

# Manual **Duco Network Tool**



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# STARTING UP THE APPLICATION

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## **1.1 STARTING UP WITH A USB CONNECTION**

If a USB connection is made to the DucoBox or IQ-unit on start-up, the application will automatically look for all components and their parameters. Progress is displayed on the start-up screen. Once the parameters have been retrieved, the application proceeds automatically to the network overview (see section 2.1.3 on page 8).



Figure 2. Connect to DucoBox Silent / Focus



Figure 1. Connect to IQ-unit



Figure 3. Network loading screen on start-up



### **1.2 STARTING UP WITHOUT A USB CONNECTION**

Duco Network Tool - OFFLINE	
File Network Help	
Network     Heip       C2     ⊨ Her       Network     Health	No USB connection! Open a saved DNT-file or connect an USB-cable to a Duco Master device (DucoBox/IQ-unit) and click the 'Scan network' button below. Scan network

If a USB connection has not been made on start-up, you will go into the application's off-line mode. The USB cable can still be connected to a Duco Master component (DucoBox or IQ-unit). It is recommended that you click 'Scan network' next to bring up the network overview (ditto as starting up with a USB connection). On completing these steps the application goes on automatically to this overview (see section 2.1.3 on page 8).

The off-line mode can also be used to open DNT files (files with the network configuration fully saved (see section 4 on page 16)). This enables the complete network with all its parameters to be retrieved and analysed again later on.



APPLICATION OVERVIEW



Figure 4. Application overview plus error messages

The application consists of two major parts:

• 2.1 Network panel

2

• 2.2 Component info



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### 2.1 NETWORK PANEL



Figure 5. Network overview plus error messages

#### 2.1.1 NETWORK-RELATED SHORT-CUT KEYS

Network-related short-cut keys can modify the network overview or bring about certain network activities.

3	<b>Refresh network information</b> This button refreshes all information relating to the network (consistent with application start- up). The arrows rotate while the network is being refreshed and settings cannot be changed.
Ξ	<b>Change network display</b> This button changes how the network overview is displayed, from a tree structure to a flat chronological list (in 'Node number' sequence: a unique address in the network).
INST	<b>Installation mode</b> This short-cut key puts the network into exit mode and exits from it.
	<b>Display component</b> This button enables a component in the network to be recognised. If this button is pressed, the component indicated in the network overview will light up in blue. This links the component indicated in the network to the physical component.
ക	<b>Network overview</b> A complete overview of the most significant network parameters (see section 2.1.3 on page 8).
Ð	<b>Network status overview</b> A complete overview of every error message and warning in the network (see section 2.1.2 on page 7).
Ē	<b>Save as PDF file</b> This short-cut key enables all the information to be saved in a PDF file (see section 3 on page 13).



#### 2.1.2 NETWORK STATUS

This button displays the status of the network. There are four different situations that can occur:

Network Health: OK	<b>OK</b> The network is not showing any error messages.
Network Health: INFO	<b>Information</b> Despite the fact that the network is not showing any error messages, there are some issues. Click the button for a overview.
Network Health: WARNING	<b>Warning</b> There is an actual risk of error messages occurring in the network. Click the button for a overview.
Network Health: ERROR	<b>Error</b> Error messages have occurred in the network. Click the button for a overview of error messages.

Click the 'network status' button ( or remains the message sequence number, its status, a 'node number' and name, a description of the error message and a possible remedy.

