



PROGRAMMING KEYBOARD

**PERIPHERALS AND ALTERNATE
CONTROLS**

USER MANUAL

ISSUE 1, DECEMBER 2003

LIBER·T
MEDTECH

© 2003 Liber-T Medtech inc

WARNINGS

- This manual has been drafted specifically to explain how to operate the Liber-T Medtech's Peripherals and Alternate Controls Programming Keyboard.. Read this entire manual carefully before attempting to modify any programming parameters with the programming keyboard. If you have any questions concerning the operation of your Liber-T Medtech's Electronic Wheelchair Controller, please refer to the corresponding Liber-T Medtech's Electronic Wheelchair Controller User Manual. If you have any questions concerning the operation of your wheelchair, please refer to the wheelchair Owner's Manual.
- It is possible to set up a control system so that it is unsuitable for some users and/or wheelchairs and this may involve risks of injury to the user. The Programming Keyboard should therefore only be used by qualified persons with excellent knowledge of Liber-T Medtech electronic control systems. Take care when programming a control system and if you need any advice in programming or selecting values, please do not hesitate to contact Liber-T Medtech. Liber-T Medtech accept no liability for losses of any kind if the programming of the control system is altered from his recommended values and/or if the drive or stability characteristics of the wheelchair are altered without prior notification and discussion with Liber-T Medtech.
- Before doing any modification to the parameters the healthcare professional must have carefully examined the operation of the chair and determined that a change will be safe and in the best interest of the user. Operation of the wheelchair must be closely monitored after any change in the settings, and if the chair operates in a hazardous or dangerous manner, the original settings must be reinstalled.
- When programming your control system, make sure that you observe any restrictions mentioned in your wheelchair user manual.
- The Liber-T Medtech Peripherals and Alternate Controls Programming Keyboard must not be used in any other way than as described in this manual. Any attempt to gain access to or in any way abuse the electronic components and associated assemblies that make up the wheelchair control system renders the Manufacturer's Warranty void and the Manufacturer free from liability.
- Do not subject your Liber-T Medtech Peripherals and Alternate Controls Programming Keyboard to water spray. Do not use your Liber-T Medtech Peripherals and Alternate Controls Programming Keyboard after submersion in water or other liquids. If submersions occurs, return the unit to a qualified technician for service.
- Due to continuous product improvements, Liber-T Medtech reserves itself the right to update this manual. This manual supersedes all previous issues, which must not continue to be used.
- Do not operate Liber-T Medtech's Electronic Wheelchair Controller if it behaves erratically or shows any abnormal response, heating, smoke or arcing. Turn the system off, disconnect the battery and consult your Customer Service representative.

TABLE OF CONTENT

1. Wiring Installation.....	6
1.1 Programming keyboard :.....	6
2. Programming keyboard.....	6
2.1 Programming keyboard description	6
2.2 Alternate Controls	8
2.2.1 Select Module	8
2.2.2 Multi Switch Configuration	9
2.2.2.1 Polarity	9
2.2.2.2 Monitoring.....	9
2.2.2.3 Long Multi Time	9
2.2.3 DE-9 Configuration	10
2.2.3.1 DE-9 Monitoring.....	10
2.2.4 Switches Configuration	10
2.2.4.1 Polarity	11
2.2.4.2 3 Switch Short Forward Time	11
2.2.4.3 3 Switch Long Forward Time	11
2.2.5 Sip&Puff Config.	12
2.2.5.1 Sip & Puff Calibration	12
2.2.6 Joystick Configuration	13
2.2.6.1 Joystick throw	14
2.2.6.2 Neutral Zone	14
2.2.6.3 3 Axis Long Time	15
2.2.6.4 Joystick calibration	15
2.2.7 Driving Levels.	16
2.2.7.1 Driving Level 1,2,3,4	17
2.2.8 Accessory Mode	17
2.2.8.1 Accessory 1,2.....	17
2.2.9 Standby Mode Delay	18
2.3 Actuator Module.....	19
2.3.1 Level Definition	19
2.3.1.1 Level 1,2,3,4,5,6,7,8 Config.	19
2.3.2 Interlock Config.....	20
2.3.2.1 Interlock 1,2,3,4,5,6,7,8 Config.	21
2.3.3 End of Course	23
2.4 Attendant Control.....	24
2.5 Environment Control.....	25
3. Sales and Service Information	26

