



USER MANUAL

Programming Tool

Part Number:
D52986

DESCRIPTION

Thank you for purchasing the Avtron™ Encoders Programming Tool. This device is used to configure the parameters of the AV4/HS4 programmable encoder through a simple browser based programming interface. Please read this sheet carefully before operation.

Included:

- 12 V DC power supply, input 100 to 240 V AC, 50 to 60 Hz and interchangeable plugs for Europe, UK, US, India, Brazil, China, Argentina, Australia, Korea
- Wi-Fi USB adapter
- microSD card
- Terminal block adapter
- Programming Tool programming device

Optional:

- Programmable connector cable (see table on page 2)

CAUTION:

- **Only use the power supply provided by Nidec**
- **Do not remove the microSD card or the Wi-Fi USB adapter from the Programming Tool**
- **Do not connect or disconnect the encoder when the Programming Tool is under power**
- **Do not connect any other devices to unused USB or RJ45 ports on the Programming Tool**
- **Do not close the browser or web page while the configuration is in progress**

WARNING:

Please save and close any open software on your device. Connecting to the Programming Tool will disconnect you from the internet.

Diagnostics:

- The Programming Tool features a diagnostic LED to allow the user to know the status of the device

DIAGNOSTIC LEDs

Color	State	Description
ORANGE	Solid	Power to Programming Tool is ON
ORANGE	Blinking	Wi-Fi hotspot ready
GREEN	Solid	Programming of encoder in progress

PREPARATION

- Prepare/start Wi-Fi-enabled device like a smartphone, tablet, laptop or computer
- Connect the encoder to the Programming Tool using connector cable (sold separately)
- Connect the power supply to the Programming Tool, it will automatically start when the power is applied
- Once powered-on, wait for the ORANGE LED to start blinking, this can take up to 50 seconds
- Enable Wi-Fi on your device (smartphone, tablet, laptop or computer) and connect to the configuration hotspot **“Programming Tool”** with password **“config19”**
- Once connected, open a web browser and go to: configurationtool.com (bookmark this link for easier access later on)
- Main navigation page will open and you can now begin the configuration process

CONFIGURATION STEPS

- 1) On the start page you have a choice of starting a new configuration (manual configure) or replicating an existing configuration (auto configure)
- 2) When Auto Configure is selected the Programming Tool checks for the last know configuration (within 24 hrs) stored on the tool
- 3) Parameter values are preset from this saved configuration. You just need to press “Configure” to complete auto configuration

Manual Configure for Incremental Encoders:

- 4a) Pulses Per Revolution (PPR) – any value between 1 and 16384 pulses
- 4b) Incremental Pulse Direction – choose “A before B” or “B before A” (refer to encoder manual for more details)
- 4c) Incremental Line Driver – choose between HTL/TTL

Manual Configure for SSI Encoders:

- 5a) Singleturn resolution – 256 steps (8 bit) to 65536 steps (16 bit)
- 5b) Number of turns – 1 turn (singleturn) to 65536 turns (16 bit multiturn)
- 5c) Code – Binary or Gray code output
- 5d) SSI direction – clockwise up or clockwise down
- 5e) Direction changes with – supply voltage or GND
- 5f) Preset value – 0 to maximum resolution (dependent on the configured resolution and number of turns)

Manual Configure for Analog Encoders:

- 6a) Output direction – clockwise up or clockwise down
- 6b) Analog interface
 - 0-10 V or 0.5-9.5 V
 - 0-5 V or 0.5-4.5 V
 - 4-20 mA
- 6c) Measurement range in degree - min 22.5 degree to max 23592600 degree

Verify configuration status:

- 7a) If configuration is successful:
 - Press “Restart” to go back to the main page, close the browser and power OFF the device
- 7b) If configuration is unsuccessful:
 - Re-check the wiring and connections
 - Press “Restart” and start over again from step 1 to re-configure the encoder
- 8) It is recommended to write the programmed parameters in the blank fields provided on the encoder label

NOTES:

- **Once the configuration has started the serial number (SN) of the encoder connected is always displayed on TOP of the screen**
- **Use the Back and Next buttons to navigate through the user interface. DO NOT use the standard back, next and refresh buttons available in the web browser**
- **Only one user at a time can access the programming Interface. Another user will see the message “Device is used by another user”**
- **Please contact Nidec or your local sales partner for any technical questions**

WARNING:

Do not disconnect the encoder until the configuration process is complete.

- **During configuration the encoder is powered by the Programming Tool. After successful configuration, the encoder can be unplugged**

WARNING:

Please wait at least 1 minute after the last configuration before disconnecting power to the Programming Tool.

RESETTING TO FACTORY DEFAULTS

To reset your encoder to factory defaults, at start of the configuration program click “Manual Configure” and then click “Factory Reset”.

PROGRAMMING CABLES		
Encoder Output	Encoder Connector	Part Number
Incremental	M12 5 Pin	D52987-02
	M12 8 Pin	D52987-03
	M23 12 Pin	D52987-04
	M23 16 Pin	D52987-05
	MS 6 Pin	D52987-06
	MS 7 Pin	D52987-07
SSI + Incremental	MS 10 Pin	D52987-08
	M23 12 Pin	D52987-09
	M23 16 Pin	D52987-10
Analog	M12 8 Pin	D52987-11
	M12 5 Pin	D52987-01
Cable	Terminal Block	D52987-12

PIN CONFIGURATION AND WIRING FOR TERMINAL BLOCK			
Pin number	Wiring for Analog (cable color standard)	Wiring for SSI+ Incremental (cable color standard)	Wiring for Incremental (cable color standard)
	ANALOG	SSI	INC
1	Do not connect	Data – (Pink)	Do not connect
2	Do not connect	Clock – (Yellow)	Do not connect
5	Sensor power supply (12 V DC) (Red)	Sensor power supply (12 V DC) (Brown)	Sensor power supply (12 V DC) (Brown)
6	Set2 (White)	Do not connect	Do not connect
7	Do not connect	Do not connect	Z (Blue)
8	Set1 (Brown)	Do not connect	Do not connect
9	Do not connect	Data + (Gray)	Do not connect
10	Do not connect	Clock + (Green)	Do not connect
12	GND - Sensor ground (Yellow)	GND - Sensor ground (White)	GND - Sensor ground (White)

WARNING:

Please make sure the correct wire is connected to the correct pin based on the type of encoder being used. NOT doing so will result in damage to the encoder.

NOTE:

Terminal block includes 2 plastic screws and stand-off posts. When assembling, ensure pin side faces up and insert the 2 (white) screws into the holes in the top of the board. Screw the 2 (black) stand-off posts into the bottom of the board.