

TECHNICAL MANUAL

VP1001

ISO-Reader motor control

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ISO-Reader motor control

Contents

1	General	1
2	Connections	2
3	LED indicators	3
4	Display menu	4
5	Antenna adjustment	5
6	Installation steps	6
7	Update	7
8	Specifications	7

1 General

The VP1001 is a local unit in the VELOS system and usually installed for identification of animals for feeding, weighing, milking, heat detection etc.

The VP1001 has the following main tasks :

- Identification of tags (134.2 kHz FDX/HDX)
- Controlling outputs, 6 outputs available to activate e.g. lights, motors, valves, relays
- Reading inputs, 6 inputs available for e.g. sensors, switches

Output/input 1 till 4 (I/O 1 till I/O 4) can be used to control feed motors or as normal output/input
Output/input 5 and 6 (I/O 5 till I/O 6) can only be used as output/input.

The use of feed motors or output/input must be configured in the software (see manual of the V-pu)

Following antenna types can be used :

- V-sense antennas
- EWA transformer with stainless steel antenna strip
- HDPE antenna with HDPE antenna tuner

A booster (VP1002) can be used to amplify the antenna field for high performance identification

Reference manuals :

PS0000-200PM-00 Velos general overview

VP8001-200PM-00 V-pu

VP1002-200PM-00 ISO-Booster

VP6001-200PM-00 V-sense

This device complies with Part 15 of the FCC Rules. 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.

2 Connections

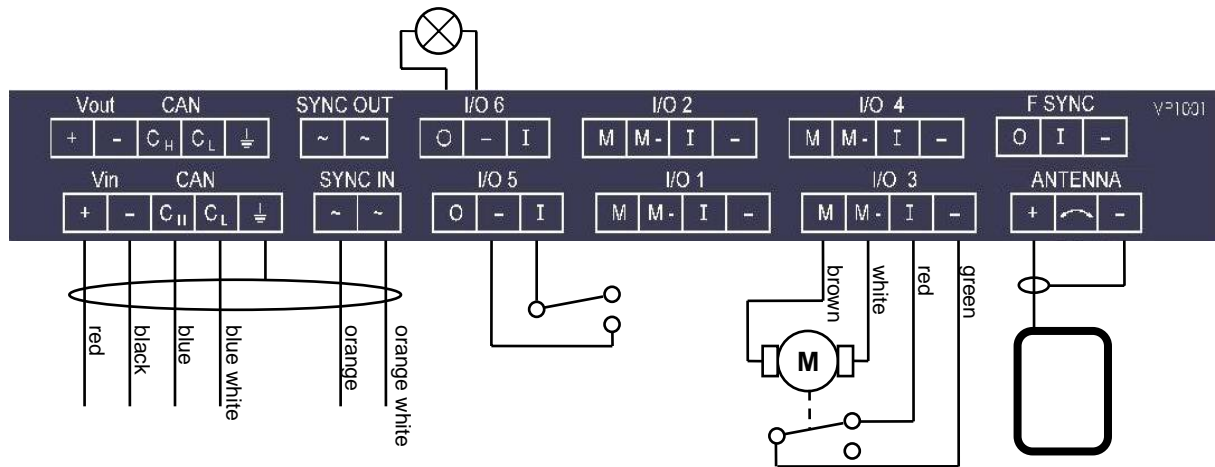
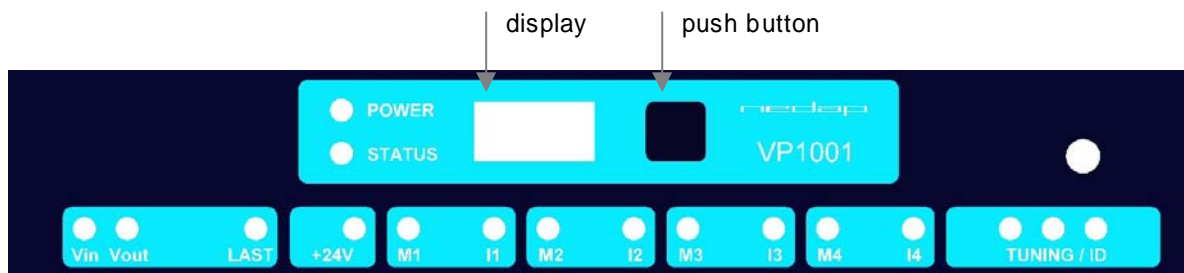


