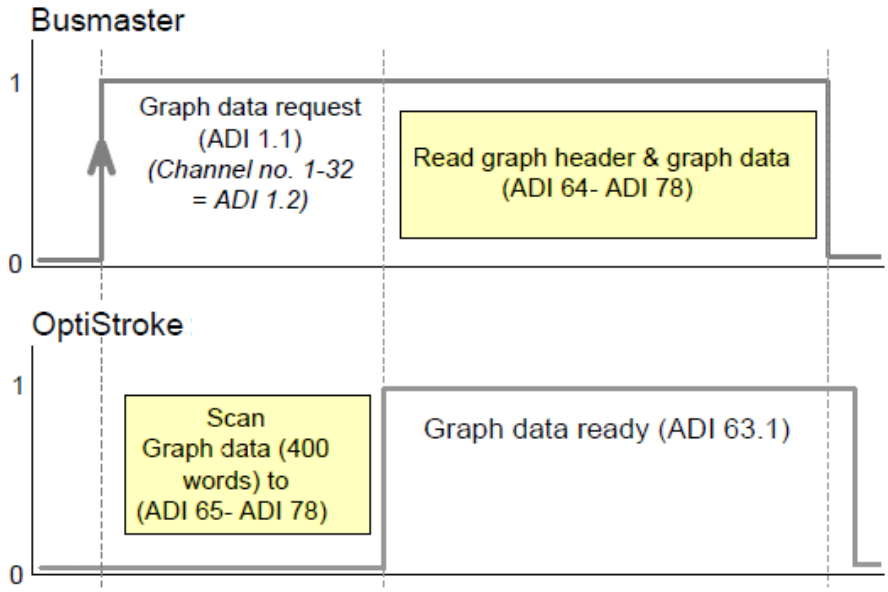


Fig. 4 Example of a query for graphical data

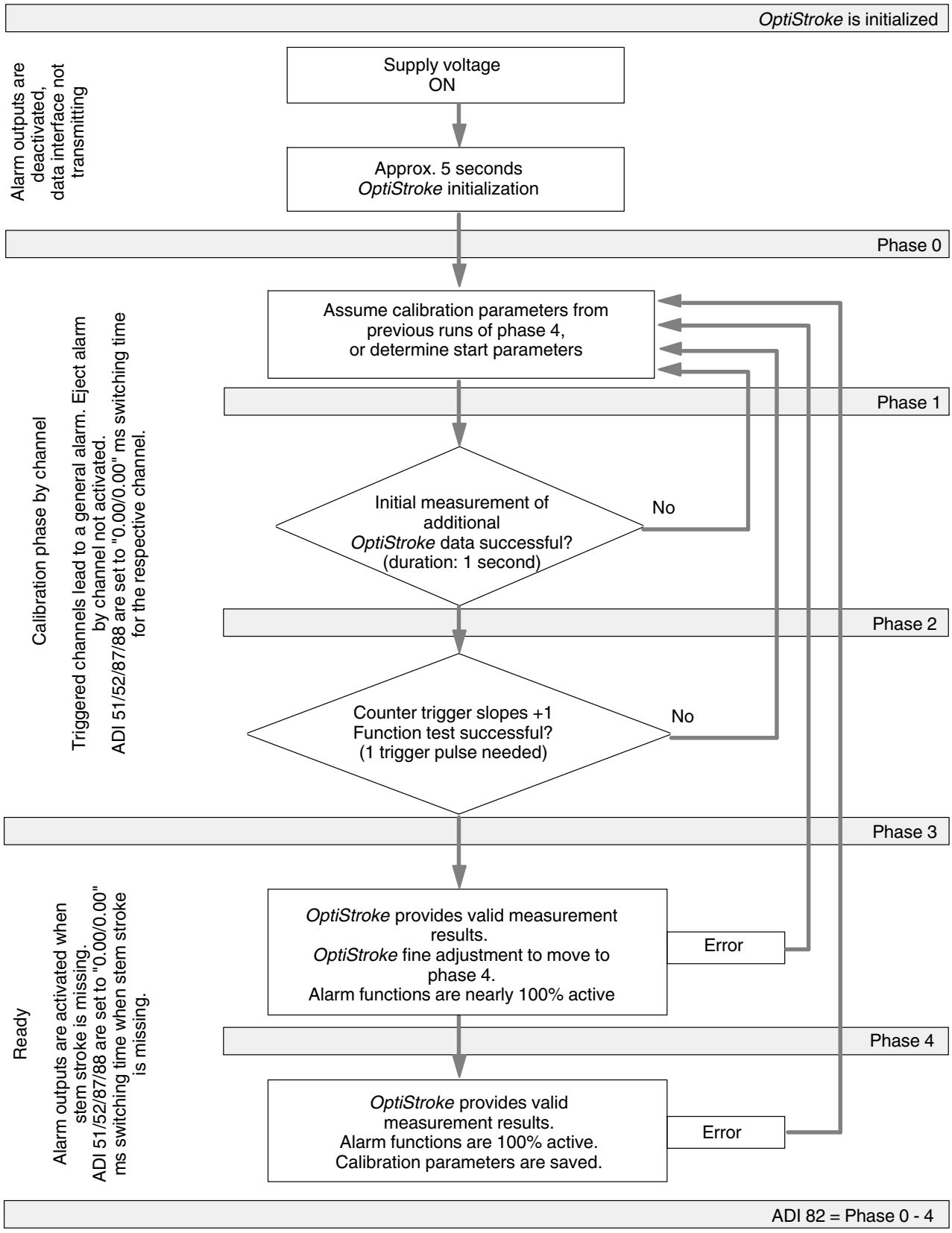
1. The customer's controller (bus master) sends a query for graphical data for a certain channel via the interface to *OptiStroke*: *Graph data request* (ADI 1, Byte 1).
2. *OptiStroke* scans the switching times for this channel and provides them via the interface upon completion of the scan: *Graph data ready* (ADI 63, Byte 1).
3. The customer's controller reads all curve diagram data (ADI 64 to 78) via the interface and ends the current request (ADI 1).

   The data received also includes the scan times in ms ((ADI 64).
4. *OptiStroke* resets the output *Graph Data Ready* (ADI 63) for the respective channel to 0.

Simplified Phase Model

The phase model offers a clear overview of the sequences in *OptiStroke*, from switchon to readiness for operation.

OptiStroke first goes through the initialization phase (phase 0), then a trigger-controlled initial measurement phase (phases 1 and 2); by phase 3 it is ready for operation.