LIST OF SCREENS

Screen 1 : Introduction Text	7
Screen 2 : Main Menu	7
Screen 3 : Alternate Controls.....	8
Screen 4 : Select Module	8
Screen 5 : Multi Switch Config.....	9
Screen 6: Multi Switch Polarity	9
Screen 7 :Multi Switch Monitoring.....	9
Screen 8 :Long Multi Switch Time	10
Screen 9 : DE-9 Configuration	10
Screen 10 :DE-9 Monitoring.....	10
Screen 11 : Switches Config.	11
Screen 12: Switches Polarity.....	11
Screen 13 :3 sw short fwd time	11
Screen 14 :3sw long fwd time	11
Screen 15 : Sip&Puff Config	12
Screen 16 : Ambient Pressure	12
Screen 17 : Hard Puff Calibration.....	12
Screen 18 : Sip & Puff Calibration Accepted	13
Screen 19 : Sip & Puff Calibration Rejected.....	13
Screen 20 : Joystick Config	13
Screen 21 : Joystick Throw Adjustment	14
Screen 22 : Neutral Zone Adjustment.....	14
Screen 23 : the 3 axis joystick long time command	15
Screen 24 : Neutral Calibration	15
Screen 25 : Joystick Calibration	15
Screen 26 : Joystick Calibration Accepted	16
Screen 27 : Joystick Calibration Rejected.....	16
Screen 28 : Driving Level Config.	16
Screen 29 : Driving Level configuration	17
Screen 30 : Accessory Mode Config.....	17
Screen 31 : Driving Level configuration	17
Screen 32 : Standby delay.	18
Screen 33 : Actuator Module	19
Screen 34 : Select Module	19
Screen 35 : Level 1 Definition.....	19
Screen 36 : Actuator 1,2 ,3,4	20
Screen 37 : Select Interlock.....	20
Screen 38 : Interlocks Configuration	21
Screen 39 : Actions on the actuators.....	21
Screen 40 : Interlock Enable	22
Screen 41 : Interlock Polarity.....	22
Screen 42 : Interlock message.....	22
Screen 43 : Interlock Beep	23

Screen 44 : Action on power module	23
Screen 45 : End of course Level	23

1. WIRING INSTALLATION

1.1 PROGRAMMING KEYBOARD :

The programming keyboard includes a round CAN Bus connector (6 pins). To use the programming keyboard, you only have to plug a wire to this CAN Bus connector and to a similar CAN Bus connector on any Liber-T Medtech powered up unit. Then turn ON the programming keyboard with the 0/1 switch.

2. PROGRAMMING KEYBOARD

Several options and settings are available with Liber-T Medtech electronic controls. For easy setting, there is a programming keyboard to adapt the system according to each one needs.

WARNING:

It is recommended to note the parameters before doing any changes in the settings. When parameter changes were done, the wheelchair must be driven with all settings of the user controls, trying each level at low and high speed to make sure it operates correctly and safely. If the settings are not safe to use, put back settings, which are safe to drive with.

2.1 PROGRAMMING KEYBOARD DESCRIPTION

The programming keyboard includes many switches, which should be used as follows:

Press the **0/1** switch once to turn the unit ON and once more to turn it OFF.

Press on **CONFIRMATION** switch **OK** to make your selection.

Press on the **SELECTION** switches **▲** and **▼** to move the cursor to next line or increase and decrease the value.

Press on **OUT/CANCEL** to move back of one screen or cancel modification and go back one screen.

NOTE:

Since the screen can display 4 lines, the screen will scroll the options when using the switches **▼** or **▲** as indicated in the upper right corner.

When turning the programming keyboard on, the introduction text appears on Screen 1 : Introduction Text and then is replaced with the Main menu (Screen 2 : Main Menu) .

Screen 1 : Introduction Text

```

LIBER-T MEDTECH
  Peripherals &
  Alternate Controls
  PROG KEYBOARD V 1.0
  
```

Screen 2 : Main Menu

```

->ALTERNATE CONTROLS
  ACTUATOR MODULE
  ATTENDANT CONTROL
  ENVIRONMENT CONTROL
  
```


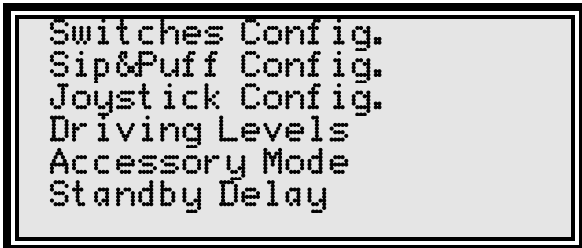
Choice	Section #
Alternate Controls	2.2
Actuator Module	2.3
Attendant Control	2.4
Environment Control	2.5

Press on **OK** to confirm the choice and to move to the screen specified on the right column.

