



USER MANUAL FOR MASCOT CONFIGURATION TOOL

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Kathrine Nilsen

MASCOT ELECTRONICS AS P.O. BOX 177 - N-1601 FREDRIKSTAD - NORWAY

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1 Installing software and connecting the charger

1.1 Hardware and software requirements:

- a) Mascot Blueline CBC charger with CBC mark. (If print space is limited, we only use the arrows)

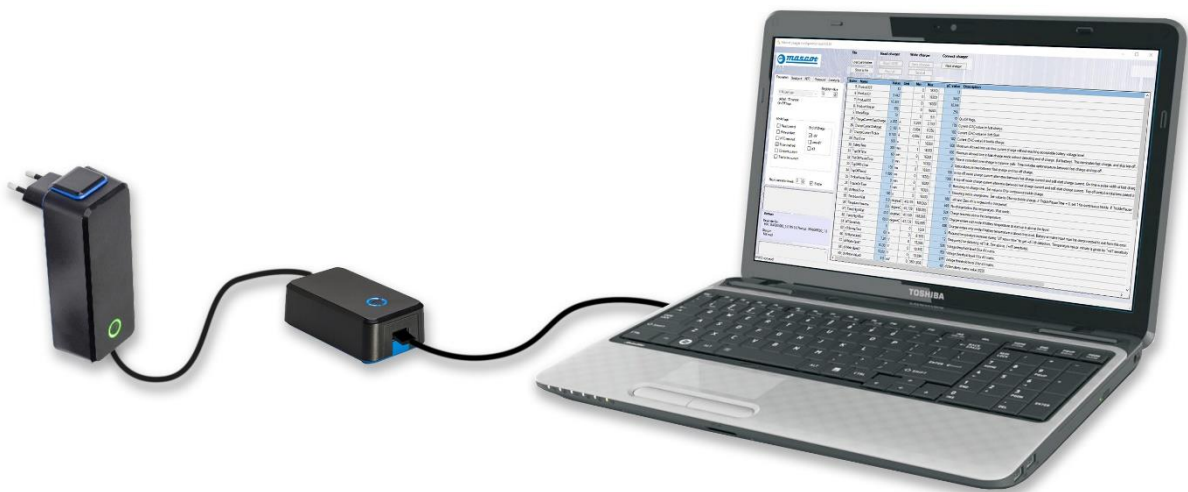


- b) CBC Module, Mascot model no. 4099000000. (Included in tool kit 4099000040).
- c) Computer with MS Windows, Mascot Configuration software, hereby called MCS, and support files.

1.2 Preparations

Install the CBC Software. All support files for versions available at the time of release are included in the installation pack. Minimum requirements are one HW definition file and one parameter file. If you need some support files that are not included, you may download these from Mascot web site. www.mascot.no, and manually put them in the same folder as the other support files. Default location is C:\Mascot\Configurator\configurations. Please download driver for FT232R USB UART interface Integrated Circuit Devices from www.ftdichip.com if not installed automatically.

1.3 Illustration of connection to PC and charger



Make sure you have the correct polarity – marked wire/ centre is positive.

1.4 About parameter files and HW-definition files

To be able to configure a charger the HW definition of the charger must match the HW definition of the parameter file. This is only partly handled by the software. If you are not sure which parameter file to use, we recommend that you get this information by reading the charger. If there is a mismatch you will not be able to send the new setup to the charger. Both the ten-digit part number and major revision must be identical, while minor revision number may be different. Major revision is the first number after the underscore – minor revision is the second. If you have two parameter files with the same ten-digit part number and the same major revision you may use them both.

Example of major change – files may not be used interchangeably:

HW-ID: 3546205000_1.1

HW-ID: 3546205000_2.1

Example of minor change – files may be used interchangeably:

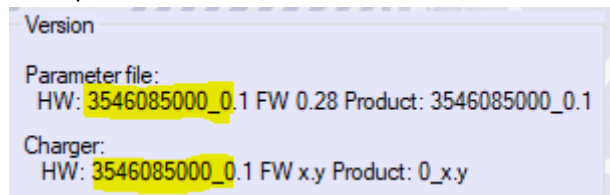
HW-ID: 3546205000_1.1

HW-ID: 3546205000_1.2

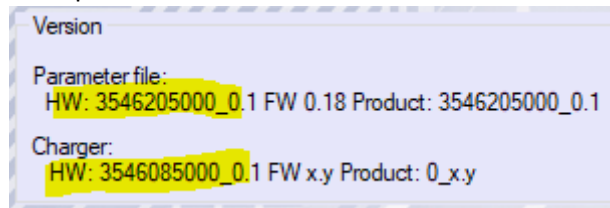
Be aware that if minor revisions are different in the charger and in the parameter file there may be some differences in some parameters. Our recommendation is that you always use the newest file. If you wish to keep the parameters as they are, except the ones you are changing, you cannot use the send all button. Use Send Changes only.

You may verify the HW_ID prior to making changes by first loading the parameter file you wish to use and the click **Read HW-ID**.

Example of correct HW-ID:



Example of incorrect HW-ID:



HW-ID is not configurable, so it is important that you have the correct file as a starting point.