Netw	ork Healt	th Over	view		
#	Status	Node	Unit	Description	Possible solution
1	INFO	1	DucoBox Focus	Empty Home is ON (complete network is permanent low)	Press AUTO or an other manual button on a random user contr
2	ERR	1	DucoBox Focue	Flow calibration has failed!	Reboot the DucoBox while lid is closed to retry the flow calibrat
3	WARN	2	Humidity Control valve	Network connection bad!	Check if component is connected (wired) and has power.
•				m	,



#### 2.1.3 NETWORK OVERVIEW

This part of the application displays an overview of all components. Click the component for a readout of the settings or other information (section 2.2). Components showing issues, warnings or error messages are displayed coloured light green, orange or red, respectively. Using the 'Change network display' button (≡), the overview can be displayed in the following structures:



Figure 6. Tree structure

Figure 7. Chronological list structure

Netwo	ork Overvie	w											
#	Img	Name	Comm	Prod	Softw	Netw	Pmt	Азэо	Stat	Vent	Cur	SenaReq	
	_	DucoBox Focus	RF/Wired	12038	2.0.0	ок	0	0	AUTO (0x00)	70m²/h (41% of 170m²/h)	20% (Target: 20%)		N
2	2	Humidity Control valve	Wired	12035	220	ок	1	0	AUTO (0x00)	60m²/h (100% of 60m²/h)	100% (Target: 100%)	100%	N
3		Sensorless Control valve	Wired	12035	2.2.0	ок	1	0	AUTO (0x00)	4m³/h (10% of 35m³/h)	5% (Target: 5%)		N
4		CO2 Control valve	Wired	12035	2.2.0	ок	1	0	AUTO (0x00)	8m³/h (10% of 75m³/h)	22% (Target: 22%)	0%	N
5		User controller	Wired	12034	1.2.0	ок	2	2	AUTO (0x00)	-			N
7		User controller	Wired	12034	1.2.0	ок	4	0	AUTO (0x00)		•		N
8		Control unit Tronic	Wired	12031	1.0.0	ок	4	7	AUTO (0x00)	5%	15% (Target: 5%)		N
9		Switch sensor	RF	12040	1.2.0	ок	3	3	OFF (0x00)			0%	N
۲ 📃													÷

Click the 'Network overview' button (劫) for a detailed overview of the network.

Figure 8. Network overview



## 2.2 COMPONENT INFO

Duco Network Tool	Communication: RF/Wred     Extra rifo (e.g. location):     Info Settings Moduus registerist. Health
	Component Incluin     Status Description     Status Description     Status Description     Status Description     Status Solution is ON (complete network is permanent love)     Status Programmer (complete network is permanent love)     Status Description has failed!      Possible solution for Flow calibration has failed!      Possible solution for Flow calibration has failed!      Rebot the DucoBox while Id is closed to retry the flow calibration. Check for large leaks or very high resistances in air ducts (also in the outside-exhaust duct)!

Figure 9. Component with error message

This screen consists of three major sections:

- 2.2.1 Image
- 2.2.2 General information
- 2.2.3 Specific information and settings, any ModBus parameters and status.



#### 2.2.1 IMAGE

An image of the component is shown top left. Next to this image a pictogram is shown in the bottom right-hand corner, to indicate whether the component is showing any issues, warnings or error messages.

0	<b>Information</b> Despite the fact that the component is not showing any error messages, there are some issues. Click the pictogram for a overview.
	<b>Warning</b> There is an actual risk of error messages occurring in the component. Click the pictogram for a overview.
	<b>Error</b> Error messages have occurred in the component. Click the pictogram for a overview of error messages.

#### 2.2.2 GENERAL INFORMATION

General component information is displayed top right. This consists of the 'node number', product identification (with its serial number), the software version and communication capability. Additional information (such as location) can be added as well, this can be displayed in PDF format using the 'save as PDF file' function. In addition to the component name there are another two short-cut keys:

C2	<b>Refresh component info</b> This button only refreshes the info for the selected component. This can save time if it involves a large network. The arrows rotate while the network is being refreshed and settings cannot be changed.
Ē	<b>Save as PDF file</b> This short-cut key can be used to save all information relating to the selected component as a PDF file (see section 2 'Save as PDF file').