2.2 ALTERNATE CONTROLS

The section « Alternate Controls » is used to configure the Alternate Control Module [LTM product # E30020] according to the user's needs.

Screen 3 : Alternate Controls

	Parameters	Section #
	Select Module	2.2.1
	Multi Switch Config.	2.2.2
	DE-9 Config.	2.2.3
... 	Switches Config.	2.2.4
	Sip&Puff Config.	2.2.5
	Joystick Config.	2.2.6
	Driving Levels	2.2.7
	Accessory Mode	2.2.8
	Standby Delay	2.2.9

Press on ▼ or ▲ to move the cursor to the desired level to be set.
Press **OK** to confirm the choice and display the screen specified on the right column.

2.2.1 SELECT MODULE

Used to select the appropriate module according to the user's needs.

Screen 4 : Select Module

	3 Switches
	4 Switches
	3 Axis
... 	4 Axis
	Sip & Puff

Press on **OK** to save the new value and to move back to Screen 3 : Alternate Controls.

2.2.2 MULTI SWITCH CONFIGURATION

Used to set the multi switch settings.

Screen 5 : Multi Switch Config.



Parameters	Section #
Polarity	2.2.2.1
Monitoring	2.2.2.2
LongMulti(*0.02)	2.2.2.3

Press on ▼ or ▲ to move the cursor to the desired setting to be set.
Press **OK** to confirm the choice and display the screen specified on the right column.

2.2.2.1 POLARITY

Used to set the multi switch polarity

Screen 6: Multi Switch Polarity



Press on ▼ or ▲ to move the cursor.
Press on **OK** to save the new value and to move back to Screen 5 : Multi Switch Config.

2.2.2.2 MONITORING

Used to set the multi switch monitoring

Screen 7 :Multi Switch Monitoring

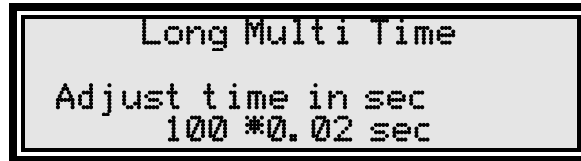


Press on ▼ or ▲ to move the cursor.
Press on **OK** to save the new value and to move back to Screen 5 : Multi Switch Config.

2.2.2.3 LONG MULTI TIME

Used to set the multi switch long time.

Screen 8 :Long Multi Switch Time



Press on ▼ or ▲ to increase and decrease the value.

Press on OK to save the new value and to move back to Screen 5 : Multi Switch Config.

2.2.3 DE-9 CONFIGURATION

Used to set the DE-9 settings.

Screen 9 : DE-9 Configuration



Parameters	Section #
Monitoring	2.2.3.1

Press on ▼ or ▲ to move the cursor to the desired setting to be set.

Press OK to confirm the choice and display the screen specified on the right column.

2.2.3.1 DE-9 MONITORING

Used to set the DE-9 monitoring

Screen 10 :DE-9 Monitoring



Press on ▼ or ▲ to move the cursor.

Press on OK to save the new value and to move back to Screen 9 : DE-9 Configuration

2.2.4 SWITCHES CONFIGURATION

Used to set the switches (3 switch or 4 switch) configuration settings.

Screen 11 : Switches Config.



Parameters	Section #
Polarity	2.2.4.1
3 Sw Short (*0.02)	2.2.4.2
3 Sw Long Fwd	2.2.4.3

Press on ▼ or ▲ to move the cursor to the desired setting to be set.
Press **OK** to confirm the choice and display the screen specified on the right column.

2.2.4.1 POLARITY

Used to set the switches polarity

Screen 12: Switches Polarity



Press on ▼ or ▲ to move the cursor.
Press on **OK** to save the new value and to move back to Screen 11 : Switches Config.

2.2.4.2 3 SWITCH SHORT FORWARD TIME

Used to set the 3 switch short forward time

Screen 13 :3 sw short fwd time



Press on ▼ or ▲ to increase and decrease the value.
Press on **OK** to save the new value and to move back to Screen 11 : Switches Config.