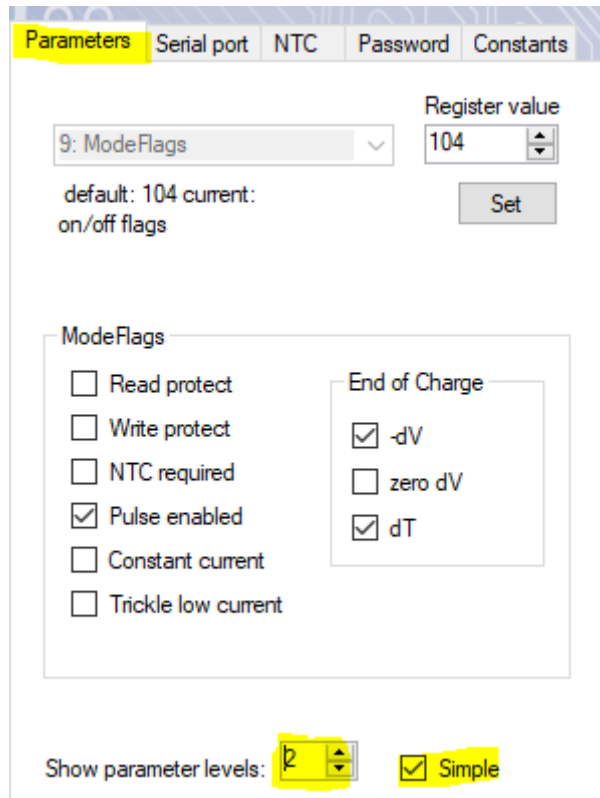
In addition to HW-ID there is also a Product ID. This ID is not write-protected so you may change this ID if you want to. This may be useful when making your own configurations. The number is built up by entering numbers in 4 memory locations. You may use the «calculator» provided with the tool to calculate the numbers to be entered in these memory locations. The “calculator can be found in the same folder as the software and is called productID_calc.xlsx

1.5 About parameter levels

There are three different parameter levels to choose from in the configuration software. This is done to make it easier to navigate in the tool. Simply use the arrows to change level. You may also uncheck the simple-box if you want to see the default values.

Change level:

Go to the **Parameter tab** and **use the arrows** to change to desired level, **Check/uncheck** the simple box for wanted view.



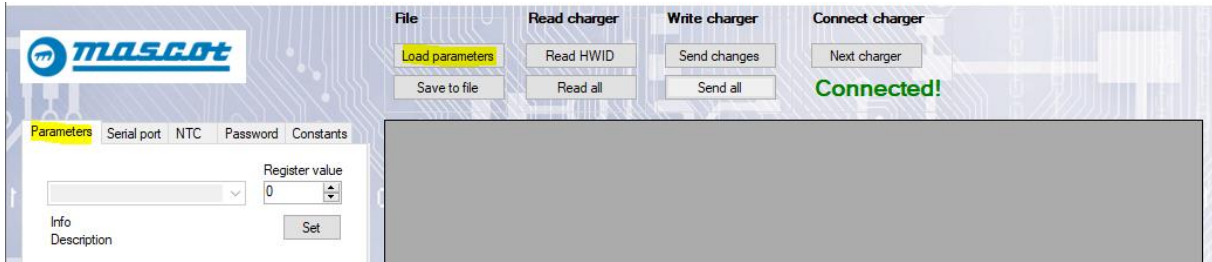
Level 1 parameters: Parameters that are commonly changed. It is rather straight forward to change these parameters.

Level 2 parameters: This is for the bit more advanced users. Caution is advised.

Level 3 parameters: These parameters are for skilled users. Caution is advised.

1.6 Open a parameter file

To open a parameter file, go to the **Parameter tab** and press **Load Parameters**.



The Level 1 parameters and values will be visible in the window to the right. You may change parameter level as described in 1.5.

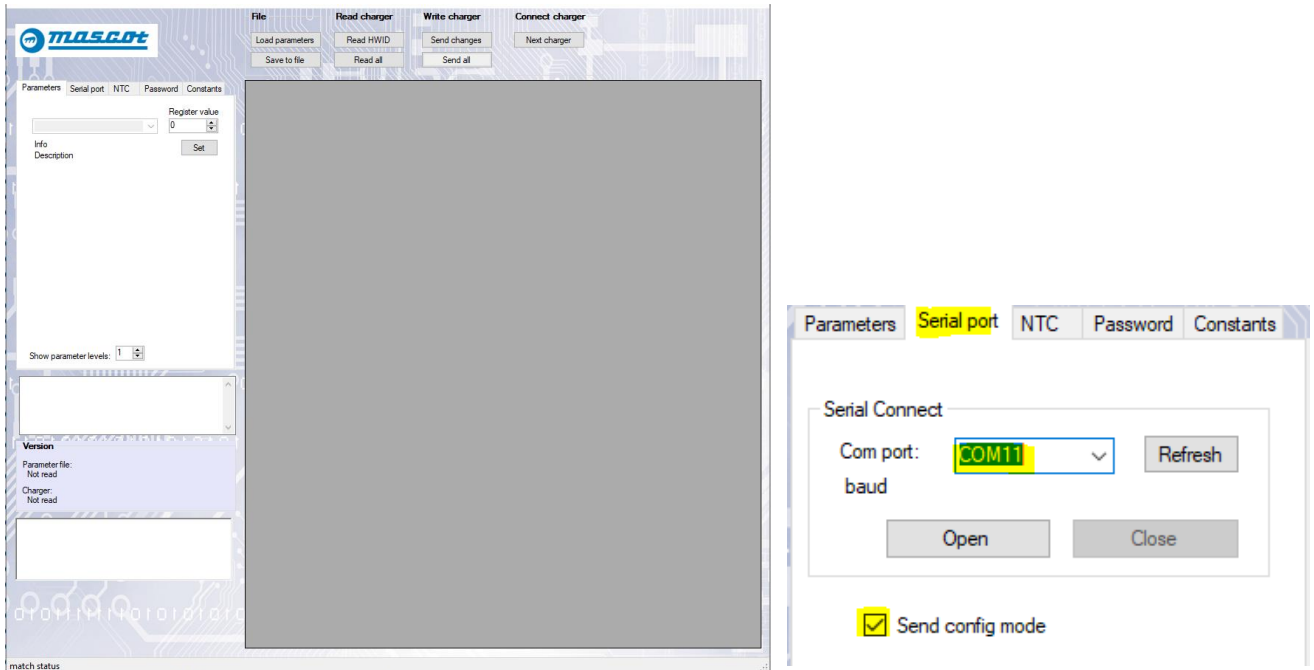
1.6.1 HW-ID for Mascot standard versions

