MICRO TAB LED LIGHT

User Manual

Version 1.0.0

Contents

1 HARDWARE

Figure 1 - MicroTab Led Light

- ➢ Single display board
- ➢ Matrix: 16 x 64 LEDs
- ➢ Dimensions: 16 x 64 x 15 cm (H x W x D)
- ➢ Weight: approx. 3,5 kg
- ➢ Controllable via: RS232, RS485
- ➢ USB port for internal flash programming

1.1 CONTROL PANEL

Figure 2 – Control panel

LOW BATTERY: Battery status signal LED.

SERIAL1: 6-pole Amphenol connector for serial input/output

START STOP LAP INPUTS: 6-pole Amphenol connector for START, STOP, and LAP signals

FUSE: Fuse cavity

SPEAKER: Jack connector for external speaker connection

START STOP: Green START STOP button used for manual START and STOP signals and for modifying values in program settings[1]

LAP RESET: Yellow LAP RESET button used for manual LAP signals and for confirming program settings[2]

POWER: On/Off switch

SUPPLY: Neutrik connector for external power supply and battery charging (if used)

USB: USB cable connector for firmware updating

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[1] This button will hereafter be referred to as START-MODIFY

[2] This button will hereafter be referred to as LAP-SETUP

1.2 CONNECTIONS

SERIAL 1 Input/Output (6-pole Amphenol)

1   Serial 1 RS232 TX (output)

2   Serial 1 SYNC IN (input)

3   Serial 1 RS485+

4   Serial 1 RS485-

5   Serial 1 GND (cable braiding)
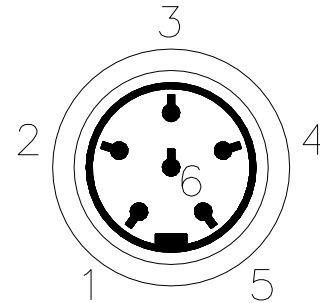
6   Serial 1 RS232 RX (input)

Figure 3 - 6-pole Amphenol connector

START – STOP – LAP Input/Output (6-pole Amphenol)

1   START signal (input)
2   Controlled output 5V, max 500mA (for external device power supply)
3   GND
4   LAP signal (input)
5   STOP signal (input)
6   AUX signal (input)

1.3 POWER SUPPLY

Power can be supplied in three ways:
- Connecting the MicroTab Led Light display board to the Microgate network adapter (code $ACC47). In this way it is possible to supply a mains graphic display board and to keep the batteries (if used) charged at the same time. This guarantees perfect functioning also when the mains power supply is interrupted. The $ACC147 network adapter operates with an input of 50 or 60 Hz alternate current, within a range of 100 and 240 Volts.
- Using the internal batteries of the display board (optional module $ACC163); in this case autonomy is usually over 8 hours of continuous functioning (depending on the type of display used).
- Connecting the display board via the DC/DC 12/48V converter (optional module $ACC174) to any direct current supply (stabilized or not) between 11 and 16 Volts, which is able to supply at least 100W peak power and approximately 50W average power. A (60Ah) car battery usually ensures more than 6 hours continuous operation (depending on the used display type).

IMPORTANT NOTICE: The $ACC47 network adapter is not suitable for outdoor use. Consequently Microgate is not liable for any damages to persons or things caused by incorrect use of the network adapter.

1.3.1.1 BATTERY CHARGING

To enter charging mode, press the green 'START MODIFY' button on the control panel for at least 2 seconds with the display board turned off and after having connected an external power source to the SUPPLY connector. Charging can take up to 10 hours, depending on the initial battery level.

The charging process can be interrupted by pressing again the green 'START MODIFY' button on the control panel for at least 2 seconds.

The more frequently lithium-ion polymer (Li-poly) batteries are charged, the longer the battery life will be.

The LOW BATTERY LED on the control panel indicates the battery level, the power source used, and the charging status (if applicable).

EXTERNAL SUPPLY	
STATUS	LOW BATTERY LED
• Display board *on/off* • Batteries *charged*	Green – Green – Pause
• Display board *on/off* • Batteries *empty*	Green – Red – Pause

INTERNAL SUPPLY (BATTERIES)	
STATUS	LOW BATTERY LED
• Display board *off* • Batteries *charged/empty*	Off
• Display board *on* • Batteries *charged*	Green – Pause – Green – Pause
• Display board *on* • Batteries *empty*	Red – Pause – Red – Pause

CHARGE	
STATUS	LOW BATTERY LED
• Batteries charging	Pause – Green – Pause – Green FAST
• Charging complete	Steady green

1.4 FIRMWARE UPDATING

Each time MicroTab Led Light is turned on, it displays the firmware version presently stored, usually with the following syntax: x.y.z (major, minor, revision).