2.2.4.3 3 SWITCH LONG FORWARD TIME

Used to set the 3 switch long forward time

Screen 14 :3sw long fwd time



Press on ▼ or ▲ to increase and decrease the value.
Press on OK to save the new value and to move back to Screen 5 : Multi Switch Config.

2.2.5 SIP&PUFF CONFIG.

Used to set the sip & puff configuration settings.

Screen 15 : Sip&Puff Config



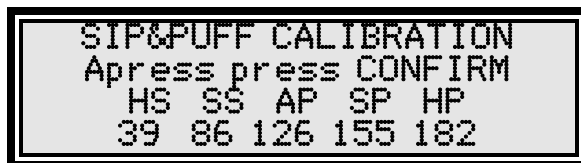
Parameters	Section #
Calibration	2.2.5.1

Press on ▼ or ▲ to move the cursor to the desired setting to be set.
Press OK to confirm the choice and display the screen specified on the right column.

2.2.5.1 SIP & PUFF CALIBRATION

The Joystick Calibration feature is used to calibrate the joystick.

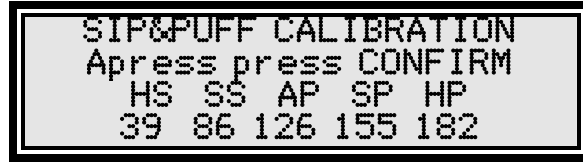
Screen 16 : Ambient Pressure



Leave the sensor with the ambient pressure and press confirm.

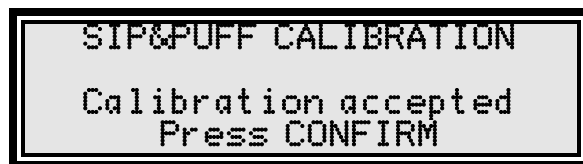
Screen 17 : Hard Puff Calibration





Make a Hard Puff in the sensor and press confirm.
 Use the same procedure for the Soft Puff, Soft Sip and Hard Sip level and press confirm. This will bring you to the Calibration Accepted screen or Calibration Rejected screen.

Screen 18 : Sip & Puff Calibration Accepted



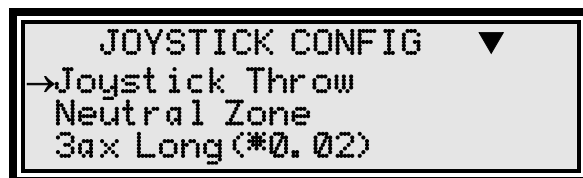
Screen 19 : Sip & Puff Calibration Rejected



2.2.6 JOYSTICK CONFIGURATION

Used to set the joystick configuration settings.

Screen 20 : Joystick Config



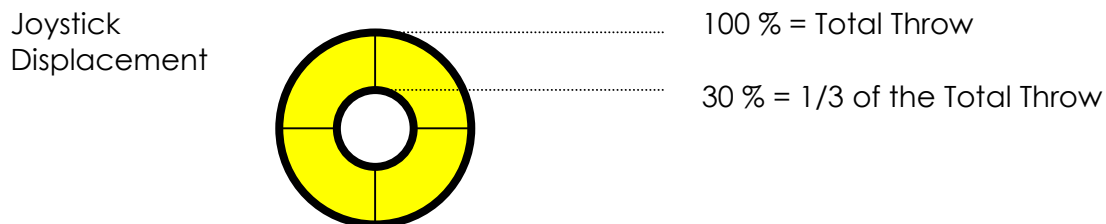
Parameters	Section #
Joystick Throw	2.2.4.1
Neutral Zone	2.2.4.2
3ax long(*0.02)	2.2.4.3
Parameters	Section #
Calibration	2.2.6.4



Press on ▼ or ▲ to move the cursor to the desired setting to be set.
 Press **OK** to confirm the choice and display the screen specified on the right column.

2.2.6.1 JOYSTICK THROW

The Joystick Throw is used to reduce the displacement of the joystick to get the maximum speed. For example, if the value of the throw is 30 %, when the joystick will get to 1/3 of its total throw, the wheelchair will achieve its maximum speed. Pushing the joystick further forward will maintain the maximum speed. This throw is adjustable from 30 to 100 % by 5 % increments.