Figure above shows the I/O of the VP1001. The motor, output and input is an example. The configuration is depending on the used software on the V-pu, so called behaviour components. Use the display menu and push button to check and configure the I/O functions.

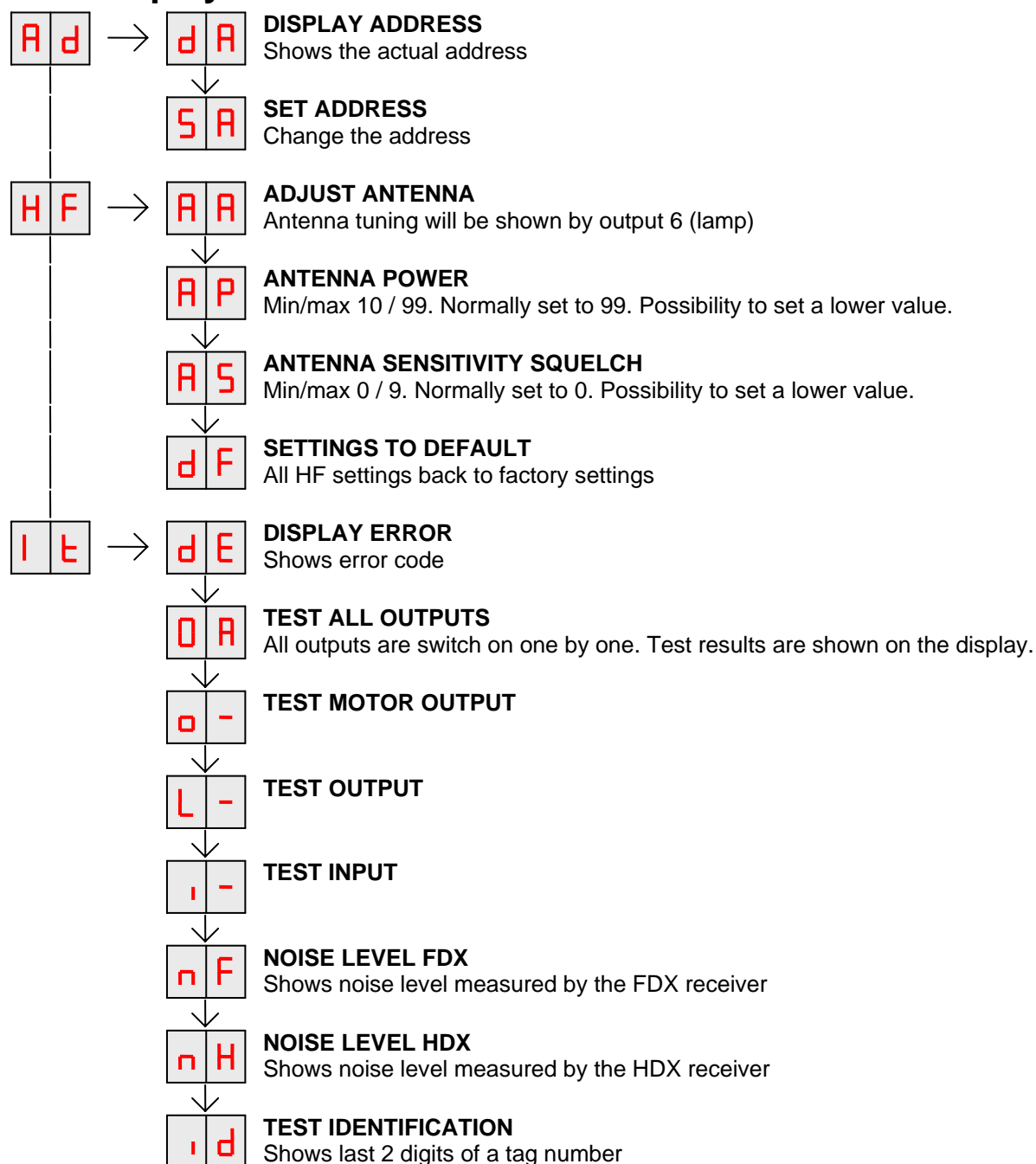
Vin	+	Input voltage 24 VDC, +20% -20%
	-	Minus
CAN	C _H	CAN high (cable twisted pair with C _L)
	C _L	CAN low (cable twisted pair with C _H)
	⏏	Shielding of CAN-bus cable
SYNC	~	Synchronisation for HDX, AC (no plus or minus, cable must be twisted pair)
	~	See above
I/O 1 .. 4	M	Motor output or normal output max 3A
	M-	Minus for motor output or normal output
	I	Input of motor or normal input
	-	Minus for motor input or normal input
I/O 5 .. 6	O	Output max 3A
	-	Minus for output (O) and minus input (I)
	I	Input
ANTENNA	+	Antenna with external adjustment (adjustment not on this V-pack)
	⏏	Antenna with no adjustment, adjustment on this V-pack
	-	Antenna minus (shield of coax cable)
F SYNC	-	Frequency synchronisation (not used yet)

