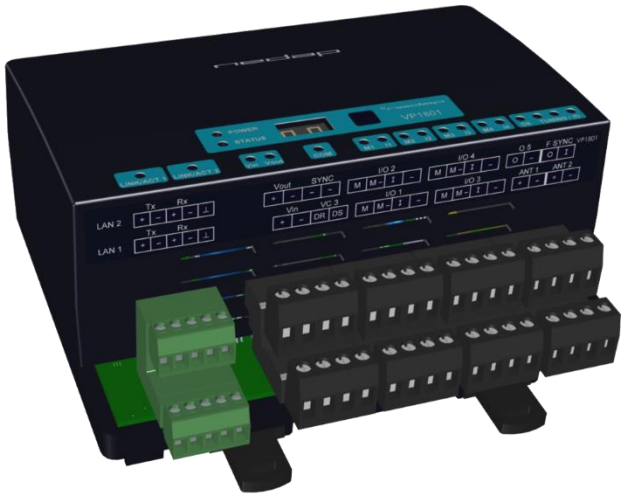
Quick start manual

VP1801 Reader Motor Control

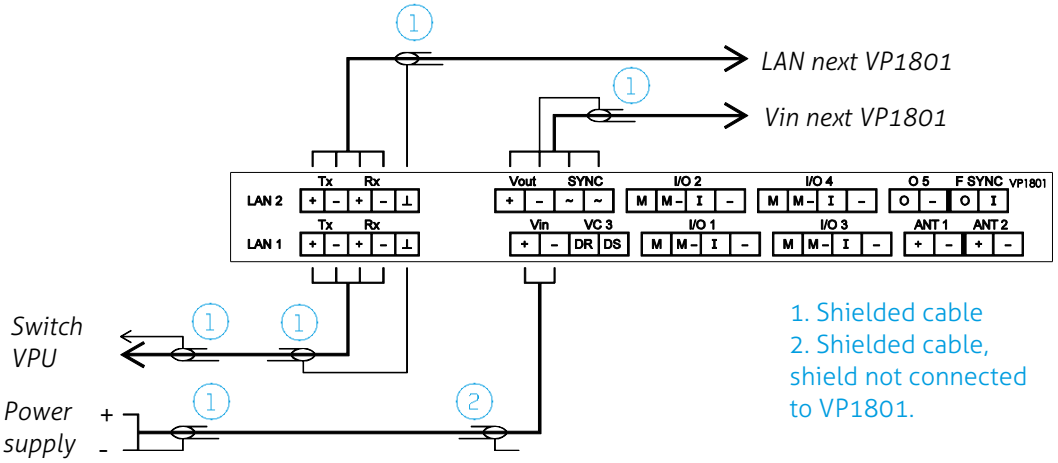
This sheet is only intended as quick start. See service manual for detailed instructions.

The VP1801 is a Velos component that is used to identify animals for feeding, weighing, milking, heat detection etc. The VP1801 is equipped with an internal switch to support a double Ethernet connection (web interface ready) and the existing VC3 interface. The Ethernet channel is used for the main functionality and communication like software updates and service. An extra communication channel is available for the VC3 systems. The function is the same as the existing Single Feeder.
The VP1801 can be installed in a V-box.



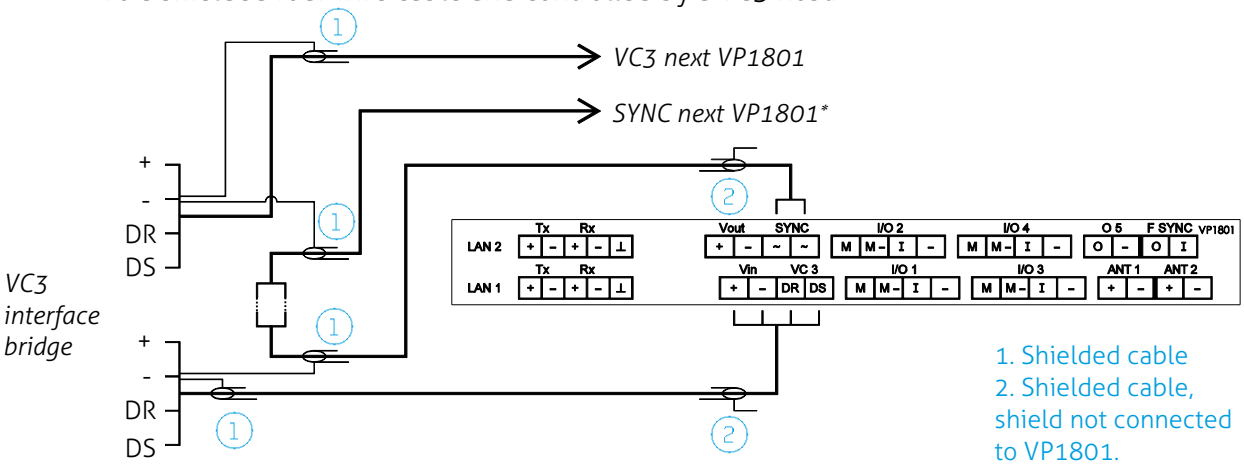
A VP1801 can be connected in different ways:

- To a shielded Ethernet cable and controlled by a switch or VPU:



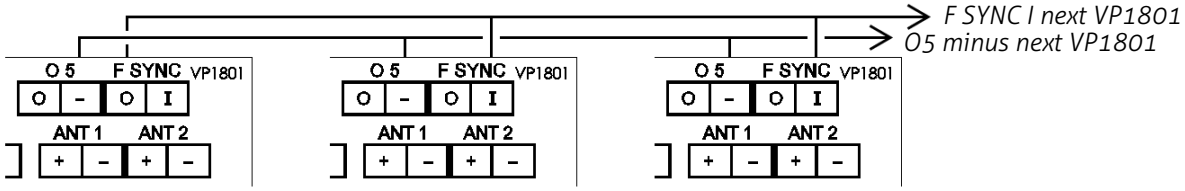
When connecting the Ethernet cable, the VP1801 automatically detects TX/RX , plus and minus connections, and switches to the correct connection.

- To a shielded four wire cable and controlled by a VC3 host:



*The SYNC connection is necessary for HDX ISO synchronization between other readers. For FDX a SYNC connection is possible, but not necessary if only one antenna is used. When two antennas are used the SYNC connection is always needed, even when FDX-only (no ISO) mode is enabled. The switching between the two antennas uses the ISO timing.

The F SYNC connection is necessary when the distance between two antennas is ≤ 3 m. Connect the F SYNC as shown in the picture below.



Installation steps Ethernet

Step 1 Install the VP1801 in the V-box (or other box). See the manual of the relevant equipment (feeding station, separation unit etc.) where is indicated how to install the V-box.

Step 2 Connect all required wiring. See the manual of the relevant equipment and the manual of the required behaviour component.

Step 3 Power up and check the LED indicators, see also the overview on page 9.

Step 4 When the system is equipped with the auto-addressing function, the host computer requires the address. Select "Sp > y" in the display menu of the VP1801, see page 6. Go to **Step 8**.

Step 5 When auto-addressing is not available, set the required address manually via "Ad" in the display menu, see page 6.

Step 6 Check the ip settings via "IP" in the display menu, see page 6. Default DHCP is on. When DHCP must be switched off, set the required ip address settings via "IP" in the display menu. When DHCP is switched off, the default IP address is 192.168.1.100.

Step 7 Check the antenna tuning. Select "HF > H1 > tu" in the display menu to start and enable autotune, see page 7. If external manual adjustment is used (e.g. adjustable antenna-trafo), select "AA" in the display menu, see page 7.

Step 8 Test the functioning. See manual of the behaviour component. In case of malfunctioning the connected devices like sensors, motors, valves can be checked with options from menu option "It", see page 7.

Installation steps VC3

Step 1 Install the VP1801 in the V-box (or other box). See the manual of the relevant equipment (feeder, separation unit etc.) where is indicated how to install the V-box.

Step 2 Connect all required wiring. See the manual of the relevant VC3 application.

Step 3 Power up and check the LED indicators, see also overview on page 9.

Step 4 Set the required VC3 address via "CO > SA" in the display menu, see page 8.

Step 5 Select the VC3 application and other relevant VC3 settings via "CO > AP", see page 8.