#### 2.2.3 SPECIFIC INFORMATION AND SETTINGS

Up to four tabs may be displayed in this section:

- 2.2.3.1 Information
- 2.2.3.2 Settings
- 2.2.3.3 ModBus register list (for ModBus compatible components only)
- 2.2.3.4 Status only if there is a message (see also pictogram next to image)

#### 2.2.3.1 Information

This tab displays all component info.



datus						
Status					AUTO (0x00)	
Flow le	vel (calcu	ulated)	c i		70m³/h (41% of 170m³/h)	
Absolu	te level:				20% (Target: 20%)	
Overru	le value (	e.g. M	odBus):		Not overalled	
RF Ho	me-ID:				00002957 [00002957]	
Sensor						
Fan sp	eed (rpm)	c .			656	
PWM	IN value:				0	
PWM	N period:				0	
PWM	IN duty-cy	cle:			0	
Fan ca	libration					
Node	Speed	dPf	Qout	k-value		
ALL	2181	291	264	68351		
2	2212	300	240	22960		
3	2197	296	253	10544		
4	2204	297	247	15616		

Figure 10. DucoBox Focus info tab

#### 2.2.3.2 Settings

Settings for the selected component can be viewed or changed in this tab.

On selecting the setting, both the standard value and a brief description of the function are shown below it.

Laton		
ModBus address	1	
Ventilation		
Automatic minimum level (%)	10	
Automatic maximum level (%)	100	

Figure 11. DucoBox Focus settings

#### 2.2.3.3 ModBus register list

All Input and Holding ModBus registers for the component can be read out in this tab. The current value is displayed (it is updated upon refreshing the component or the network). This tab is displayed only if the network (DucoBox/IQ-unit) ModBus is compatible.

On selecting the register value, a brief description of the function is shown below it.



INPUT	registers - Read parameter		HOLDING register - Write parameter			
Address	Description	Current value	Address	Description	Current value	
10	Type module	10	10	Overrule ventilation level (%)	255	
11	Status	0	11	-		
12	Ventilation level (%)	20	12			
13			13	*		
14			14			
15	-		15	Setting: Automatic minimum level (%)	10	
16			16	Setting. Automatic maximum level (%)	100	
17			17	-		
18			18	10) (1)		
19	Zone	0	19	Action	7	
Type m Every kir	ndule d of component has it's own typ	enumber.	Overnal Overnale (100% is	e ventilation level (%) associated ventilation intake levels with t	he desired leve	

Figure 12. ModBus register list for a User controller

#### 2.2.3.4 Status

This tab displays any issues, warnings or error messages discovered for the component. This tab will only appear if any messages have been generated.

On selecting the error message a suggested remedy for the problem will appear below the message.

Status	Description
INFO	Empty Home is ON (complete network is permanent low)
ERR	Flow calibration has failed!



# SAVE AS PDF FILE

All information about the Duco Network can also be saved as a PDF file. In the drop-down menu top left you can choose from four types of document:

- Component settings
- ModBus register lists for ModBus implementations
- List of all components (nodes)
- Network error messages

Unwanted components can be unchecked in the middle of the left-hand section so as not to include them in the PDF file. The right-hand pane shows a sample PDF file once it has been saved. Press the 'Save' button to save the file in PDF format.

ave preview		
Document		
Component settings		
Components Soloct all Soloct onc	Component settings	PUCO Ventilation & Sun Control
I - DucuBax Focus     2 - Humidity Control valve     3 - Sensorless Control valve     4 - CO2 Control valve     1 - CO2 Control valve	DucoBox Focus - Extra in 6 (location):	Node: 1
V 5- User controller	# Setting	Value
8 - Control unit Tronic	1 Automatic minimum level (%)	10
9 - Switch sensor	2 Automatic maximum level (%)	100
	3 Flow capacity (m <sup>3</sup> /h)	0
	4 ModBus address	1
	Humidity Control valu	re - Node: 2
	# Setting	Value
	1 Automatic minimum level (%)	10
	2 Automatic maximum level (%)	100
	3 Flow capacity (m <sup>3</sup> /h)	60
Cancel Save	4 RH actpoint (%)	40
Gander Save	I S IRH deta	1 1