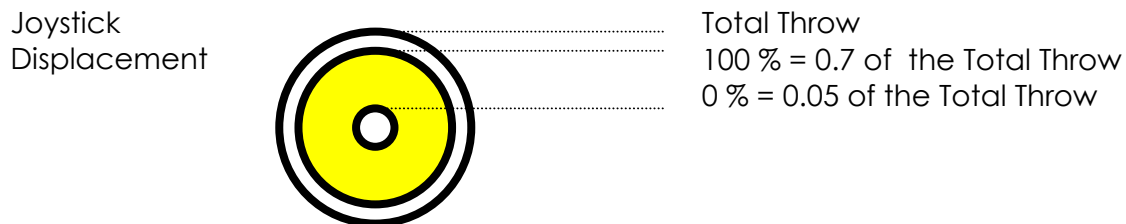
Screen 21 : Joystick Throw Adjustment



Press on **OK** to save the new value and to move back to Screen 20

2.2.6.2 NEUTRAL ZONE

The Neutral Zone feature is used to increase the neutral zone whenever the joystick movements will not make the wheelchair move. The neutral zone is adjustable from 0.05 to 0.7 of the total throw. The scale is adjustable from 0 to 100 % by 5 % increments. For example, if the neutral zone is 100%, the wheelchair will not move until the joystick gets to 0.7 of its total throw.



Screen 22 : Neutral Zone Adjustment



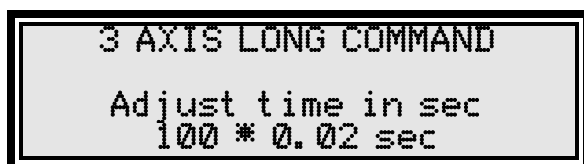


Press on ▼ or ▲ to increase and decrease the value.
 Press on OK to save the new value and to move back Screen 20

2.2.6.3 3 AXIS LONG TIME

Used to set the 3 axis joystick long time command.

Screen 23 : the 3 axis joystick long time command

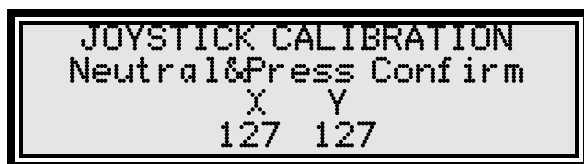


Press on ▼ or ▲ to increase and decrease the value.
 Press on OK to save the new value and to move back Screen 20

2.2.6.4 JOYSTICK CALIBRATION

The Joystick Calibration feature is used to calibrate the joystick.

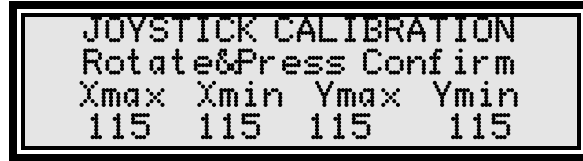
Screen 24 : Neutral Calibration



Leave the joystick in neutral position.
 Press on the LEVEL switch (on the joystick) to save the new values and to move to next screen.

Screen 25 : Joystick Calibration





Rotate the joystick completely around the maximum limits. The system will record the maximum values .

Screen 26 : Joystick Calibration Accepted



Screen 27 : Joystick Calibration Rejected

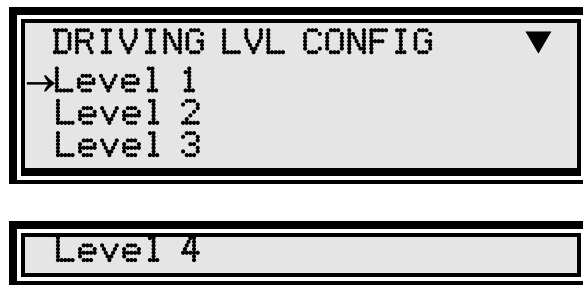


If the calibration is out of range in any of the positions, the calibration is rejected, a fault indication is displayed on the user interface and the controller will keep the last calibration in memory.

2.2.7 DRIVING LEVELS.

Used to set the driving levels

Screen 28 : Driving Level Config.



Parameters	Section #
Level 1	2.2.4.1
Level 2	2.2.4.1
Level 3	2.2.4.1
Parameters	Section #
Level 4	2.2.4.1

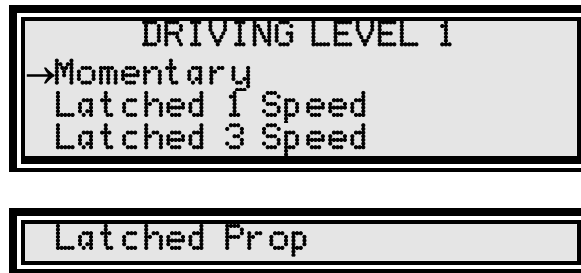
Press on ▼ or ▲ to move the cursor to the desired setting to be set.