Step 5 Check the antenna tuning. Select "HF > H1 > tu" in the display menu to start and enable autotune, see page 7. If external manual adjustment is used (e.g. adjustable antenna-trafo), select "AA" in the display menu, see page 7.

Step 6 Test the functioning. See the manual of the VC3 application. In case of malfunctioning of the connected devices like sensors, motors, valves execute a test with options from menu option "It", see page 7.

Connections

See the manual of the concerning behaviour component for a detailed overview of the connections. O5 is default controlled by the identification process of the VP1801 itself, and can be overruled by the behaviour component. If the V-box has a signal light, connect it default to O5.

When connecting the Ethernet cable, the VP1801 automatically detects TX/RX , plus and minus connections, and switches to the correct connection.

Details VP1801 inputs and outputs

LAN	Tx +	Transmit (shielded CAT5E FTP (Foiled Twister Pair, also called S/UTP) stranded AWG26 or AWG24 (preferred)). Cable length max. 100 m.
	Tx -	Transmit
	Rx +	Receive
	Rx -	Receive
	⊥	Ethernet shielding
Vin	+	Input voltage 25 VDC, +20% -20%
	-	Minus
Vout	+	Output (max 4A)
	-	Minus
VC3	DR	VC3 data receive. Shielded cable, cable length max. 40 m.
	DS	VC3 data send
SYNC	~	Synchronisation for HDX or 2 installed antennas, AC (no plus or minus, cable must be shielded twisted pair). Max. 20 devices parallel, total cable length max. 300 m.
	~	See above
I/O 1 .. 4	M	Motor output or normal output max 3.5A as total current for the 4 outputs. Cable length max. 3 m.
	M-	Minus for motor output or normal output
	I	Input of motor or normal input
	-	Minus for motor input or normal input
O5	O	Output max 400mA continue. Cable length max. 3 m.
	-	Minus for output (O) and minus input (I)
ANT 1	+	Antenna 1 (core of coax). Cable length max. 10 m.
	-	Minus for antenna 1 (shield of coax)
ANT 2	+	Antenna 2 (core of coax). Cable length max. 10 m.
	-	Minus for antenna 2 (shield of coax)
F SYNC	O	Output for FDX synchronization of the antenna signal phase (core of coax: shield connected with minus of O5). Cable length max. 3 m.
	I	Input for synchronization of antenna signal phase (core of coax: shield connected with minus of O5). Cable length max. 3 m.

Antennas

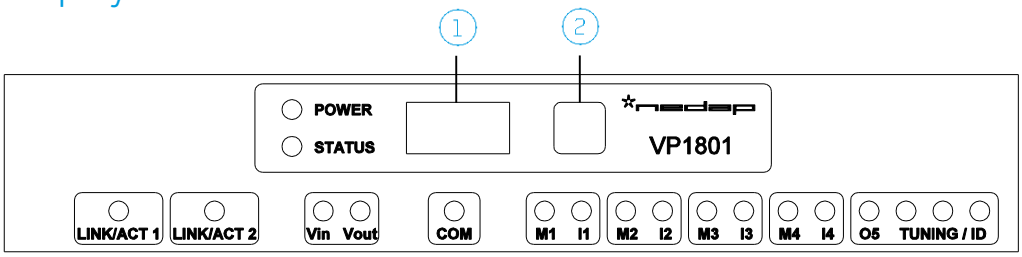
The VP1801 has two antenna connections and one internal reader. When two antennas are connected, the used application determines if the second antenna is used or not. In case the reader has to control both antennas, the reader switches fast between the two antennas in a smart way. That means the identification time is divided over the two antennas with a switching time that can vary between 24ms and 120ms in case both antennas have the same priority. Priority is controlled by Ethernet control like a behaviour component.

Autotune

The VP1801 is equipped with the autotune function. This means it can tune an antenna by itself due to an integrated internal tuning-circuit on board. Tuning can be started with the display menu "HF > H1 > tu", remote from an external command over Ethernet or with the web-interface of the VP1801.

Important!
Autotune works with all Nedap antennas. In case external antenna adjustment is used (e.g. adjustable antenna-trafo), the autotune function must be switched off to achieve the maximum reading distance. This can be done via "HF > HI > AA" in the menu display of the VP1801, see page 6. Then the autotune function is disabled until it is started again with the display menu "HF > H1 > tu".