OptiStroke Remote Desktop Gen. 2 Software

Remarks

OptiStroke is generally part of a system with a *VersaBlue* melter and one or more applicators.

OptiStroke is operated and its signals are evaluated on the screen of the *VersaBlue Plus* melter. Also refer to the customer product manual *VersaBlue and VersaBlue Plus*, section *Operation - OptiStroke.*

In application systems with *VersaBlue Plus* melters, the *VersaBlue Remote Desktop* software can be used on a connected laptop/PC. Graphs and tables can be analyzed with this software. Data logging is not possible.

The *OptiStroke Remote Desktop Gen. 2* software is used when an *OptiStroke* box is not operated as a component of a system with a *VersaBlue* melter.

The OptiStroke Remote Desktop Gen. 2 software can be used for 24/7 (365 days) data logging as well as for tests and analyses.

The *OptiStroke Remote Desktop Gen. 2* software is described on the following pages.

Installing Remote Desktop Software

The *Remote Desktop* software is a component of the *OptiStroke* software package. The software package can be downloaded using the QR code in the documentation provided to the customer.

1. Use a laptop or PC to download and install the software.
2. Connect the laptop or PC to the *OptiStroke* master box and then start the *Remote Desktop Software*.

Starting Remote Desktop Software

Once the *OptiStroke Remote Desktop* software has been started, the following screen showing general information opens.

Click the checkbox at the bottom left of the screen to close the screen permanently.

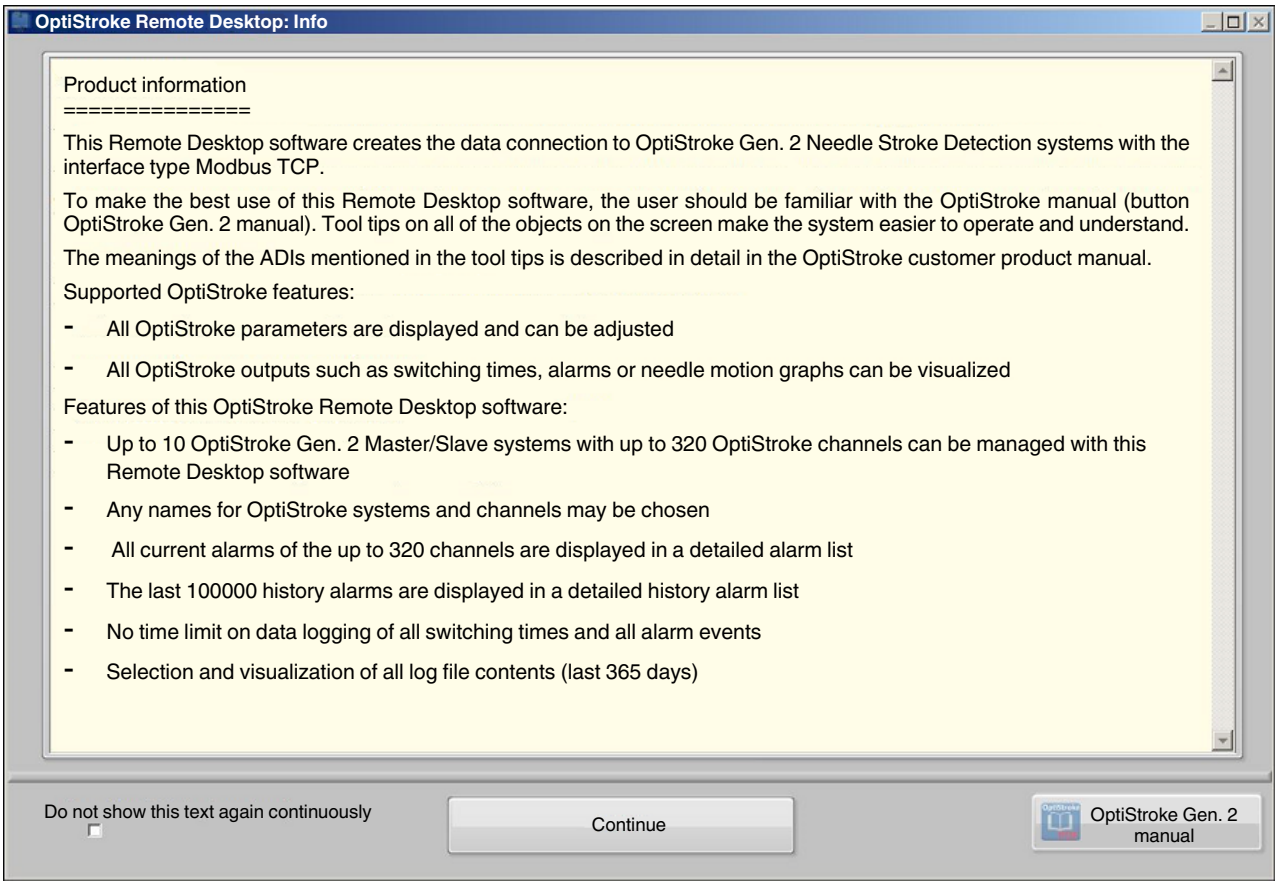
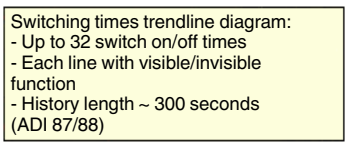


Fig. 1



Tool tips appear when the mouse is held over the buttons or other information on the screen (table contents, display, ...) for several seconds.

Click on *Continue* to move to the *Remote Desktop* software starting screen.

Click this button to open the customer product manual.

Starting Screen

The starting screen (home) shows all of the *OptiStroke* boxes that are connected (In this example there is only one).

Any alarms can be viewed and data logging of incoming *OptiStroke* signals can be started.

Switching times trendline diagram can appear as shown in the illustration.

Various actions can be initiated with the buttons on the left edge of the screen. They are shown on the following pages.