3 LED indicators



POWER	●	Green on	Power on
	○	off	No power
STATUS	●	Blue	
	○	Slow blinking	Operating ok
	○	Very fast blinking	Service mode activ
	○	Fast blinking	Downloading or error during download
	○	1 short flash	V-pack not coupled
	○	2 short flashes	Firmware present but not activ
	○	3 short flashes	No firmware present
	○	Address indicated	No communication
Display	on		Communication status ok
	off		Input power applied
V in	●	Green on	No power
	○	off	Low power, lower then 20V
	●	Orange	Wrong CAN-bus connection, Vin and Vout swapped
	○	Orange blinking	Error, plus and minus swapped
V out	●	Red	Output power
	○	Green on	No power
	○	off	Low power
	○	Orange blinking	Error, plus and minus swapped
LAST	●	Red blinking	V-pack is last one on the CAN-bus
	○	Green on	V-pack is not last one on the CAN-bus
	○	off	CAN-bus error and last V-pack on CAN-bus
	○	Orange blinking	CAN-bus error
	○	Red	CAN-bus warning / wrong connected
+24V	●	Red blinking	24V output switched on
	○	Green on	Output switched off
	○	off	Output on
M1 .. M4	●	Green on	Output off
	○	off	Output error
	○	Red blinking	Input contact open
I1 .. I4	●	Green on	Input contact closed
	○	off	Antenna ok
TUNING /ID	○ ● ○	Green on	Antenna ok and tag identified
	○ ● ○	Green blinking	Antenna not tuned correctly
	● ○ ○	Red on	Antenna not tuned correctly
	○ ○ ●	Red on	Antenna not tuned correctly
	● ○ ●	Red blinking	Antenna error / not connected

4 Display menu



→	Press button until blinking	<input type="checkbox"/>	To leave menu:
↓	Press button short	<input type="checkbox"/>	press button until display is empty

How to use the display and push button

Normally the display is off. If there is no connection to the V-pu the address is shown. It is also possible some program states of a behaviour component are shown during operation.

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

The display is normally automatically switched off after 30 minutes.

5 Antenna adjustments

Antenna tuning

After first time power up the antenna tuning must be checked. Check the TUNING led, green is OK and means the antenna is correctly tuned. When the green led is not ON the antenna must be tuned.