Display menu



1. Display
2. Push button

SP → n — SERIAL NUMBER
Shows last four digits of serial number

y — SYSTEM PING
Send system ping

P — PROGRAM VERSION
Shows program version

Ad → dA — DISPLAY ADDRESS
Shows the actual address

SA — SET ADDRESS
Change the address

dS — DISPLAY SECTION
Show section (Default 0, enter 0 to have access to IP address settings)

SS — SET SECTION
Change section

du — DISPLAY VPU UNIT ADDRESS
Shows actual VPU unit address (Default 0)

Su — SET VPU UNIT ADDRESS
Changes the actual unit VPU unit address

dF — SETTINGS TO DEFAULT
All address settings back to factory settings

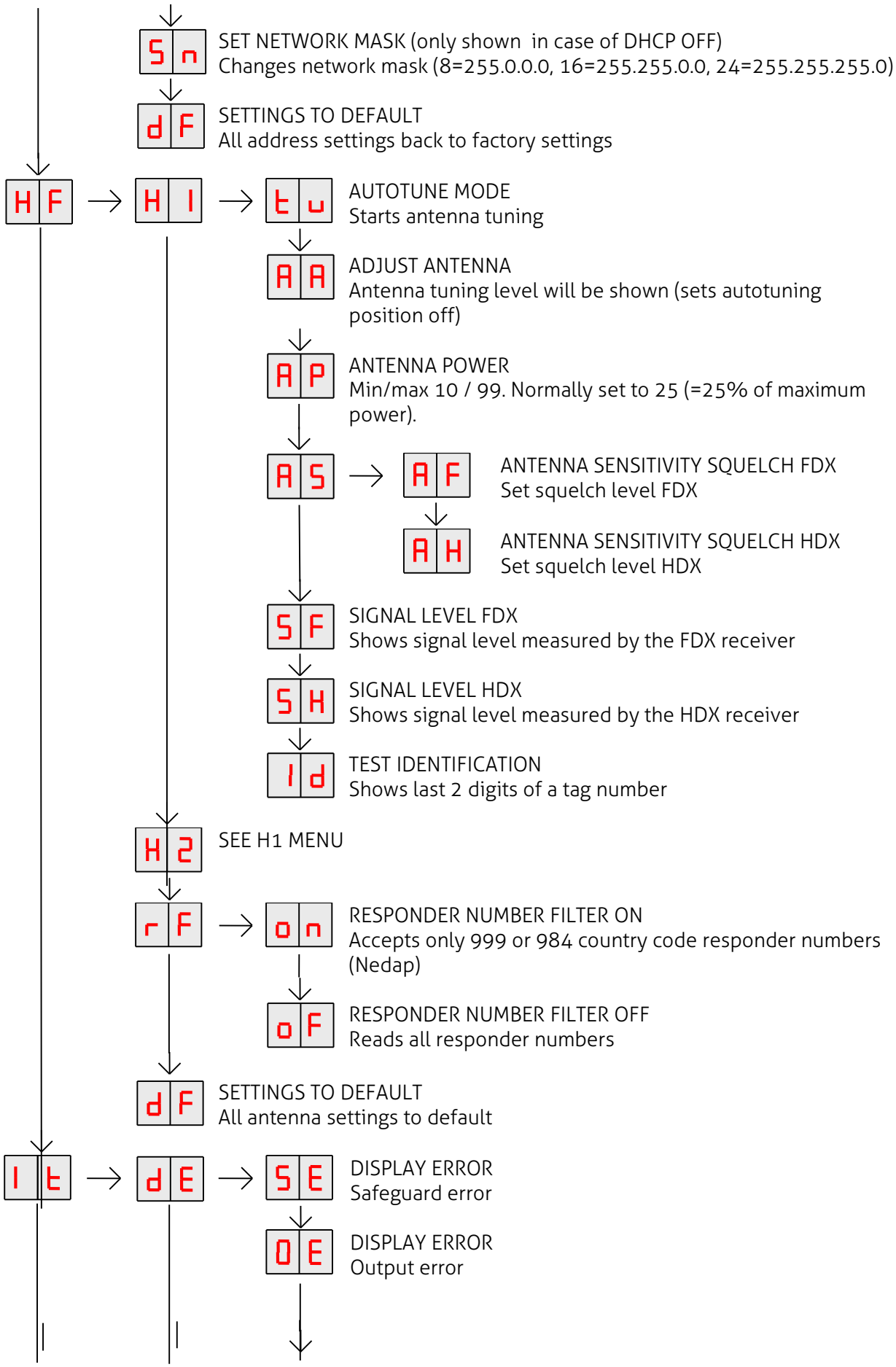
IP → dh → on — DHCP IS ON
Press long until blinking to turn on DHCP