	3743	3546
2 cell	3743025000_X.Y	NA
3-6 cell	3743065000_X.Y	3546065000_X.Y
4-8 cell	3743085000_X.Y	3546085000_X.Y
5-10 cell	3743105000_X.Y	3546105000_X.Y
6-12 cell	3743115000_X.Y	3546115000_X.Y
10-20 cell	3743205000_X.Y	3546205000_X.Y

1.7 Setting up the USB communication

Connect the CBC Module, 4099000000, to the computers USB port and to the charger to be configured. Make sure you have correct polarity. Do not plug into mains supply yet.

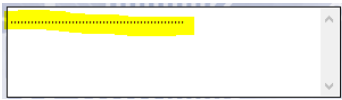
Start the configuration SW



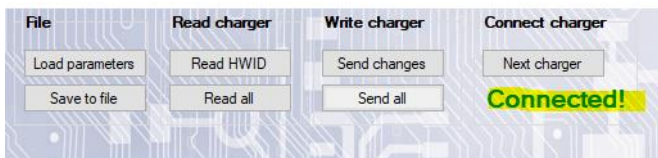
Go to the **serial port tab** and **select the correct Com port**. Click **Refresh** if the port is not listed:

The Com Port for the configurator may have a different number, com9, com7 etc. "Send config mode" should be checked by default. Please check this box if this is not the case.

Click **Open**. Dots will appear in the log window indicating that the port is open, and the tool is ready.



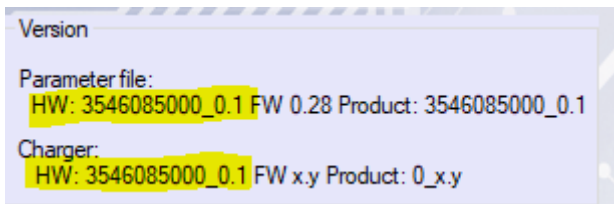
Connect the charger to mains supply and check that the connection status is reported back as Connected.



The connection to the charger is established and we may continue with the configuration. If any of the steps are failing, please start over.

2 Configuration

As described earlier it is important to use the correct parameter file when configuring a charger. This information can be found by simply reading the charger. Load a parameter file and connect the charger as described in 1.6 and 1.7 (any file may be used). HW-ID should automatically be read. If this is not the case click read **HW-ID**.



There may be several parameter files that uses the same HW-ID but have different parameters. Any of these files may be used if the HW-ID is the same but be aware that if parameters not visible are different this may alter the behaviour of your charger. To be absolutely sure you don't unintentionally change any parameters we recommend you use the Send changes button.

Press **Load Parameter** and open the file you want to use as a starting point for your new configuration. In this example we will use a standard 3546 4-8 cell with part no. 3546085000.

All parameter file names from Mascot are in the format

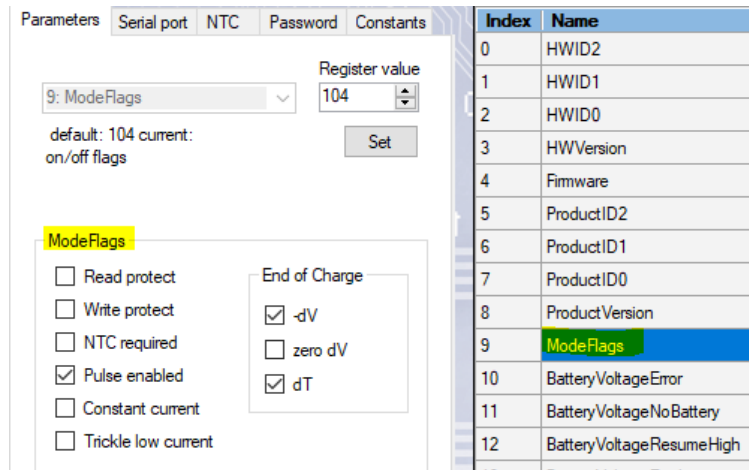
XXXXXXXXXX_Y_PARAMETER_VZ.0_YYYYMMDD, where:

- XXXXXXXXXXXX = Ten digit part no. This number is printed on the label of the unit box. It can also be found on the order confirmation from Mascot, or you may call us to get the correct part no.
- Y = HW-revision
- V = Version
- Z.0 = Revision number of the parameter file.
- YYYY = Year
- MM = Month
- DD = Day

For the charger in this example the parameter file is called 3546085000_1_PARAMETER_V1.0_20210628

2.1 Setting up charger mode – EoC, CC mode etc (Level 1 parameters)

When configuring a charger, you need to consider what type of EoC method you want to use and some other options. To change these settings, open the config software and load the parameter file you want to use. Select the **Parameter tab** and **choose Mode flag in the parameter list**. The different Mode flag options may be changed by checking/unchecking the boxes.



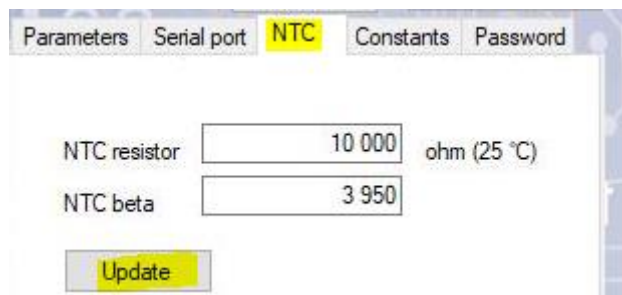
The available options are:

Read Protect	Protect your settings from being read by enabling Read protection with a password of your choice.
Write Protect	Protect your settings from being changed by enabling Write protection with a password of your choice.
NTC required	If you use temperature detection as the only EoC method we recommend that you check this box. This will prevent overcharge of the battery if the NTC is missing/not working properly. Be aware that if you check this box you will not be able to charge batteries that do not have NTC.
Pulse enabled	This box must be checked for the charger to be able to detect short/wrong polarity and if there is a diode in series with the battery.
Constant current	Charger in CC mode - No EoC.
Trickle low current	Extra low current in trickle pause instead of no current.
-dV	Check this box to use this EoC method.
Zero dV	Check this box to use this EoC method.
dT	Check this box to use this EoC method.