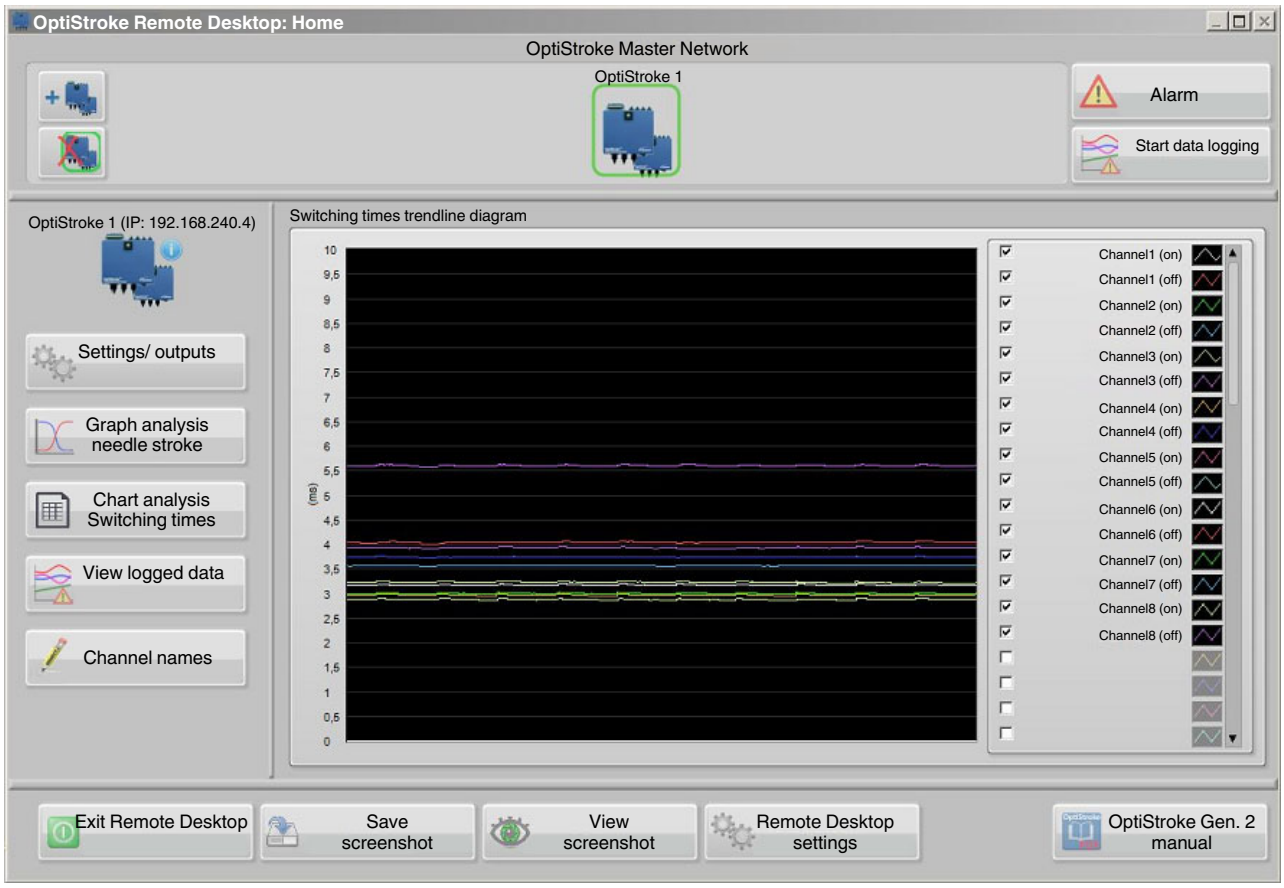
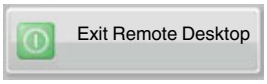


Fig. 2 OptiStroke Remote Desktop home



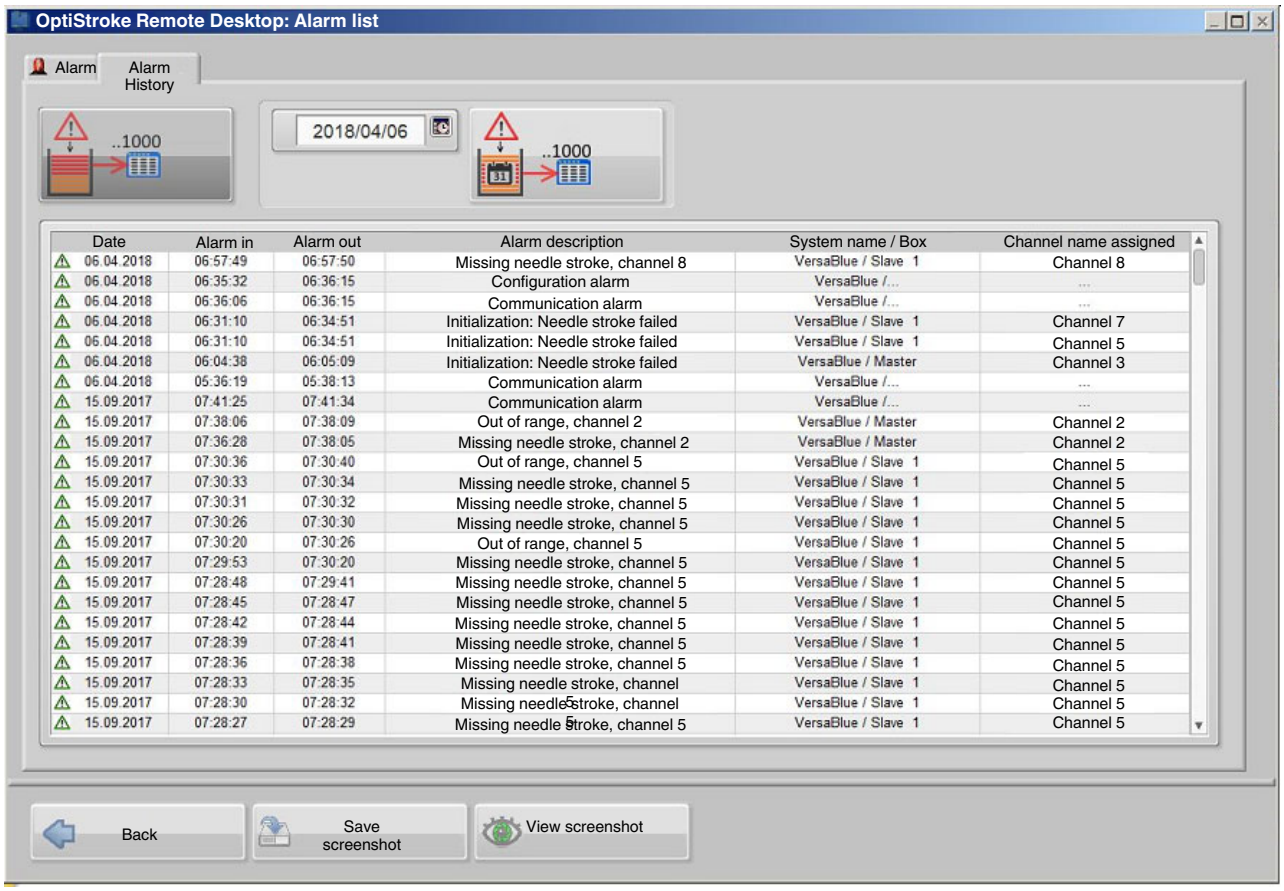
Click here to close the OptiStroke Remote Desktop software.