Figure 4 - Firmware version

The firmware can be updated downloading it from the SUPPORT section of the www.microgate.it website.

Once downloaded the file, please follow the steps below:

- Turn on the display board and wait until boot is complete.
- Connect the USB cable (not supplied) from the display board to a USB port of your PC.
- Launch the Updater program following the on-screen instructions. In particular, if the software does not detect Active Sync (for Windows XP) or Windows Mobile Device Center (Vista/Windows 7), it suggests a link for downloading and installing it.
- Select the option 'Keep existing settings' to maintain all current settings; if you do not select it, the default values are restored.
- After a few minutes the display board is reset automatically displaying the number of the new installed version.
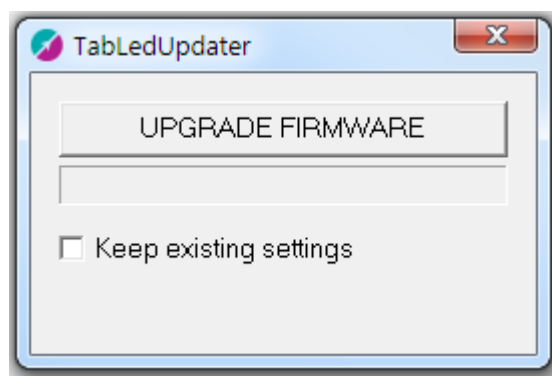

Figure 5 – Updater Software

1.5 HARDWARE RESET

If the display board stops responding to commands (e.g. entering the Setup menu as described in par. 2.1), a Strong Reset can be carried out choosing to reset all values to the default parameters (Factory Settings).

The steps to carry out are the following:

- Turn off the display board by pressing the Power (Off) button.
- Press simultaneously the START-MODIFY and LAP-SETUP buttons to turn on the display board (Power -> On)

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- During the first boot phase, when the first 4 LEDs (2x2) in the upper left corner are blinking, keep the two buttons pressed.

- When the blinking LEDs are 6 (3 x 2) release the two buttons.

- After a few moments the software asks if you want to restore the factory settings (`Reset Setting? Yellow=Yes`) or use the stored settings. Press LAP-SETUP to reset all values to the initial conditions.

1.6 BRIGHTNESS SENSOR

Display board LED brightness can be set manually (from the menu or software) or assessed automatically depending on the ambient light detected by the brightness sensor in the upper left corner (4th row, 5th column). There are other sensors for each 32x32 LED area, but only the one in the upper left corner is used for active control.