Press **OK** to confirm the choice and display the screen specified on the right column.

2.2.7.1 DRIVING LEVEL 1,2,3,4

Each driving levels can be configured : Momentary, latched 1 speed, latched 3 speed or proportional latched.

Screen 29 : Driving Level configuration

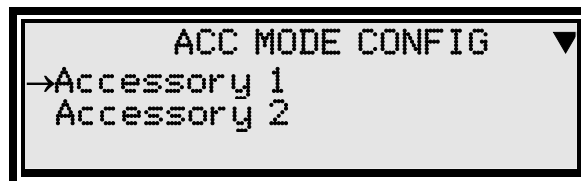


Press on **OK** to save the new value and to move back to Screen 28

2.2.8 ACCESSORY MODE

Used to set the accessory modes

Screen 30 : Accessory Mode Config.



Parameters	Section #
Accessory 1	2.2.4.1
Accessory 2	

Press on **▼** or **▲** to move the cursor to the desired setting to be set.
 Press **OK** to confirm the choice and display the screen specified on the right column.

2.2.8.1 ACCESSORY 1,2

Each accessory modes can be configured : Momentary or latched

Screen 31 : Driving Level configuration





Press on **OK** to save the new value and to move back to Screen 30

2.2.9 STANDBY MODE DELAY

Used to set the standby mode delay.

Screen 32 : Standby delay.



Press on ▼ or ▲ to increase and decrease the value.
Press on **OK** to save the new value.

2.3 ACTUATOR MODULE

The section « Actuator Module » is used to configure Actuator Module Module [LTM product # E24000] according to the user's needs.

Screen 33 : Actuator Module



Parameters	Section #
Level Config.	2.2.1
Intk Config	2.2.2
End of Course	2.2.3

Press on ▼ or ▲ to move the cursor to the desired level to be set.
Press **OK** to confirm the choice and display the screen specified on the right column.

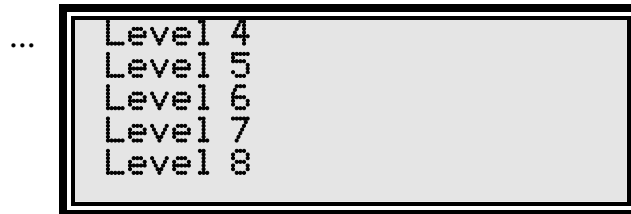
2.3.1 LEVEL DEFINITION

Used to set de levels definition.

Screen 34 : Select Module



Parameters	Section #
Level 1	2.3.1.1
Level 2	2.3.1.1
Level 3	2.3.1.1



Parameters	Section #
Level 4	2.3.1.1
Level 5	2.3.1.1
Level 6	2.3.1.1
Level 7	2.3.1.1
Level 8	2.3.1.1

Press **OK** to confirm the choice and display the screen specified on the right column.

2.3.1.1 LEVEL 1,2,3,4,5,6,7,8 CONFIG.

Used to choose an actuator activation/deactivation.

Screen 35 : Level 1 Definition

Parameters	Section #
------------	-----------



Actuator 1	2.3.1.1.1
Actuator 2	2.3.1.1.1
Actuator 3	2.3.1.1.1

Parameters	Section #
------------	-----------



Actuator 4	2.3.1.1.1
------------	-----------

Press on ▼ or ▲ to move the cursor to the desired actuator to be set.
 Press **OK** to confirm the choice and display the screen specified on the right column.

2.3.1.1.1 Actuator 1,2,3,4

Used to activate/deactivate an actuator

Screen 36 : Actuator 1,2,3,4

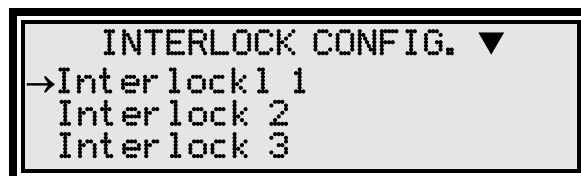


Press on ▼ or ▲ to move the cursor.
 Press on **OK** to save the new value.

2.3.2 INTERLOCK CONFIG

Used to choose an interlock configuration to modify.