Antenna tuning :

- Turn Lt on the antenna till the green led is ON (use a plastic screw driver)

○ ● ○	Green on	Antenna tuning ok
● ○ ○	Red on	Antenna out of range, turn to the right till green led is on
○ ○ ●	Red on	Antenna out of range, turn to the left till green led is on
● ○ ●	Red on	No antenna connected or low antenna signal
○ ○ ○	All off	Antenna switch off by the software

If there is no antenna led on, software has set the antenna field off, first set the antenna in ID test mode by using the display/push button.

Antenna power

Default the antenna power is set to maximum (99) and needs no adjustments.

Lowering the antenna power will reduce the reading distance of the antenna.

Check the antenna power

The antenna power level is shown on the display in the service menu at HF option AP (Adjust Power)

- Select menu option AP (Adjust Power) on the display by using the push button next to the display
- Push the button until the display starts to blink, a value will appear on the display
- The value on the display is the actual power setting. 99 is the default factory setting.
- To leave the menu without modifying the settings press the button until the display blanks (press about 4 seconds)

Modify the antenna power

- Select the actual antenna power on the display (see above check antenna power)
- Press the button shortly, the first value will change
- Press until the desired value, hold now the button until blinking
- The second digit can be changed in the same way
- When the desired value is on the display, press until the display blinks
- The next menu item AS is now indicated.
- To leave the service menu and return to normal operation, press the button until the display blanks (press about 4 seconds)

Antenna squelch

Antenna squelch is a possibility to set a threshold for the ID level of a tag. It means the antenna power is still the same, but the software will not transfer weak received tag numbers.

Default the antenna squelch is set to minimum (-0). This means no threshold. Maximum is -9.

Check the antenna squelch level

The antenna squelch level is shown on the display in the service menu at HF, option AS (Adjust Squelch)

- Select menu option AS (Adjust Squelch) on the display by using the push button next to the display
- Push the button until the display starts to blink, a value will appear on the display
- The value on the display is the actual power setting. -0 is the default factory setting.
- To leave the menu without modifying the settings press the button until the display blanks (press about 4 seconds)

Modify the antenna squelch level

- Select the actual antenna squelch level on the display (see above check squelch level)
- Press the button shortly, the value will change
- Press until the desired value, hold now the button until blinking
- The next menu item "df" is now indicated.
- To leave the service menu and return to normal operation, press the button until the display blanks (press about 4 seconds)

6 Installation steps

1. Install all wiring
2. Switch on the power to the system
3. Check the adjustment of the antenna (green led on)
4. Check the connected equipment like lamps, motors, sensors etc. Use the display/push button menu to check the correct functioning.
5. Set the addresses, an address must be unique on both CAN-bus channels
6. Start up the web browser on the V-pu and configure the system (see manual of the V-pu)

7 Update

Firm ware

A VP1001 is equipped with software to activate in- and outputs, display / push button and a motor safeguard. This software is called firmware. During manufacturing the firmware is programmed and ready for use. In case of an update it is possible to download new firmware thru the CAN-bus. In the Velos system the web browser interface of the V-pu (VP8001) is used to handle this. More details about download new firmware see also the manual of the V-pu (VP8001).

8 Specifications

Specifications VP 1001 (art.no. 9910905)

Dimensions	143 x 120 x 68 mm LxWxH (excluding mounting rail) Weight: ± 360 gr
CAN	CAN-bus communication 125 kBit
Power	Input voltage 25 VDC, +20% -20% Max power consumption 300 mA with antenna switched on Maximum power consumption 2,5 A Protected against reverse connection power supply
Software	Downloadable by the CAN network
Inputs	Reading inputs, analog (0-40V) and digital. Suitable for NPN and PNP sensors.
Outputs	Max. 2.5 Amp by current limiter, short-circuiting protected Motor safe-guard (after 25 sec)
Antennas	800 µH. Different types possible.
Detection distance	Varies per antenna
Synchronisation	Synchronisation according to ISO 11785
Environment	Temperature: Operating: -10 – 55 °C, Storage: -25 – 70 °C Relative humidity: 10 – 93% non condensing
IP class	IP 30. When installed in V-box IP 65 (cover and cables installed correctly !)