The minimum-maximum brightness values range from 1 to 100%, although in the default settings 60 is the maximum value. This means that the maximum brightness value that can be set automatically by the sensor is 60. Normally this value is enough even in case of strong light or sunny days. If you want to increase brightness (which causes higher power and battery consumption), set 1 – 100 as minimum and maximum value so that the sensor can set higher values. Of course it is possible to set Brightness Type = Manual (instead of Automatic) and to choose a fixed brightness level (see par. 2.1)
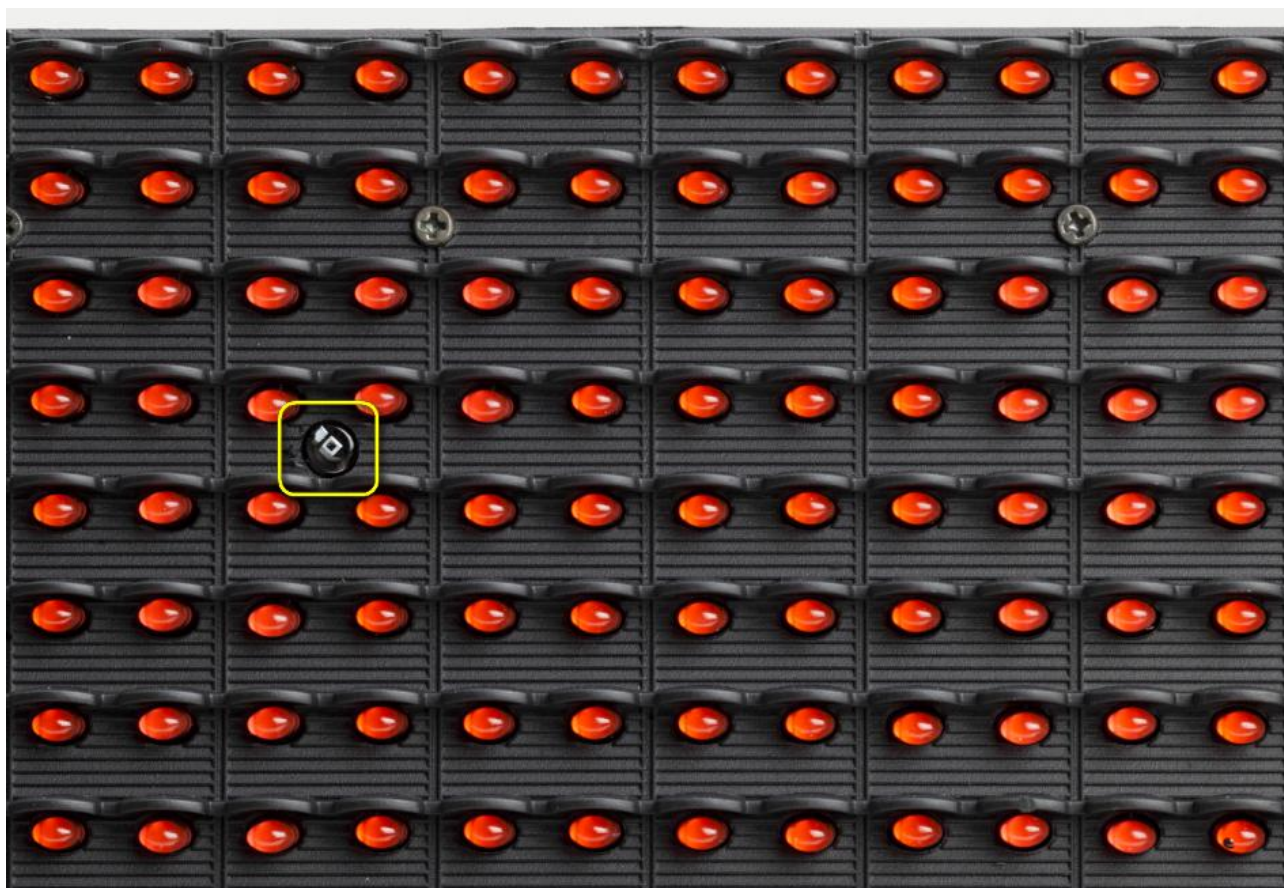

Figure 6 – Brightness sensor

2 INTERNAL PROGRAMS

Besides the 'Base Program', which waits for PC or chronometer commands and displays the received information, MicroTab Led Light display boards also have a series of internal programs for various timing needs.

The programs available at the time of printing this guide are:

Base Program	Waits for commands via serial cable
Timer	Works like a normal 1/100 second precision chronometer.
Clock	Displays the time of the internal clock of the display board.
Date & Clock	Displays date and time of the internal clock of the display board.
Test Pixel	Checks that the LEDs work correctly.

To change program follow these steps:

- Keep the YELLOW LAP-SETUP button pressed for at least 3 seconds.
- The currently selected program is displayed.
- Press the GREEN START-MODIFY button to scroll down the above-stated program list.
- Once the desired program has been reached, press the LAP-SETUP button to confirm.
- Depending on the chosen program, further settings may be required or the program is executed immediately.

2.1   GENERAL SETUP

Enter the Setup menu of a program (if available) by pressing the yellow LAP-SETUP button for 3 seconds. Once concluded the program configuration the so-called 'Advanced Setup' is displayed, i.e. the possibility to change the general parameters of the display board applied to all programs.

When *Advanced Setup* is displayed, press any button and confirm pressing LAP-SETUP to enter the menu.

The values available for each menu item can be scrolled down with the green START-MODIFY button and are confirmed by pressing the yellow LAP-SETUP button:

Brightness Type *AUTO | MANUAL*	Set the brightness type. Automatic uses the brightness sensor, whereas Manual uses the level set in the following step
Brightness *1…100%*	If Brightness Type = MANUAL, set brightness with START-MODIFY. Holding the button, the numbers increase rapidly
Firmware *x.y.z*	The currently loaded firmware version is displayed.
Serial Number *xxxxxxxxxx*	The display board serial number is displayed. Press LAP-Setup to continue and exit the Advanced Setup menu.

2.2 BASE PROGRAM

Selecting Base Program MicroTab Led Light can be controlled via the SERIAL 1 communication port.

2.2.1 SETUP

Keep the LAP-SETUP pressed for at least 2 seconds to enter the Setup. Press START-MODIFY to change the displayed values.