Note: Several EoC methods may be used simultaneously.

2.2 Changing NTC values β and nominal resistance value (Universal parameters)

Select the **NTC tab**, fill in the correct values and press Update. Please note that the temperature limits will change and must be re-entered. See 2.3



Parameters Serial port **NTC** Constants Password

NTC resistor ohm (25 °C)

NTC beta

2.3 Changing Temperature limits for wait and error mode (Level 3 parameters)

If you connect a temperature sensor (NTC) to the charger the charger will go to wait mode or error mode if the battery is too hot/cold. The default values configured are for 10k NTC with a β value of approx. 4000. The approx. temperature limits are as follows:

TempLowWait	0°C	No charge below this temperature. Wait mode
TempLowResume	2.5°C	Charge resumes above this temperature
TempHighWait	40°C	Charger enters wait mode if battery temperature at start-up is above this level.
TempHighError	60°C	Charger enters error mode if battery temperature is above this level. Battery or mains input must be disconnected to exit from this error.

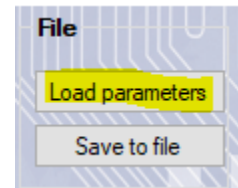
To modify these values make sure you have set up the correct NTC values in section 2.2 then simply change the values in the table and click **Send Changes** to send the changes to the charger. This will only send parameters that are marked yellow and thereby save some time. Alternatively you may use the send all button but it will take a longer time. The send all button is preferably used to set the charger back to default in cases where you are unsure of previous changes. Make sure that the status is reported back as OK.



2.4 Configuring timers (Level 1 parameters)

In this example we will show you how to change dV mask timer (earlier called start timer) and safety timer.

- Open the parameter file you wish to use as a starting point for your configuration by clicking **Load Parameters**. We will open 3546085000_1_PARAMETER_V1.0_20210628 in this example.
- Set up the communication as described in section 1.7



- As you can see this list has two columns for value. One is the value programmed in the microcontroller and the other one is a calculation to a more common value like V, A or °C. Please enter the new value in the column with the calculated values. The column to the left. Timers are in seconds or minutes. Please pay attention to the unit of these parameters.

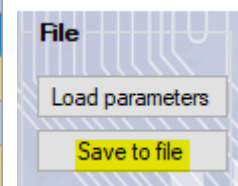
↓ Enter new value in this column

ChargeCurrentFastCharge	1,991	0,218	2,445	A	203
ChargeCurrentTrickle	0,100	-0,009	0,137	A	190
StartTime	120	1	600	s	120
SafetyTime	240	1	16383	min	240
TopOffTime	60	0	16383	min	60
dVMaskTime	180	0	16383	s	180

- We will change dV Mask Time to 4 minutes and the Safety timer to 5 hours. Simply write the new values and **press enter (or down arrow)**. The boxes will turn yellow to show differences from default value.

If you want to save this file for later use you may save it using the save to file button.

Index	Name	Value	Min	Max	Unit	µC value
25	ChargeCurrentFastCharge	1,991	0,218	2,445	A	203
26	ChargeCurrentTrickle	0,100	-0,009	0,137	A	190
28	StartTime	120	1	600	s	120
29	SafetyTime	300	1	16383	min	300
30	TopOffTime	60	0	16383	min	60
49	dVMaskTime	240	0	16383	s	240



- Click **Send Changes** to send the changes to the charger. This will only send parameters that are marked yellow and thereby save some time. Alternatively you may press the send all button but it will take a longer time. The send all button is preferably used to set the charger back to default in cases where you are unsure of previous changes.

2.5 Configuring currents (for chargers with this option – level 1 parameters)

You may change the fast charge current, soft start current and the trickle current in the parameter list. In this example we will reduce the current by approx. 50% for fast charge, Soft start and trickle.

As you can see in the parameter list below the default value for fast charge current is 2.0A, soft start is 150mA and trickle charge current it is 100mA. We will change these values to 1.0A, 75mA and 50mA respectively.

25	ChargeCurrentFastCharge	2,000	A	0,218	2,227		204
26	ChargeCurrentSoftstart	0,150	A	0,007	0,299		125
27	ChargeCurrentTrickle	0,100	A	0,007	0,271		81
29	StartTime	600	s	1	16383		600
30	SafetyTime	240	min	1	16383		240
31	TopOffTime	60	min	0	16383		60
50	dVMaskTime	180	s	0	16383		180

The easiest way to do this is simply to change the values in column C, and write the currents we want, making the values yellow and then press **Send Changes**.

25	ChargeCurrentFastCharge	1,00	A	0,218	2,227		90
26	ChargeCurrentSoftstart	0,100	A	0,007	0,299		81
27	ChargeCurrentTrickle	0,075	A	0,007	0,271		59
29	StartTime	600	s	1	16383		600
30	SafetyTime	240	min	1	16383		240
31	TopOffTime	60	min	0	16383		60
50	dVMaskTime	180	s	0	16383		180

Make sure that the status reported back is OK!