Cable specifications

CAN-bus	Velos cable
Synchronisation	Velos cable
Antenna	Coax RG58. Max. length depending on antenna type.
Outputs	CE approved at cable length < 3m
Inputs	CE approved at cable length < 3m

Always use a NEDAP power supply

The Nedap guarantee-regulations are only valid when is installed as indicated in this manual.

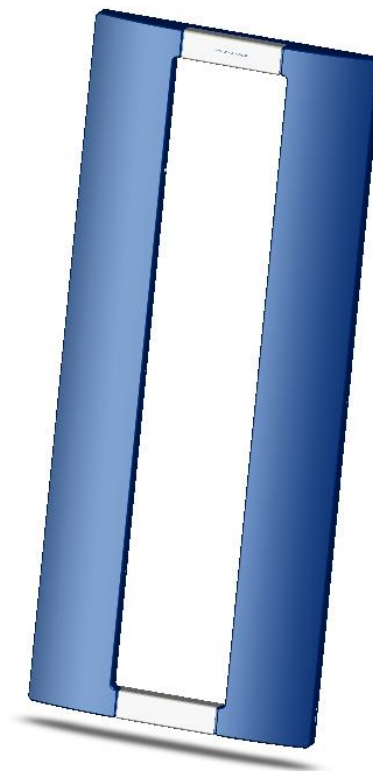
Install data cables at a safe distance from (high) powered cables

More information

For more detailed information contact your local Nedap supplier or check the internet site.

VP6001

V-sense antenna



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VP6001

V-sense antenna

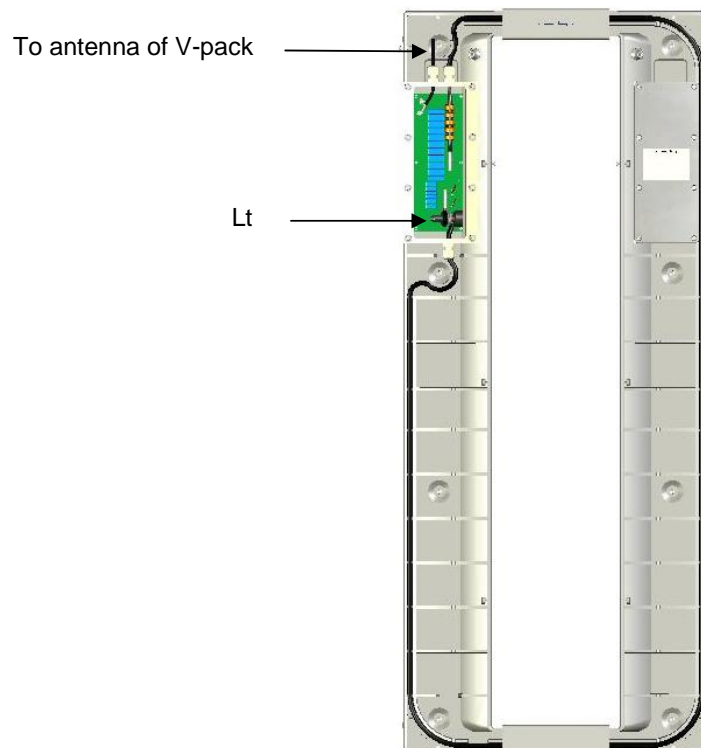
General

The VP6001 is used as antenna in Velos system and connected to a V-pack with identification.

Connections

The VP6001 is connected to a V-pack by a coax cable, see manual of the concerning V-pack.

To open the VP6001 : remove screws at the side.



Adjustment

Tuning must be done by Lt with a plastic screw driver.
See manual of the connected V-pack for tuning instructions.