Advanced Setup ?	Press any key to continue.
Yellow = Yes	Press LAP-SETUP to enter the general setup (see par. 2.1)
Green = No	Press START-MODIFY to scroll the setup of the current program
Font	
Regular|**Narrow**	Set the default font (normal or narrow)
	Press LAP-SETUP
Row	
0...15	Set the row address (0 = first row)
	Press LAP-SETUP
Column	
0...3	Set column address (0 = first column)
	Press LAP-SETUP
X Offset	
0...384	Set the number of X Offset LEDs. All commands (with the ALPHA protocol) will be shifted to the left by a certain amount of LEDs.
	Press LAP-SETUP
Baud	
1200...230400	Set the speed of the serial port applying one of the default values ('1200', '2400', '4800', '9600', '19200', '38400', '38400', '57600', '115200', '230400').
	Press LAP-SETUP
Green to Default	
	Press the green START-MODIFY button to reset the display board to the default values, or press the yellow LAP-SETUP button to accept the entered values.

2.3 TIMER (CHRONOMETER)

In this mode MicroTab Led Light works as a typical 1/100 second precision chronometer.

- Pressing Start (manual or from input) the chronometer begins to count.
- With Lap (manual or from input) the chronometer displays an intermediate time for 5 seconds.
- The chronometer is stopped using the manual Start/Stop
- At this point it is possible to reset the chronometer with a further Lap.

Without reset the chronometer starts from the displayed value.

If the AutoReset time has been set, after each Stop (or manual Start) the chronometer is reset after a given amount of time.

2.3.1 SETUP

Keep the LAP-SETUP pressed for at least 2 seconds to enter the Setup. Press START-MODIFY to change the displayed values.

Configuration	
Normal | **_Over 24H_** | **_Until 24H_**	Set the desired mode:
	Normal = the chronometer starts from 0:00
	Over 24H = the chronometer continues infinitely and after 24h displays time as 24:00:01
	Until 24H = the chronometer stops after 24h.00.00
	Press LAP-SETUP
Advanced Setup ?	Press any key to continue.
Yellow = Yes	Press LAP-SETUP to enter the general setup (see par. 2.1)
Green = No	Press START-MODIFY to scroll the setup of the current program
Set Starttime	
HH= **_0_**	Set the hours
	Press LAP-SETUP
Set Starttime	
MM= **_0_**	Set the minutes
	Press LAP-SETUP
Set Starttime	
SS= **_0_**	Set the seconds
	Press LAP-SETUP
Set Starttime	
mm= **_0_**	Set the thousandths of a second
	Press LAP-SETUP

Autoreset
Time= **0**   Set the automatic Reset time (in seconds). After a stop command and
                                       when the above-stated time has passed, the chronometer is reset to
                                       zero. An invalid (zero) time disables the Autoreset function.
                                       Press L<small>AP</small>-S<small>ETUP</small>

Start – **Stop**   The Start button is used at start and finish
Start – **Start**   The Start button is used only at start

The chronometer is stopped and shows the preset time, ready to start.

2.4 CLOCK

This program allows you to display the time of the internal MicroTab Led Light clock.

2.4.1 SETUP

It is possible to set the date and time of the internal clock.

NOTE: When setting the time, MicroTab Led Light shows the time of first setting. If no value is modified, time is not changed and continues to run as if Setup had not been used.

Keep the LAP-SETUP button pressed for at least 2 seconds to enter the Setup. Press START-MODIFY to change the displayed values.

Configuration **HH:MM:SS** | **HH:MM**	Set display mode with START-MODIFY
Advanced Setup ? *Yellow = Yes* *Green = No*	Press any key to continue. Press LAP-SETUP to enter the general setup (see par. 2.1) Press START-MODIFY to scroll the setup of the current program
Set R.T. Date *Day =* **13**	Set the day of the month with START-MODIFY Press LAP-SETUP
Set R.T. Date *daynum =* **3**	Set the week day with START-MODIFY (1 Sunday, 2 Monday, ..., 7 Saturday) Press LAP-SETUP
Set R.T. Date *month = 7*	Set the month with START-MODIFY (1 January, 2 February, …, 12 December) Press LAP-SETUP
Set R.T. Clock *HH =* **0**	Set the time with START-MODIFY Press LAP-SETUP
Set R.T. Clock *MM =* **0**	Set the minutes with START-MODIFY Press LAP-SETUP
Set R.T. Clock *SS =* **0**	Set the seconds with START-MODIFY Press LAP-SETUP

2.5 DATE & CLOCK

This mode allows you to display the time of the internal MicroTab Led Light clock.

2.5.1 SETUP

It is possible to set the date and time of the internal clock. The steps are the same as in the Clock Program (see par. 2.4.1).

2.6 TEST PIXEL

The Test Pixel program is used to check the correct functioning of LEDs: the display board turns all LEDs on and off for a certain number of times. If an LED does not turn on, please contact our technical support.

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