2.6 Configuring -dV parameters (level 2 parameters)

Mascot recommendation for -dV EoC is to use approx. 3mV/cell. To set up these levels we use a 4x1 matrix or 4x4 matrix if you want to use time dependent levels. Mascot standard is to use not time dependent levels of approx. 3mV/cell. Since the chargers are for a range of battery packs e.g. 4-8cells the values will be different in the 4 voltage ranges.

2.6.1 Changing the voltage range

To change the voltage levels simply enter new values in the parameter list (You cannot change this in the matrix) and press **Send Changes** to send the changes to the charger. This will only send parameters that are marked yellow and thereby save some time. Alternatively you may press the send all button but it will take a longer time. The send all button is preferably used to set the charger back to default in cases where you are unsure of previous changes.

dVMatrixLimit0	7,19	V
dVMatrixLimit1	10,31	V
dVMatrixLimit2	12,01	V

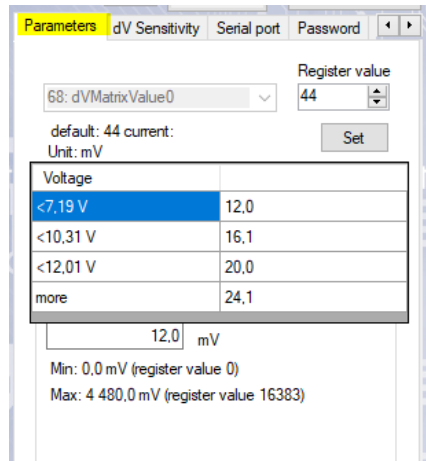
Make sure that the status reported back is OK!

2.6.2 Changing -dV level for not time dependent -dV EoC

Select the **parameters tab** and **one of the dV matrix levels** in the table.

67	dVMatrixLimit2	12,01	0	17,303	V	688
68	dVMatrixValue0	12,0	0	4479,951	mV	44
69	dVMatrixValue1	12,0	0	4479,951	mV	44
70	dVMatrixValue2	12,0	0	4479,951	mV	44

The 1x4 matrix will appear in the parameter tab window.



To change the -dV level simply change the value in the matrix in the voltage range applicable.

Voltage	
<7,19 V	16
<10,31 V	24
<12,01 V	28
more	32

This will change the value in the table and mark it yellow (in the main table). Click **Send Changes** to transfer the new settings to the charger.

2.6.3 Changing -dV level for time dependent -dV EoC

Select the parameter tab and one of the dV matrix levels in the table as in section 2.6.2. The 1x4 matrix will appear in the parameter tab. To extend this to 4x4 matrix check the check box called time dependent -dV. This will expand the matrix to 4x4 and values can be entered individually in the 16 positions. Time is on the horizontal scale. This is the safety timer divided in four steps. This is fixed and cannot be changed. In this example the safety timer is set to 240 minutes giving timeslots of 1 hour for each time frame. The -dV levels are in mV and are the total -dV level for the battery pack. In the example below the 24mV will be 6mV/cell for a 4C battery pack in the start of the charging cycle. After 1 hour the sensitivity is decreased to approx. 5mV/cell, then to 4mV/ cell and the last hour the sensitivity will be 3mV/cell.

Voltage	T<60	T<120	T<180	more
<7,19 V	24	20	16	12
<10,31 V	16	15	14	13
<12,01 V	20	19	18	17
more	24	23	22	21

Time dependant -dV

2.7 Configuring dT/dt EoC parameters (level 2 parameters)

There are two parameters that must be considered when setting up temperature rise detection as EoC. In addition to this, the detection method must be enabled, and you need to consider if you want the NTC to be mandatory. The dT EoC is enabled by default but you may check this, by selecting the Modeflags parameter in the list and selecting the parameters tab as shown below. Mascot has not set NTC as mandatory/required since we also use -dV detection. If you are only using dT as EoC method we recommend that you make it mandatory. If you make it mandatory the charger will go to error mode if the NTC is missing or not functioning as intended, e.g. poor connection.

Mascot charger configuration tool 0.0.34

Register	Level	Index	Name	Value	Unit	Min	Max
0	4	0	HWID2	13		0	16383
1	4	1	HWID1	3 443		0	16383
2	4	2	HWID0	13 960		0	16383
3	4	3	HWVersion	1		0	16383
4	4	4	Firmware	0		0	16383
5	3	5	ProductID2	13		0	16383
6	3	6	ProductID1	3 443		0	16383
7	3	7	ProductID0	13 960		0	16383
8	3	8	ProductVersion	1		0	16383
9	1	9	ModeFlags	104		0	511
26	4	10	BatteryVoltageError	13,60	V	0	17,903
38	4	11	BatteryVoltageNoBattery	13,77	V	0	286,717
40	4	12	BatteryVoltageResumeHigh	12,81	V	0	17,903
41	4	13	BatteryVoltageRecharge	8	V	0	17,903
28	4	14	BatteryVoltageStartFast	5,01	V	0	17,903

As you can see in the mode flag section the dT checkbox is checked and thereby enabled. The same is -dV detection. These are the EoC methods recommended by Mascot. Mascot do not recommend using Zero dV because this may cause premature EoC detection. Please contact Mascot if you want to fine tune Zero dV parameters.

dT is enabled and we may proceed setting up the parameters. If you want the NTC to be mandatory just check the box.

ModeFlags

- Read protect
- Write protect
- NTC required
- Pulse enabled
- Constant current
- Trickle low current

End of Charge

- dV
- zero dV
- dT

The next step is to setup the temperature parameters. Mascot recommendation is to use the following values:

	dT sensitivity (1bit \approx 0.1°C)	dT sense time (In seconds)
Very Slow charge (C/8): 0.2°C/min	4	120
Slow charge (C/4): 0.5°C/min	5	60
Fast charge (1C): 1.0°C/min	10	60

1. Very Slow charge (C/8): 0.4°/2 minutes = 0.2°C/min
2. Slow charge (C/4): 0.5°C/1 minute = 0.5°C/min
3. Fast charge (1C): 1.0°C/1 minute = 1.0°C/min

Temperature rise pr. minute is given by "dT sensitivity" divided by "dT sense time.