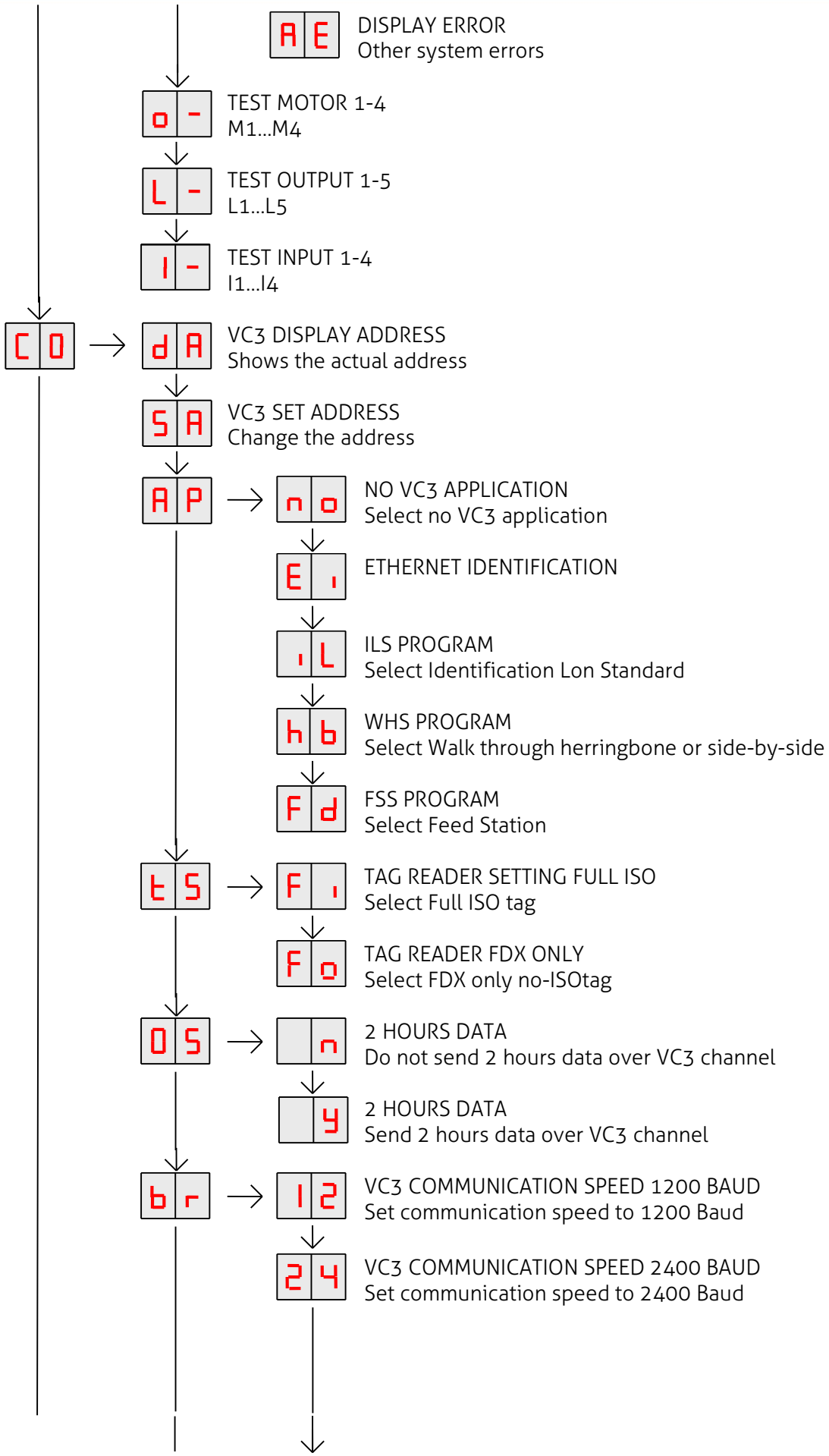
oF — DHCP IS OFF
Press long until blinking to turn off DHCP