Alarm

Click here in the home screen to open this screen.

Click the tab *Alarm* to access a list that shows all of the alarms for each control module connected.

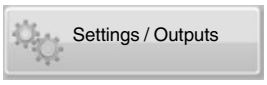
Click the tab *Alarm History* to access a list that shows up to 100 of the most recent alarms.



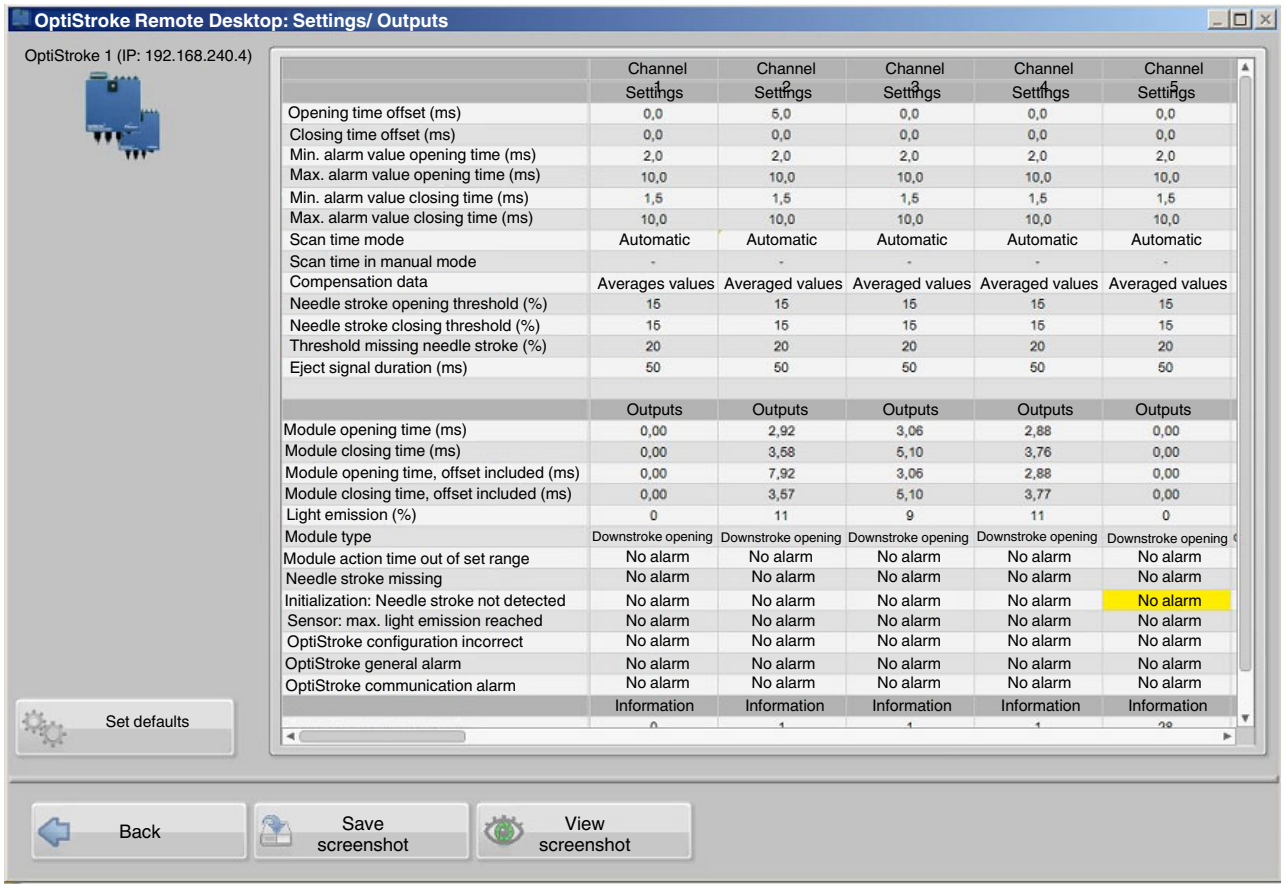
Date	Alarm in	Alarm out	Alarm description	System name / Box	Channel name assigned
06.04.2018	06:57:49	06:57:50	Missing needle stroke, channel 8	VersaBlue / Slave 1	Channel 8
06.04.2018	06:35:32	06:36:15	Configuration alarm	VersaBlue /...	...
06.04.2018	06:36:06	06:36:15	Communication alarm	VersaBlue /...	...
06.04.2018	06:31:10	06:34:51	Initialization: Needle stroke failed	VersaBlue / Slave 1	Channel 7
06.04.2018	06:31:10	06:34:51	Initialization: Needle stroke failed	VersaBlue / Slave 1	Channel 5
06.04.2018	06:04:38	06:05:09	Initialization: Needle stroke failed	VersaBlue / Master	Channel 3
06.04.2018	05:36:19	05:38:13	Communication alarm	VersaBlue /...	...
15.09.2017	07:41:25	07:41:34	Communication alarm	VersaBlue /...	...
15.09.2017	07:38:06	07:38:09	Out of range, channel 2	VersaBlue / Master	Channel 2
15.09.2017	07:36:28	07:38:05	Missing needle stroke, channel 2	VersaBlue / Master	Channel 2
15.09.2017	07:30:36	07:30:40	Out of range, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:30:33	07:30:34	Missing needle stroke, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:30:31	07:30:32	Missing needle stroke, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:30:26	07:30:30	Missing needle stroke, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:30:20	07:30:26	Out of range, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:29:53	07:30:20	Missing needle stroke, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:28:48	07:29:41	Missing needle stroke, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:28:45	07:28:47	Missing needle stroke, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:28:42	07:28:44	Missing needle stroke, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:28:39	07:28:41	Missing needle stroke, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:28:36	07:28:38	Missing needle stroke, channel 5	VersaBlue / Slave 1	Channel 5
15.09.2017	07:28:33	07:28:35	Missing needle stroke, channel	VersaBlue / Slave 1	Channel 5
15.09.2017	07:28:30	07:28:32	Missing needle stroke, channel	VersaBlue / Slave 1	Channel 5
15.09.2017	07:28:27	07:28:29	Missing needle stroke, channel 5	VersaBlue / Slave 1	Channel 5

Fig. 3 Alarms (current alarms and alarm history can be selected)

Settings/outputs



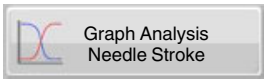
Click here in the home screen to open this screen.