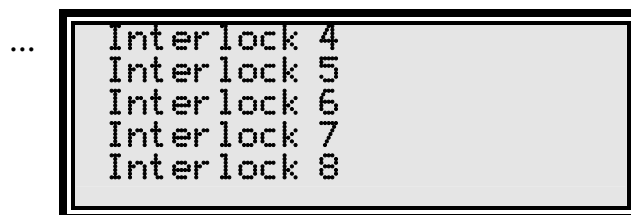
Screen 37 : Select Interlock



Parameters	Section #
------------	-----------

Interlock 1	2.3.2.1
Interlock 2	2.3.2.1
Interlock 3	2.3.2.1

Parameters	Section #
------------	-----------




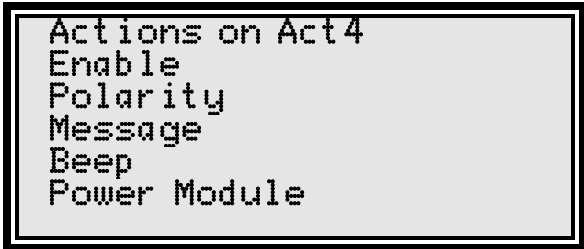
Interlock 4	2.3.2.1
Interlock 5	2.3.2.1
Interlock 6	2.3.2.1
Interlock 7	2.3.2.1
Interlock 8	2.3.2.1

Press **OK** to confirm the choice and display the screen specified on the right column.

2.3.2.1 INTERLOCK 1,2,3,4,5,6,7,8 CONFIG.

Used to set the interlocks definition.

Screen 38 : Interlocks Configuration



	Parameters	Section #
	Actions on Act1	2.3.1.1.1
	Actions on Act2	2.3.1.1.1
	Actions on Act3	2.3.1.1.1
...	Parameters	Section #
	Actions on Act4	2.3.1.1.1
	Enable	2.3.2.1.2
	Polarity	2.3.2.1.3
	Message	2.3.2.1.4
	Beep	2.3.2.1.5
	Power Modules	2.3.2.1.6

Press on ▼ or ▲ to move the cursor to the desired actuator to be set.
 Press **OK** to confirm the choice and display the screen specified on the right column.

2.3.2.1.1 Actions on Act1,2,3,4

Used to set the actions on the actuators

Screen 39 : Actions on the actuators

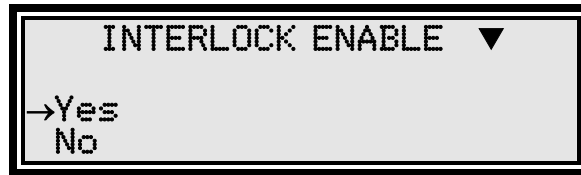

...


Press on ▼ or ▲ to move the cursor.
 Press on **OK** to save the new value.

2.3.2.1.2 Interlock Enable

Used to enable/disable the interlock

Screen 40 : Interlock Enable



Press on ▼ or ▲ to move the cursor.
Press on **OK** to save the new value.

2.3.2.1.3 Polarity

Used to modify the polarity of the interlock

Screen 41 : Interlock Polarity



Press on ▼ or ▲ to move the cursor.
Press on **OK** to save the new value.

2.3.2.1.4 Message

Used to enable/disable the message to the physical interface

Screen 42 : Interlock message



Press on ▼ or ▲ to move the cursor.
Press on **OK** to save the new value.

2.3.2.1.5 Beep

Used to enable/disable the beep to the physical interface

Screen 43 : Interlock BEEP



Press on ▼ or ▲ to move the cursor.
Press on OK to save the new value.

2.3.2.1.6 Action on power module

Used to set the interlock action on the power module

Screen 44 : Action on power module



Press on ▼ or ▲ to move the cursor.
Press on OK to save the new value.

2.3.3 END OF COURSE

Used to set the level of the end of course detection.

Screen 45 : End of course Level



Press on ▼ or ▲ to increase and decrease the value.
Press on OK to save the new value and to move back Screen 34 : Select Module

2.4 ATTENDANT CONTROL

2.5 ENVIRONMENT CONTROL

3. SALES AND SERVICE INFORMATION

Liber-T Medtech Inc.

Quebec City (Quebec)
Canada
G2C 1K7

Phone: [418] 842-2412

Fax: [418] 842-0123

Product Information: info@libertmedtech.com

Sales: sales@libertmedtech.com

Customer Support: support@libertmedtech.com