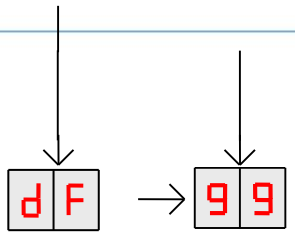
di — DISPLAY IP ADDRESS
Shows actual IP address (one by one)

Si — SET IP ADDRESS

dn — DISPLAY NETWORK MASK (only shown in case of DHCP OFF)
Shows network mask (8=255.0.0.0, 16=255.255.0.0, 24=255.255.255.0)


SET NETWORK MASK (only shown in case of DHCP OFF)
Changes network mask (8=255.0.0.0, 16=255.255.0.0, 24=255.255.255.0)
SETTINGS TO DEFAULT
All address settings back to factory settings
AUTOTUNE MODE
Starts antenna tuning
ADJUST ANTENNA
Antenna tuning level will be shown (sets autotuning position off)
ANTENNA POWER
Min/max 10 / 99. Normally set to 25 (=25% of maximum power).
ANTENNA SENSITIVITY SQUELCH FDX
Set squelch level FDX
ANTENNA SENSITIVITY SQUELCH HDX
Set squelch level HDX
SIGNAL LEVEL FDX
Shows signal level measured by the FDX receiver
SIGNAL LEVEL HDX
Shows signal level measured by the HDX receiver
TEST IDENTIFICATION
Shows last 2 digits of a tag number
SEE H1 MENU
RESPONDER NUMBER FILTER ON
Accepts only 999 or 984 country code responder numbers (Nedap)
RESPONDER NUMBER FILTER OFF
Reads all responder numbers
SETTINGS TO DEFAULT
All antenna settings to default
DISPLAY ERROR
Safeguard error
DISPLAY ERROR
Output error


AE
DISPLAY ERROR
Other system errors
o-
TEST MOTOR 1-4
M1...M4
L-
TEST OUTPUT 1-5
L1...L5
I-
TEST INPUT 1-4
I1...I4
C0
dA
VC3 DISPLAY ADDRESS
Shows the actual address
SA
VC3 SET ADDRESS
Change the address
AP
no
NO VC3 APPLICATION
Select no VC3 application
E1
ETHERNET IDENTIFICATION
1L
ILS PROGRAM
Select Identification Lon Standard
hb
WHS PROGRAM
Select Walk through herringbone or side-by-side
Fd
FSS PROGRAM
Select Feed Station
tS
F1
TAG READER SETTING FULL ISO
Select Full ISO tag
Fo
TAG READER FDX ONLY
Select FDX only no-ISOtag
0S
n
2 HOURS DATA
Do not send 2 hours data over VC3 channel
y
2 HOURS DATA
Send 2 hours data over VC3 channel
br
12
VC3 COMMUNICATION SPEED 1200 BAUD
Set communication speed to 1200 Baud
24
VC3 COMMUNICATION SPEED 2400 BAUD
Set communication speed to 2400 Baud



48 VC3 COMMUNICATION SPEED 4800 BAUD
Set communication speed to 4800 Baud

DEFAULT
Enter value 99 to return to factory defaults

→	Press button until blinking		To leave menu:
↓	Press button short		press button until display is empty

How to use the display and push button

Activate the menu	press short on the button, the display menu is shown
Scroll down	press short
Select	press until blinking
Change and store	select item to change, open item by pressing till blinking, change by pressing short, store by pressing to blinking
Check a setting	select the item to check, press until blinking, first value shown is actual setting