	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5
	Settings	Settings	Settings	Settings	Settings
Opening time offset (ms)	0,0	5,0	0,0	0,0	0,0
Closing time offset (ms)	0,0	0,0	0,0	0,0	0,0
Min. alarm value opening time (ms)	2,0	2,0	2,0	2,0	2,0
Max. alarm value opening time (ms)	10,0	10,0	10,0	10,0	10,0
Min. alarm value closing time (ms)	1,5	1,5	1,5	1,5	1,5
Max. alarm value closing time (ms)	10,0	10,0	10,0	10,0	10,0
Scan time mode	Automatic	Automatic	Automatic	Automatic	Automatic
Scan time in manual mode	-	-	-	-	-
Compensation data	Averages values	Averaged values	Averaged values	Averaged values	Averaged values
Needle stroke opening threshold (%)	15	15	15	15	15
Needle stroke closing threshold (%)	15	15	15	15	15
Threshold missing needle stroke (%)	20	20	20	20	20
Eject signal duration (ms)	50	50	50	50	50
	Outputs	Outputs	Outputs	Outputs	Outputs
Module opening time (ms)	0,00	2,92	3,06	2,88	0,00
Module closing time (ms)	0,00	3,58	5,10	3,76	0,00
Module opening time, offset included (ms)	0,00	7,92	3,06	2,88	0,00
Module closing time, offset included (ms)	0,00	3,57	5,10	3,77	0,00
Light emission (%)	0	11	9	11	0
Module type	Downstroke opening	Downstroke opening	Downstroke opening	Downstroke opening	Downstroke opening
Module action time out of set range	No alarm	No alarm	No alarm	No alarm	No alarm
Needle stroke missing	No alarm	No alarm	No alarm	No alarm	No alarm
Initialization: Needle stroke not detected	No alarm	No alarm	No alarm	No alarm	No alarm
Sensor: max. light emission reached	No alarm	No alarm	No alarm	No alarm	No alarm
OptiStroke configuration incorrect	No alarm	No alarm	No alarm	No alarm	No alarm
OptiStroke general alarm	No alarm	No alarm	No alarm	No alarm	No alarm
OptiStroke communication alarm	No alarm	No alarm	No alarm	No alarm	No alarm
	Information	Information	Information	Information	Information

Fig. 4 Settings / Outputs

Graph Analysis Needle Stroke



Click here in the home screen to open this screen.

This screen shows the chronological sequence of the stem (needle) stroke of individual control modules. The number of stem strokes selected can be changed.