We will change the values to 4 bits and two minutes. Giving a dT/dt detection level of 0.2°C/min.

60	dTSensitivity	4	0	1023	4
61	dTSenseTime	120 s	0	81915	24

Change the values and press the **send changes** button.

Send changes

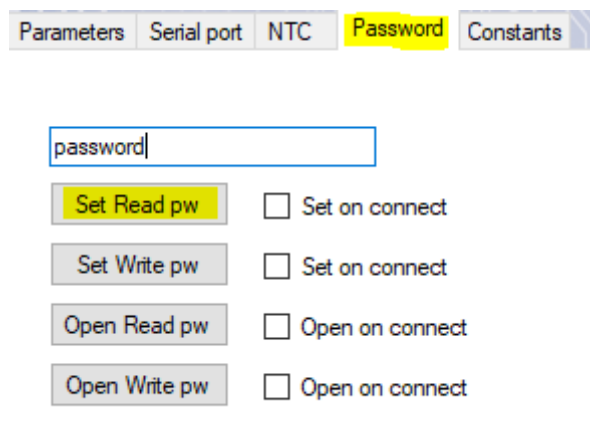
3 Read/write protection

You may activate read and/or write protection of the charger if you want to protect your settings from being copied or changed. Please be aware that if you forget your password, and has enabled write protection, the charger must be reprogrammed by Mascot if you need to change some parameter(s). If you have enabled read protection only and forget your password, you may set the charger parameters back to default but not be able to read it. The password will not be reset in this case – only the parameters. For resetting the password follow the instruction in section 3.1.3 or 3.2.3 in this user guide. If you want to use both read and write protection we recommend that you use the same password for both.

3.1 Setting up password and enabling/disabling read protection

3.1.1 Setting the Password

If you want to enable read protection the first thing you must do is to set the password. If you skip this, the default password will be Mascot (capital M). To set the password, connect the charger, go to the **Password Tab**, write the wanted password in the password field and the klick **Set Read pw**. This will set the desired password. The charger must be restarted for this change to take effect.

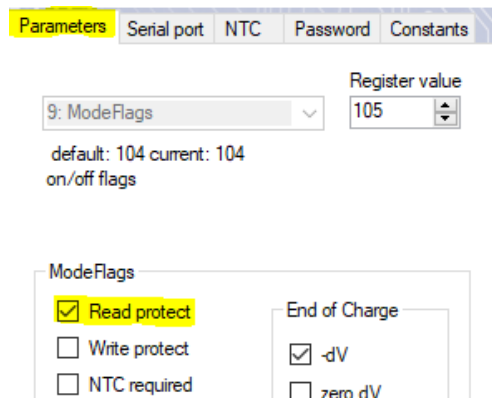


The screenshot shows the 'Password' tab selected in a software interface. At the top, there are tabs for 'Parameters', 'Serial port', 'NTC', 'Password', and 'Constants'. Below the tabs, there is a text input field containing the word 'password'. Underneath the input field, there are four rows of controls, each consisting of a button and a checkbox:

- Set Read pw** button and **Set on connect** checkbox
- Set Write pw** button and **Set on connect** checkbox
- Open Read pw** button and **Open on connect** checkbox
- Open Write pw** button and **Open on connect** checkbox

3.1.2 Enabling Read Protection

In addition to setting the desired password you must also enable the protection. Go to the **Parameter Tab**, check the **Read Protect checkbox** and click **Send Changes**. The charger must be restarted for this change to take effect.



The screenshot shows the 'Parameter' tab selected in the software interface. At the top, there are tabs for 'Parameters', 'Serial port', 'NTC', 'Password', and 'Constants'. Below the tabs, there is a dropdown menu showing '9: ModeFlags' and a 'Register value' field with the value '105'. Below these, there is text indicating 'default: 104 current: 104 on/off flags'. Underneath, there is a section for 'ModeFlags' with several checkboxes:

- Read protect**
- Write protect
- NTC required
- dV
- zero dV

3.1.3 Configure a Read Protected charger and/or Disabling Read Protection

To disable the read protection and keep the parameters as they are you must know the password for the charger.

- Connect the read protected charger
- Go to advanced mode (**uncheck simple box** on parameter tab)
- Select **Password Tab**.
- Enter password** in password field
- Click **Open Read pw**

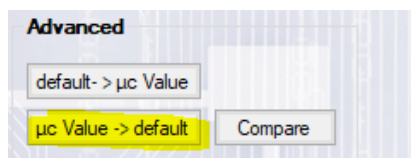


Make sure that the operation was successful (**OK** in upper left corner)

The charger is still read protected though since the read protection is still activated. Read protect
If you want to make a change to a parameter and keep the protection you may make your changes and after a restart the charger is still protected with the same password as before. If you want to disable the protection but keep non-standard parameters you must do the following:

- Connect the read protected charger
- Go to advanced mode (**uncheck simple box** on parameter tab)
- Select **Password Tab**.
- Enter password** in password field
- Click **Open Read pw**

To be able to only disable the password protection we must use the **Send Changes** button. This button will only send the yellow values, so what we need to do is to make sure that we get a yellow value on the flag parameter (mode flags no. 9) If we by turning off the read protection set it back to default, it will turn blue, and that is not desired. To omit this "issue", we will first read all parameters from the charger and then click the **µc Value -> default** button.