LED indicators

● = OK
● = not OK

POWER	●	Green on	Power on
	○	off	No power
STATUS	●	Slow blinking Fast blinking Short blinking Long blinking	Operating ok Downloading or error during download Not connected to the host Connection established to the host
Display	on	Address indicated	No communication
	off		Communication status ok
LINK/ACT	●	Green on	Connection ok
	●	Green blinking	Data transmit
V in	●	Green on	Input power applied
	○	Off	No power
	●	Red	Error, plus and minus swapped
V out	●	Green on	Output power
	○	off	No power
	●	Orange blinking	Low power
	●	Red blinking	Error, plus and minus swapped
COM	●	Green on	Connection VC3 channel
	●	Green blinking	Data transmit VC3 channel
M1...M4	●	Green on	Output on
	○	Off	Output off
	●	Red blinking	Output error
I1....I4	●	Green on	Input contact closed
	○	Off	Input contact open
O5	●	Green on	Output on
	○	Off	Output off
	●	Red blinking	Output error
Tuning/ID	○ ● ○	Red blinking	Tuning
One antenna	○ ● ○	Green on	Antenna tuning ok
	● ○ ○	Red on	Antenna not tuned
	● ○ ●	Red blinking	No antenna connected or low antenna signal
	○ ○ ○	Off	Antenna off
Two antennas *	● ○ ○	Green on	Antenna 1 tuning ok
	● ○ ○	Green blinking	Antenna 1 tag identified
	● ○ ○	Red on	Antenna 1 not tuned
	● ○ ○ ●	Red/green blinking	Antenna 1 tag identified + not tuned
	○ ○ ○	Off	Antenna 1 off

* The described LED indicators apply to antenna 1 (left LED indicator). The same indicators are used for antenna 2 (right LED indicator).

Specifications VP 1801

Dimensions	143 x 120 x 68 mm LxWxH (excluding mounting rail) Weight: ± 430 gr
Power	Input voltage 25 VDC, +20% -20%
	Max current consumption without connected I/O = 300 mA
	Maximum (total) motor output current 3,5 A
	Protected against reverse connection power supply
Software	Check for available updates
Inputs I1 – I4	0V – 35V DC
	Suitable for NPN sensors
Outputs O1 – O4	In total max. 3.5 Amp continue, short-circuiting and overload protected
O5	Max. 400mA continue, short-circuiting and overload protected
V out	Max. 4A continue, short-circuiting and overload protected
Synchronization	Synchronization according to ISO 11785
Environment	Temperature: Operating: -10 – 50 °C, Storage: -25 – 50 °C
	Relative humidity: 10 – 93% non condensing
	Maximum noise level: 10 dBµA/m quasi peak, according CISPR 16-1-1
	Conducted noise: according EN55022
IP class	IP 30. When installed in V-box IP 65 (cover and cables installed correctly !)

Always use a NEDAP power supply. The Nedap guarantee-regulations are only valid when is installed as indicated in this manual. Install data cables at a safe distance from (high) powered cables. For more detailed information contact your local Nedap supplier or check the internet site.

Declaration of Conformity

FCC ID : CGDVP1801
IC : 1444A-VP1801

FCC and IC Compliance statement

This device complies with part 15 of the FCC Rules and to RSS210 of Industry Canada. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Cet appareil se conforme aux normes RSS 210 exemptés de license du Industry Canada. L'opération est soumis aux deux conditions suivantes:
(1) cet appareil ne doit causer aucune interférence, et
(2) cet appareil doit accepter n'importe quelle interférence, y inclus interférence qui peut causer une opération non pas voulu de cet appareil.

Les changements ou modifications n'ayant pas été expressément approuvés par la partie responsable de la conformité peuvent faire perdre à l'utilisateur l'autorisation de faire fonctionner le matériel.

FCC and ISED Radiation Exposure Statement

This equipment complies with FCC and Canadian radiation exposure limits set forth in RSS-102 for a controlled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme a RSS-102 limites énoncées pour un environne- ment non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps.

ISED EMC Declaration

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de Classe B est conforme à la norme Canadienne ICES-003.

FCC Information to the user

Note: This equipment has been tested and found to comply with the limits for a class B digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio
frequent energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation. If this equipment does not cause harmful interference to radio or television reception, which can be determine by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver.
- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- To ensure compliance with FCC regulations, use only the shielded interface cables provided with the product, or additional specified components or accessories that can be used with the installation of the product.

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