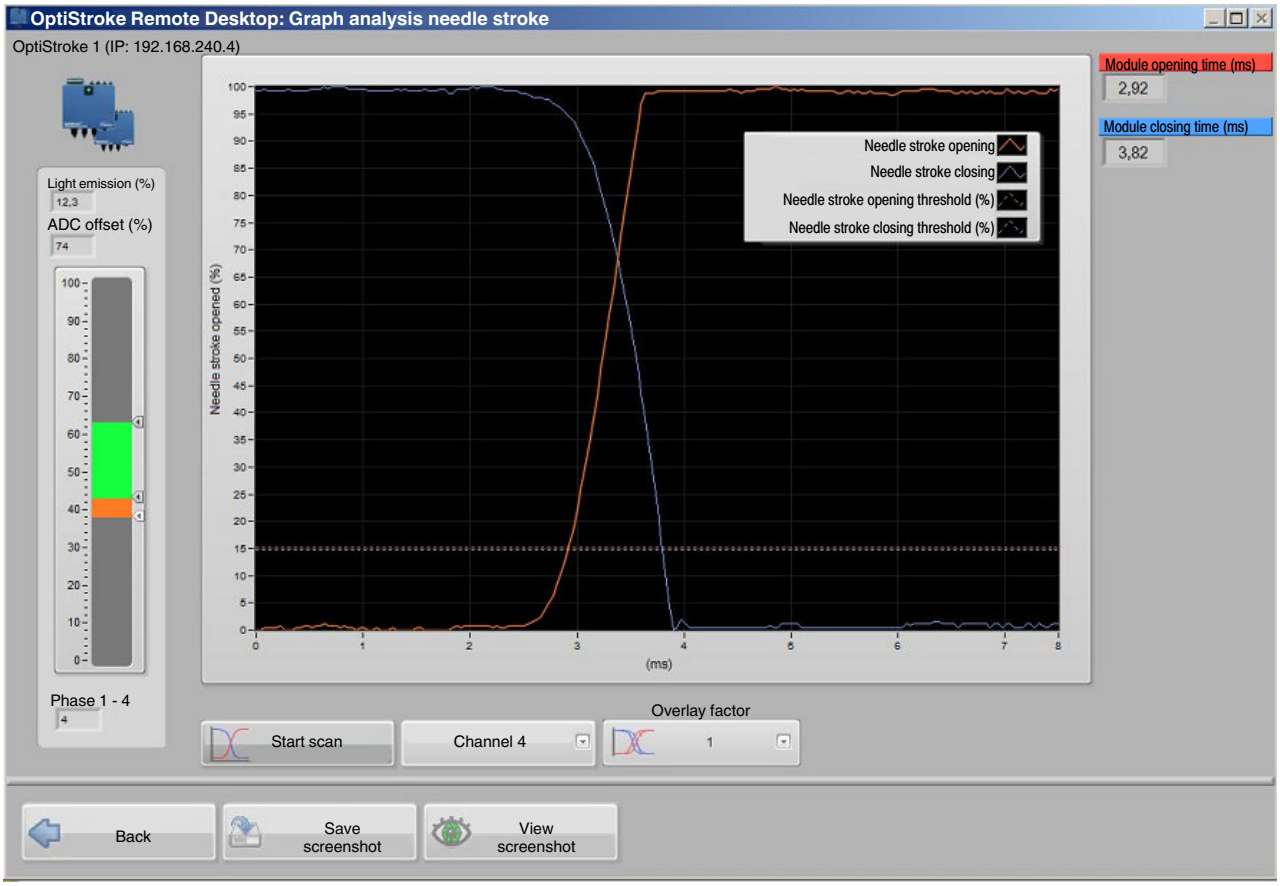
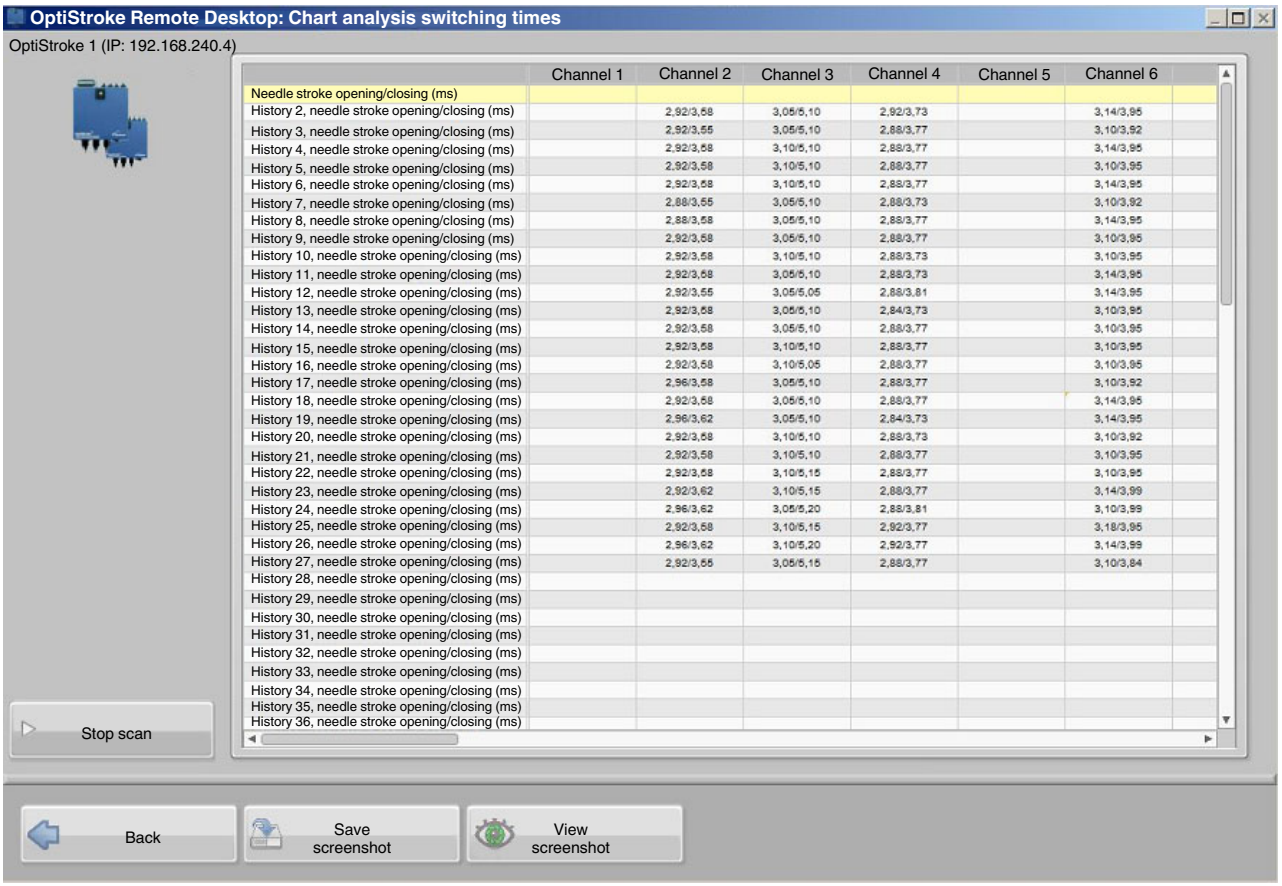


Fig. 5 Graph analysis needle stroke

Chart Analysis Switching Times

Click here in the home screen to open this screen.

This screen shows the chronological sequence of the stem (needle) stroke in a table.



	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
Needle stroke opening/closing (ms)						
History 2, needle stroke opening/closing (ms)		2,92/3,58	3,05/5,10	2,92/3,73		3,14/3,95
History 3, needle stroke opening/closing (ms)		2,92/3,55	3,05/5,10	2,88/3,77		3,10/3,92
History 4, needle stroke opening/closing (ms)		2,92/3,58	3,10/5,10	2,88/3,77		3,14/3,95
History 5, needle stroke opening/closing (ms)		2,92/3,58	3,10/5,10	2,88/3,77		3,10/3,95
History 6, needle stroke opening/closing (ms)		2,92/3,58	3,10/5,10	2,88/3,77		3,14/3,95
History 7, needle stroke opening/closing (ms)		2,88/3,55	3,05/5,10	2,88/3,73		3,10/3,92
History 8, needle stroke opening/closing (ms)		2,88/3,58	3,05/5,10	2,88/3,77		3,14/3,95
History 9, needle stroke opening/closing (ms)		2,92/3,58	3,05/5,10	2,88/3,77		3,10/3,95
History 10, needle stroke opening/closing (ms)		2,92/3,58	3,10/5,10	2,88/3,73		3,10/3,95
History 11, needle stroke opening/closing (ms)		2,92/3,58	3,05/5,10	2,88/3,73		3,14/3,95
History 12, needle stroke opening/closing (ms)		2,92/3,55	3,05/5,05	2,88/3,81		3,14/3,95
History 13, needle stroke opening/closing (ms)		2,92/3,58	3,05/5,10	2,84/3,73		3,10/3,95
History 14, needle stroke opening/closing (ms)		2,92/3,58	3,05/5,10	2,88/3,77		3,10/3,95
History 15, needle stroke opening/closing (ms)		2,92/3,58	3,10/5,10	2,88/3,77		3,10/3,95
History 16, needle stroke opening/closing (ms)		2,92/3,58	3,10/5,05	2,88/3,77		3,10/3,95
History 17, needle stroke opening/closing (ms)		2,96/3,58	3,05/5,10	2,88/3,77		3,10/3,92
History 18, needle stroke opening/closing (ms)		2,92/3,58	3,05/5,10	2,88/3,77		3,14/3,95
History 19, needle stroke opening/closing (ms)		2,96/3,62	3,05/5,10	2,84/3,73		3,14/3,95
History 20, needle stroke opening/closing (ms)		2,92/3,58	3,10/5,10	2,88/3,73		3,10/3,92
History 21, needle stroke opening/closing (ms)		2,92/3,58	3,10/5,10	2,88/3,77		3,10/3,95
History 22, needle stroke opening/closing (ms)		2,92/3,58	3,10/5,15	2,88/3,77		3,10/3,95
History 23, needle stroke opening/closing (ms)		2,92/3,62	3,10/5,15	2,88/3,77		3,14/3,99
History 24, needle stroke opening/closing (ms)		2,96/3,62	3,05/5,20	2,88/3,81		3,10/3,99
History 25, needle stroke opening/closing (ms)		2,92/3,58	3,10/5,15	2,92/3,77		3,18/3,95
History 26, needle stroke opening/closing (ms)		2,96/3,62	3,10/5,20	2,92/3,77		3,14/3,99
History 27, needle stroke opening/closing (ms)		2,92/3,55	3,05/5,15	2,88/3,77		3,10/3,84
History 28, needle stroke opening/closing (ms)						
History 29, needle stroke opening/closing (ms)						
History 30, needle stroke opening/closing (ms)						
History 31, needle stroke opening/closing (ms)						
History 32, needle stroke opening/closing (ms)						
History 33, needle stroke opening/closing (ms)						
History 34, needle stroke opening/closing (ms)						
History 35, needle stroke opening/closing (ms)						
History 36, needle stroke opening/closing (ms)						

