



# The Neptune 4G

## *Instruction Manual*

## Features

Neptune comes with 6 digital 12V inputs for general purpose use and 2 isolated 12V 2A relay outputs. Each output has 6 timer options: 2 timers to activate relay, 2 to deactivate and 2 to pulse the relay. Works with a nano SIM card to communicate via SMS, calls, WhatsApp or data with 4G or 2G as fallback. Either pre-paid or contract can be used with Neptune. Neptune has drop-call capabilities, where users can call the unit, enter the password and pulse relay 1. This is often used for gate opening options.

## Specifications

Type	Description
Input operating voltage	10-16 Volts (higher voltage available)
Relay operating voltage	12 Volts
Relay current	2 Amps (at 12 Volts)
Battery life (12V 7aH Pb)	30+ days (powering unit only)
Cellular network	4G LTE CAT 1 / GSM Fallback
Digital inputs working voltage	3.5-30 Volts (high) and 0V-1V (low)

## Mains power and battery

Neptune is powered by 10-16 Volts (10-32 Volts available on request). With loadshedding it is recommend to use Neptune with Fine Automation's battery charger and 12V Pb battery. Neptune has a built-in charger sense to send battery high or low messages at programmable voltage levels. Neptune can run around 30+ days on a 12V 7aH battery. Neptune can be adjusted to run from 10-32 Volts on request.

## Input settings

Neptune's inputs are digital. Meaning they only register as high or low. High is any voltage above 3.5 Volts to 30 Volts. Low is anything below 1 Volt. Inputs can send high and low messages that are completely programmable. Alternative versions of Neptune can have inputs that count, measure fluid flow and total flow, inputs that activate service timers and more.

# Output settings

The two outputs on Neptune are 12V 2A isolated relays. Relay one can be pulsed by sending command (see command list below) or by drop-call, where one can call the unit and pulse the output. Relay two can be activated by using inputs .It can follow inputs (close when input is high and open when low). Both relays can be turned on or off by using commands or by using one of the 6 internal timers available to each of the relays.

## WhatsApp overview

WhatsApp messages and notifications are available with Neptune. WhatsApp messages are a powerful cost saving feature that brings the cost of communication down substantially. Older methods can use SMS to send a message, which cost anywhere from R0.20 to R0.50 per SMS. With WhatsApp, a single message uses less than 0.01MB of data. 50MB costs around R12.00. Meaning you will get over 5000 messages on R12.00 worth of data, at an average cost of R0.0024 per message. Compared to WhatsApp, traditional SMS messages are over 8 000% more expensive to use than WhatsApp.

If you want to setup WhatsApp you will need two things. You will need a billing number (WhatsApp use comes a cost, charged monthly) and you will need a WhatsApp KeyPass. KeyPass is a unique number to you, that is programmed into the unit to send WhatsApps.

Both these can be provided to you by your installer or need be, by contacting Fine Automation who will refer you to an installer.

## WhatsApp setup

You will first need to sign up for WhatsApp notifications by sending a message to our Fine Automation Bot number. You will need to request this number from your billing agent/installer or from Fine Automation itself. Follow the prompts being sent to you, fill in the billing agent provided by your installer and forward your API key to them.

Once they have programmed your unit, you can send a message to the unit to add its own number. Use the Sim card number of the unit. You must send it a message in the following form:

```
#passUNITNUM"XXXXXXXXXXXX"
```

You must include all quotes and capital letters with no spaces. Replace the pass with your 4-digit password and the XXXXX with you correct number. Do not use +27XXX, use 0XXXXX. Use only numbers and no letters in the number itself.

If your number was programmed into the unit, you will get a notification saying you can now talk and program your unit over the air. Fine Automation has various means to program the units, using either SMSes, WhatsApp, Online through our website or using our physical programmer.

Command Code	Command Description
#passL	Request USSD pre-paid code and battery voltage from unit
#passI1 (capital i + 1) (*)	Turn on all inputs (default is on)
#passIO (capital i + zero) (*)	Turn off all inputs, inputs will not register on the unit
#passM	Request the connection status to server
#passS	Returns all inputs current state (high or low)
#passJ	Return all notification phone numbers saved on unit
#passK	Return password and units own number if stored
#passT	Request signal strength from unit (above 45% is good)
#passv	Return version and series of unit
#passZ	Request airtime from service provider. Ensure USSD code is correct (i.e. *111*502# from Vodacom)
#passt	Return current date and time saved in the unit
#passO (letter O) (*)	Return output states (on or off)
#xxxxDD ) (**	Delete all stored drop-call numbers (requires special password from Fine)
#passA1	Activates relay one on the unit
#passB1	Activates relay two on unit
#passA0 (zero)	Deactivates relay one on unit
#passB0 (zero)	Deactivates relay two on unit
#passA2	Pulse relay one for programmed delay time
#passB2	Pulse relay two for programmed delay time
#passB	Request battery voltage from unit
#passADDNUM"+27...+27...+27..." (**)	Add numbers to drop call list in unit, must include the two "" and start with +27
#passDELNUM"+27...+27...+27..." (**)	Delete numbers from drop call list in unit, mut include the two "" and start with +27
#TIMESYNCYY/MM/DD,H:M:S:	This sets the time within the unit with YY – two-digit year, MM – Month, DD – Day and H – hours, M – minutes, S – Seconds

(\*) For the alarm version of Neptune (Neptune-A), these commands change to #passA to "arm" the device (turn on inputs) and #passO (O for Oval to turn off inputs) to turn off inputs.

(\*\*) The messages are only available on Neptunes enabled with Drop-Call capabilities.

Command Code	Command Description
#pass <b>C</b> (***)	Request USSD pre-paid code and battery voltage from unit
#pass <b>W</b> (**** )	Turn on all inputs (default is on)
#pass <b>RST</b>	Turn off all inputs, inputs will not register on the unit

(\*\*\*) Request service timer counter, only available on Neptune-C series.

(\*\*) Request fluid flow counter, only available on Neptune-W series.