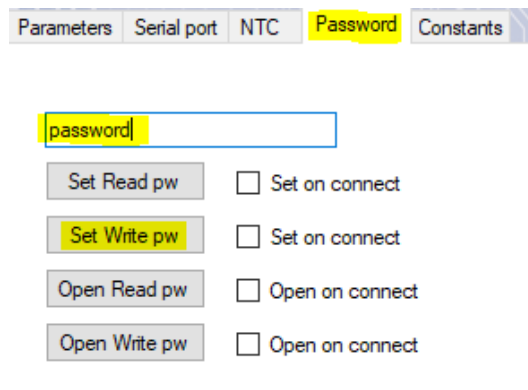


This will set the current configuration as our default configuration. Then we will uncheck the **Read Protect checkbox** (making the flag value yellow) and click **Send Changes**. Please be aware that this does not reset the password. If you later turn on the read protection, the password will be the one you have set earlier. It is our recommendation that you set the password back to default (Mascot) when disabling the read protection.

3.2 Setting up password and enabling/disabling write protection

3.2.1 Setting the Password

If you want to enable write protection the first thing you must do is to set the password. If you skip this, the default password will be Mascot (capital M). To set the password, connect the charger, go to the **Password Tab**, write the wanted password in the password field and the klick **Set Write pw**. This will set the desired password. The charger must be restarted for this change to take effect.

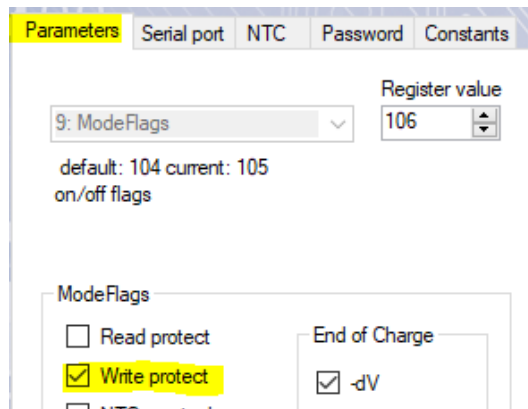


The screenshot shows the 'Password' tab selected in a software interface. At the top, there are tabs for 'Parameters', 'Serial port', 'NTC', 'Password', and 'Constants'. Below the tabs, there is a text input field containing the word 'password'. Underneath the input field, there are four rows of controls, each consisting of a button and a checkbox:

- Button: 'Set Read pw', Checkbox: 'Set on connect' (unchecked)
- Button: 'Set Write pw' (highlighted in yellow), Checkbox: 'Set on connect' (unchecked)
- Button: 'Open Read pw', Checkbox: 'Open on connect' (unchecked)
- Button: 'Open Write pw', Checkbox: 'Open on connect' (unchecked)

3.2.2 Enabling Write Protection

In addition to setting the desired password you must also enable the protection. Go to the **Parameter Tab**, check the **Write Protect checkbox** and click **Send Changes**. The charger must be restarted for the change to take effect.

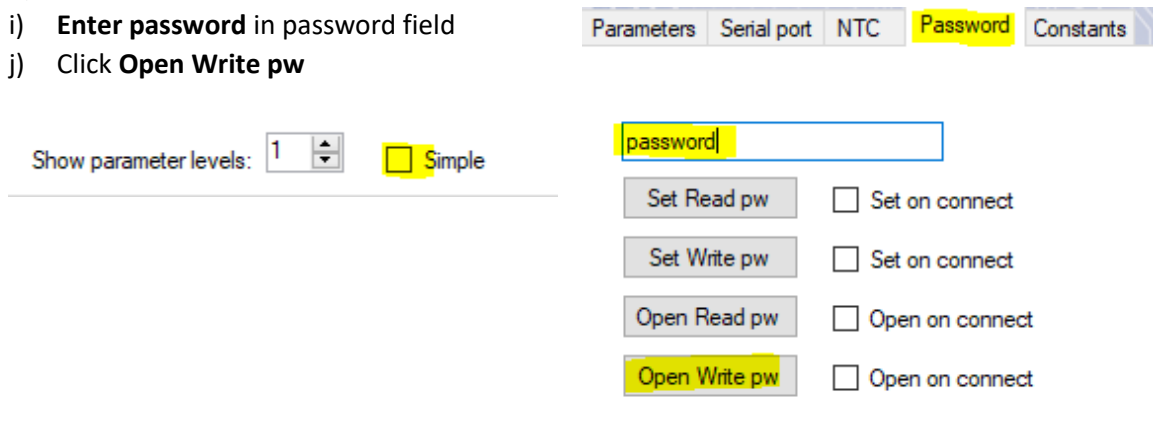


The screenshot shows the 'Parameters' tab selected in a software interface. At the top, there are tabs for 'Parameters', 'Serial port', 'NTC', 'Password', and 'Constants'. Below the tabs, there is a dropdown menu showing '9: ModeFlags' and a 'Register value' field with a value of '106'. Below these, there is text indicating 'default: 104 current: 105 on/off flags'. In the 'ModeFlags' section, there are two checkboxes: 'Read protect' (unchecked) and 'Write protect' (checked and highlighted in yellow). To the right of these checkboxes is an 'End of Charge' section with a checkbox for '-dV' which is also checked.

3.2.3 Configure a Write Protected charger and/or Disabling Write Protection

To disable the write protection and keep the parameters as they are you must know the password for the charger.