Fig. 6 Chart Analysis Switching Times

View Logged Data

Click here in the home screen to open this screen.

Open or close the log files tree on the left side of the screen using the arrow symbols  .

Double-click a file saved in the log files tree to display it.

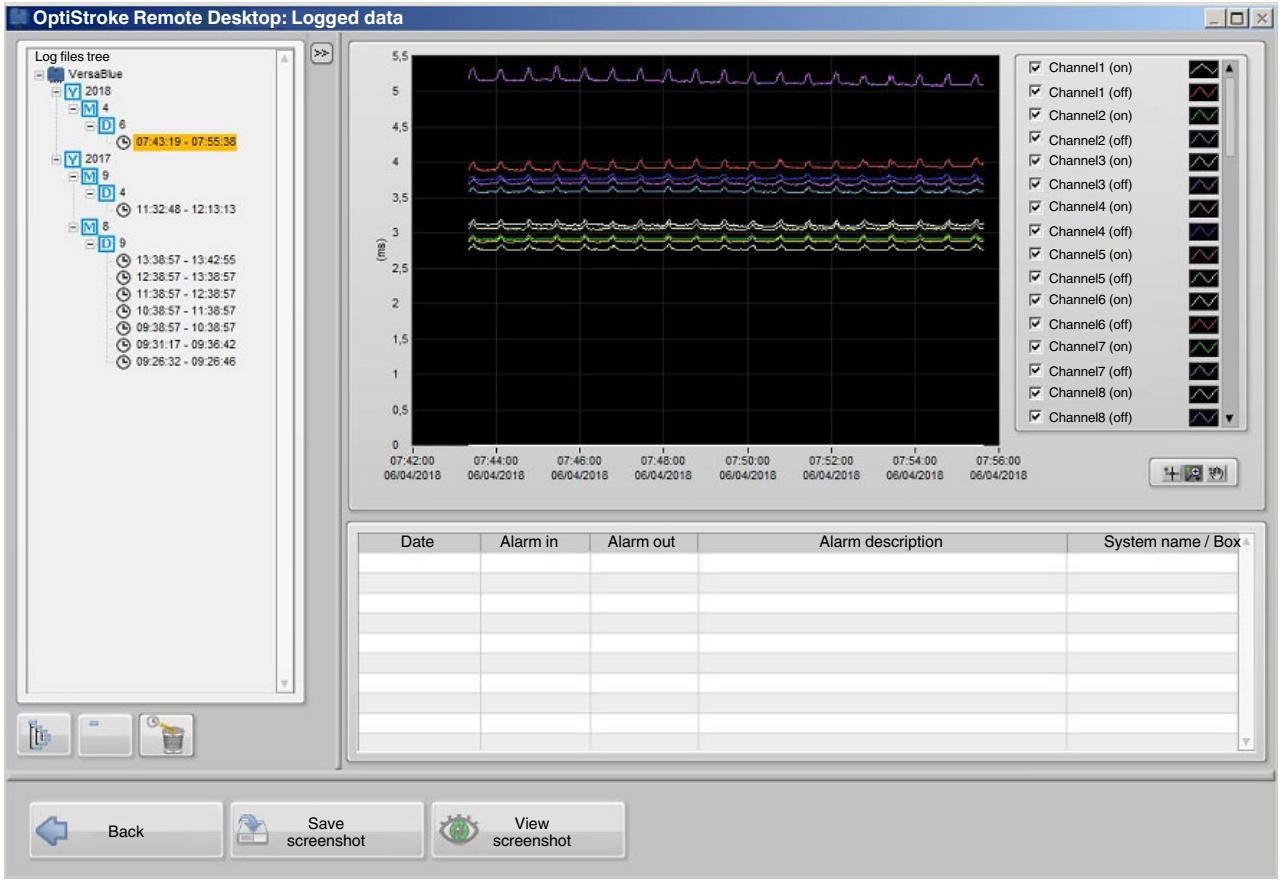


Fig. 7 View logged data

Channel Names

Click here in the home screen to open this screen.

Names for the various control modules can be assigned in the colored section of the chart.

Double-click to activate text input in the desired line.