Figure 13. Component settings



cument				
mponents Soloct all Soloct one 1 - DucuBax Fucus	ModBus addresslist IQ ModBus Address: 1	Ventilation & Sun Control		
- Humidity Control valve - Sensorless Control valve - CO2 Control valve - User controller - User controller	DucoBox Extra in fo (location):	Focus - Node: 1		
Control unit Tronic	MODBUS RECISTERUIST			
Switch sensor	INPUT registers - Read parameter	HOLDING register - Write parameter		
	10 Type module	10 Overrule ventilation level (%)		
	11 Status	11 -		
	12 Ventilation level (%)	12 -		
	13 -	13 -		
	14 -	14 -		
	15 -	15 Setting: Automatic minimum level (%)		
	16 -	16 Setting: Automatic maximum level (%)		
	17 -	17 -		
	18 -	18 -		
	19 Zone	19 Action		

Figure 14. ModBus address list

Vocument Vetwork nodelist 🔹		
Components Scloct all Scloct onc	Network nodelist	PUCO Ventilation & Sun Control
?       1 - Ducu-Bux, Fucus         ?       2 - Humidity Control valve         ?       3 - Sensoriess Control valve         ?       4 - CO2 Control valve         ?       4 - CO2 Control valve         ?       5 - User control valve         ?       7 - User controller         ?       8 - Control valve         ?       9 - Switch sensor	Node         Component           1         DucoBox Focus           2         Humidity Control valve           3         Sensoricas Control valve           4         CU2 Control valve           5         Ilser controller           7         User controller           8         Control unit Tronic           9         Switch sensor	Extra info (location)
Cancel Save	c	

Figure 15. Network node list





Figure 16. Network error messages



## SAVING AND OPENING DNT FILES

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The entire network and all its settings/parameters can be saved as a DNT file (DNT = Duco Network Tool). To do this go to the 'File' > 'Save Network to file...' menu. These files can be opened again later on via 'File' > 'Open Network file...', even if there is no USB connection to the DucoBox or IQ-unit in place.

				Locker provident	
Irganiseren 🔻 Nieuw	re map			8	
🔛 Recente locaties 🔺	Naam	Gewijzigd op	Туре	Grootte	
FVE (duco-s2)	DucoNetwork 150619-101016.dnt	19/06/2015 10:10	DNT-bestand	208 kB	
RD_ONDERZOEK	DucoNetwork 150619-102803.dnt	19/06/2015 10:28	DNT-bestand	251 kB	
TRANSFER (duco	DucoNetwork_150702-135428.dnt	2/07/2015 13:54	DNT-bestand	107 k8	
CENTRAAL (duce					
INDEX (duco-s2)					
Ribliotheken					
Afbeeldingen					
Documenten					
J Muziek					
Video's					
E Computer					
Bestandsnaam: Duco	Network_150707-112221.dnt				
Opplaan alg DNT	files (*.dnt)				



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	Projects Provinloads Propox Propbox Recente locaties FVE (duco-s2) RD_ONDERZOEK RD_LABC (duco- TRANSFER (duco RDLABC (duco- RDLABC (duco-s2) RDLABC (duco- RDLABC (duco- RDLABC (duco- RDLABC (duco- RDLABC (duco- RDLABC (duco- RDLABC (duco- RDLABC (duco- RDLABC (duco-s2) RDDERC (duco-s	Naam DucoNetwork_150619-101016.dnt DucoNetwork_150619-102803.dnt DucoNetwork_150702-135428.dnt	Gewijzigd op 19/06/2015 10:10 19/06/2015 10:28 2/07/2015 13:54	Type DNT-bestand DNT-bestand DNT-bestand	Grootte 208 kB 251 kB 107 kB		

Figure 18. Opening a DNT file