- f) Connect the write protected charger
- g) Go to advanced mode (**uncheck simple box** on parameter tab)
- h) Select **Password Tab**.
- i) **Enter password** in password field
- j) Click **Open Write pw**

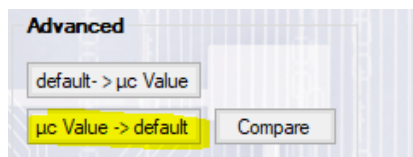


Make sure that the operation was successful (**OK** in upper left corner)

The charger is still protected though since the write protection is still activated. **Write protect** If you want to make a change to a parameter and keep the protection you may make your changes and after a restart the charger is still protected with the same password as before. If you want to disable the protection but keep non-standard parameters, you must do the following:

- f) Connect the write protected charger
- g) Go to advanced mode (**uncheck simple box** on parameter tab)
- h) Select **Password Tab**.
- i) **Enter password** in password field
- j) Click **Open Write pw**

To be able to only disable the password protection we must use the **Send Changes** button. This button will only send the yellow values, so what we need to do is to make sure that we get a yellow value on the flag parameter (mode flags no. 9) If we by turning off the read protection set it back to default, it will turn blue, and that is not desired. To omit this "issue", we will first read all parameters from the charger and then click the **µc Value ->default** button.



This will set the current configuration as our default configuration. Then we will uncheck the **Write Protect checkbox** (making the flag value yellow) and click **Send Changes**. Please be aware that this does not reset the password. If you later turn on the write protection, the password will be the one you have set earlier. It is our recommendation that you set the password back to default (Mascot) when disabling the write protection.

4 Tips and tricks

4.1 Preparing parameter files for later use

If you want to prepare a parameter file to be used later, we recommend that you use this guide. To be able to do this you need to know which file to use as a starting point. We will use Mascot 3546 4-8C (3546085000_1_PARAMETER_V1.0_20210628) in this example. There is no need to connect the tool or the charger – you may use the software stand-alone to prepare the file.

1. Open the MCS and press **Load Parameters**.
2. Open the file you want to use as a starting point for your configuration. Note! It is important that the HW-ID of this file matches the charger you want to configure later. When we open this file all the parameter boxes are coloured blue. This is because the parameters have default value i.e. there are no changes from default.

Index	Name	Value	Min	Max	Unit	µC value
25	ChargeCurrentFastCharge	1,991	0,218	2,445	A	203
26	ChargeCurrentTrickle	0,100	-0,009	0,137	A	190
28	StartTime	120	1	600	s	120
29	SafetyTime	240	1	16383	min	240
30	TopOffTime	60	0	16383	min	60
49	dVMaskTime	180	0	16383	s	180

3. Change the value(s) you want to configure (In columns C - Value) and you will see that the boxes changes colour to yellow.
4. Press **Save To File** and save this file with your desired name. We will in this example reduce the currents and save the file.

Index	Name	Value	Min	Max	Unit	µC value
25	ChargeCurrentFastCharge	1,000	0,218	2,445	A	90
26	ChargeCurrentTrickle	0,050	-0,009	0,137	A	104
28	StartTime	120	1	600	s	120
29	SafetyTime	240	1	16383	min	240
30	TopOffTime	60	0	16383	min	60
49	dVMaskTime	180	0	16383	s	180

Save to file

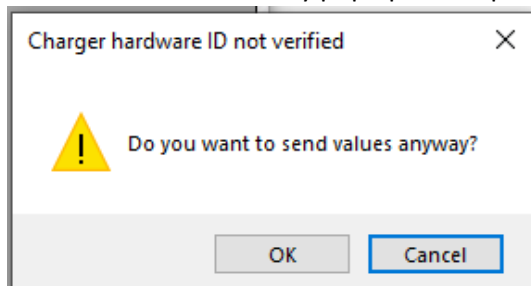
4.2 Configuring several chargers with a pre prepared parameter file

1. Open the MCS and connect the first charger to be configured.
2. Press the **Load Parameters** and chose a previously stored parameter file that includes the changes you want to apply and set-up the communication. (See section 1.7)
3. In this example we want to configure the 3546 4-8C with the reduced currents. (Described in 4.1)

Index	Name	Value	Min	Max	Unit	µC value
25	ChargeCurrentFastCharge	1,000	0,218	2,445	A	90
26	ChargeCurrentTrickle	0,050	-0,009	0,137	A	104
28	StartTime	120	1	600	s	120
29	SafetyTime	240	1	16383	min	240
30	TopOffTime	60	0	16383	min	60
49	dVMaskTime	180	0	16383	s	180

You have two choices when configuring the new charger, you may press the read HW-ID first to get MCS to verify that it is a compatible charger, or you may accept to transfer the values without verification. Please accept to send changes if prompt.

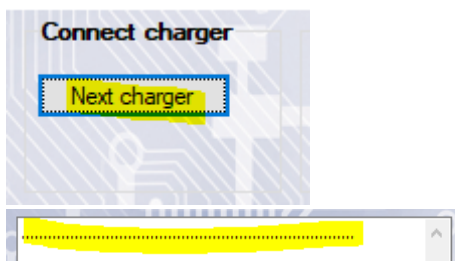
4. Press **Send Changes** to transfer the new parameter values marked yellow. A message that the HW-ID is not verified may pop up. If so - press **OK**



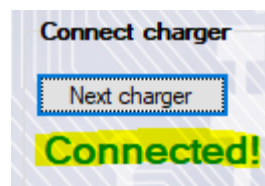
5. Check that the transfer was successful.

The first charger is configured. To configure a new, follow these steps:

1. Disconnect previously configured charger.
2. Press **next charger**. Check that the dots appear in status window.



3. Plug in mains supply for the new unit.
4. Check connection status.



5. The new charger is connected, and you may transfer the changed parameters by clicking **Send Changes**.

Check the **Send changes** checkbox on the Password-tab if you wish to automatically send changes on connect. If the charger is password protected, you must also open the charger on connect by writing the password in the password field and checking the **Open on connect** for read or write.

Parameters Serial port NTC Password Constants

Set Read pw Set on connect

Set Write pw Set on connect

Open Read pw Open on connect

Open Write pw Open on connect

Send values on connect

None

Send changes

Send all

5 Glossary

MCS – Mascot Configuration Software. Software to be used for configuration of Mascot configurable battery chargers.

EoC – End of charge