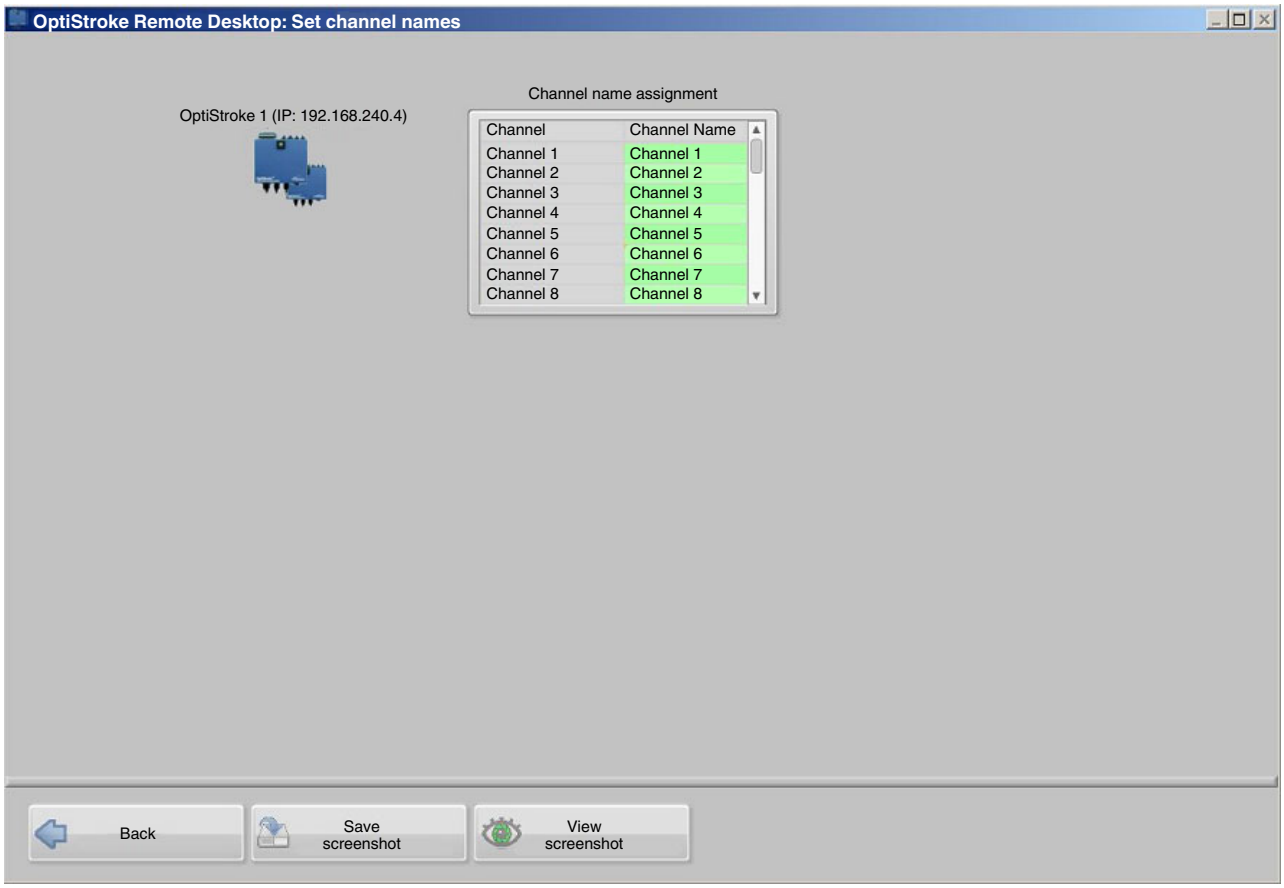


Fig. 8 Entering channel name

Remote Desktop Settings

Click here in the home screen to open this screen.

The operator language and other parameters can be set here.

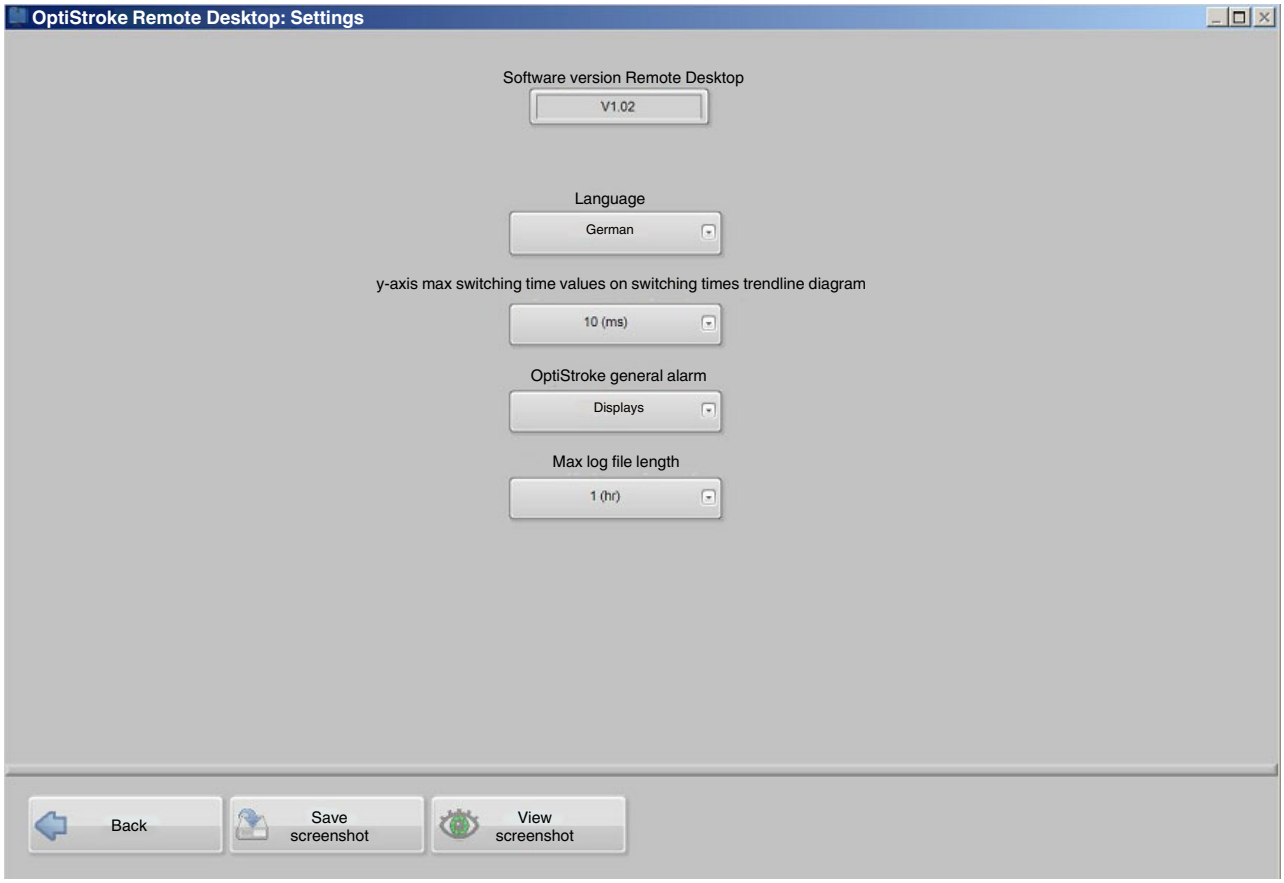


Fig. 9 Changing settings in the Remote Desktop software