

GPS Interrupter Module – PN's 103391 & 103392

GPS Antenna PN - 103 274

The **Michā** GPS Interrupter Module is designed to interface directly with the Michā range of CP controllers, and can also be used as a stand-alone, programmable interrupter with other equipment. Two outputs are available; an optically isolated switch rated at 70V/50mA, and a MOSFET, rated at 100V/2A.

Main Features:

- GPS Accuracy ($\pm 3mS$)
- 10-30VDC & 20-60VDC versions
- Low Power: approx. 0.35W/24V
- -5°C to +55°C operating range
- 30 Programmable Sequences
- Non-volatile Memory
- Opto-isolated output
- Switched power output
- Alphanumeric LCD display
- LED status indicators
- DIN-rail mounting
- 106mm x 90mm x 45mm

LED Indicators:

- Blue:** Steady when power is first applied. Flashes at 1Hz when satellite synchronisation is achieved with UTC, Latitude and Longitude data received.
- Green:** Steady when a future program is in memory. Flashes at 1Hz when running a Program.
- Red:** Illuminated to indicate the output is Active / ON.

General Specification:

Module size:	106 x 90 x 42mm (excluding SMA connector) DIN-rail clip on rear fits standard 35mm 'top hat' profile (TS35 DIN 46277) Enclosure material: Self-extinguishing PC/ABS UL94-VO Colour: RAL 7035
Module weight:	0.2kg (Antenna PN 103274: 0.08kg)
Power consumption:	25-30mA at 12VDC 12-15mA at 24VDC 5-7mA at 48VDC (all nominal)
Part Numbers:	103391: Supply voltage 10VDC to 30VDC 103392: Supply voltage 20VDC to 60VDC



Using the GPS Interrupter.

Operation

Power Up

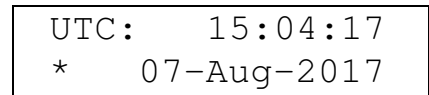
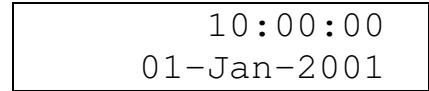
At power up, the display shows a default time and date as shown. With a good GPS signal, the UTC time will appear within around 30 seconds, and GPS synchronisation within 60 seconds. When synchronised, the blue LED flashes at 1Hz and the * symbol appears on the display.

By default, the time and date are shown.

LED



LCD Display



When a program is running, the bottom line of the LCD display alternates between showing the date and the number of the Program that is running.

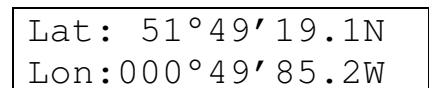
Menu 0

Press **UP** and the display will show the Menu number

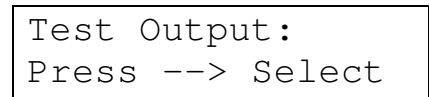
This menu can be reached at any time by pressing **MENU** and **DOWN** together.



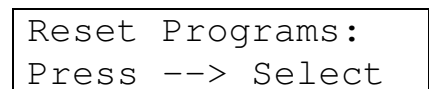
Press **DOWN**: the display will show the current Latitude and Longitude: (Satellite synchronisation required.)



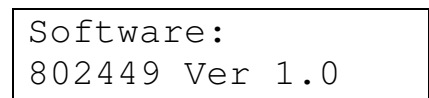
Press **DOWN** again: pressing **SELECT** turns ON the output. (If already Active, the output does not change)



Press **DOWN** again: press **SELECT** to reset all programs. The display shows "Are you sure ?" – press **SELECT** again to confirm



Press **DOWN** again: the installed software number and version is displayed.



Note: In the event the GPS signal is lost after GPS synchronisation, the module will continue to run on its internal clock, with an accuracy of approximately ± 1 s per day. However, the "*" symbol will disappear from the display, and the blue LED will be illuminated continuously.



Setting up a Program

Procedure	LED	LCD Display
<p>Menu 1</p> <p>From Menu 0, press MENU to get to Program 1.</p> <p>Notes:</p>		<pre>**** Menu 1 **** Program 1</pre>
<p>Times shown refer to the GPS time, which is UTC. Although it is possible to program a time and date in the past, these sequences will be ignored.</p> <p>Press DOWN: the display will show the Program Status. Press UP or DOWN to toggle the status, press SELECT to store in memory. Status <u>must</u> be set to Disable to allow changes to any of the following settings.</p>	<p>●-- ○ ○</p>	<pre>Program 1: Status: Disable</pre>
<p>After <u>any</u> change, press SELECT to confirm and store the entry.</p> <p>Press DOWN again: to set the Program Start time and date, press SELECT and the 'hours' field will start flashing. Press the UP and DOWN keys to select the required hours. Press SELECT again to move on to the next field.</p> <p>Continue until all fields are updated and the display shows the required Program Start time and date:</p>	<p>●-- ○ ●</p>	<pre>Program 1: Start 12:00 01-Jan-17</pre> <pre>Program 1: Start 15:30 07-Aug-17</pre>
<p>Maximum Run Time: 23hrs 59mins.</p> <p>Press DOWN again and press SELECT to set the Run time (Program duration from starting).</p>		<pre>Program 1: hh:mm Run Time: 01:00</pre>
<p>ON time can be set to any value between 0.2s and 99.9s</p> <p>Press DOWN again and press SELECT to set the ON time (output is Active)</p>		<pre>Program 1: ON Time: 10:0s</pre>
<p>OFF time can be set to any value between 0.2s and 99.9s</p> <p>Press DOWN again and press SELECT to set the OFF time (output is inactive).</p>		<pre>Program 1: OFF Time: 10:0s</pre>
<p>The Output can be set to start the Program with the output ON or OFF.</p> <p>Press DOWN again and press SELECT to alter if the Program should start with the ON period or the OFF period.</p>		<pre>Program 1: Output Start:ON</pre>
<p>** Remember to now Enable the Program if you wish it to run. **</p>		
<p>Programs can be entered with a Start date and time in any order.</p> <p>If an additional future program is required, press MENU to go to the next program.</p>		<pre>**** Menu 2 **** Program 2</pre>

Programs are retained in memory during power loss, but if power is lost mid-program, when power returns the program will not restart. Before a GPS time signal is obtained, the green LED may be temporarily illuminated to indicate a stored, enabled program with a start date later than the default.

Running a Program

Procedure	LED	LCD Display
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Note: The software scans all of the Enabled Programs in order, 1 to 10. If a Program Start Time matches UTC time, this Program will start and all other programs will be ignored until the Program has ended

Menu 0 If any Program is set to commence in the future, the green LED will be illuminated constantly.

Note: When a Program is running, it is still possible to manually activate the output using the 'Test Output' function.

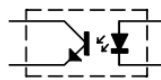

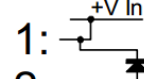
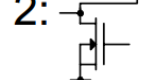
When a Program starts, the green LED will flash and the main display will alternate between showing the date and the Program that is running. The red LED will be illuminated when the output is ON.



UTC:	15:04:17
*	07-Aug-2017

UTC:	15:30:17
Prog 1 Running	

Terminals and connections:

<u>POWER IN</u>	<u>OPTO SW.</u>	<u>RELAY SW.</u>	<u>RS485</u>
3: V+ 4: V-	8:  9: 	1:  2: 	5: A 6: B 7: COM
1: Power in +V 2: Power In -V	8: Opto-switch +V 9: Opto-switch -V	1: +V (fused V+ in) 2: Switched -V to V- in (Internal flyback diode across 1 & 2)	<i>Future development – available Q3 2018</i>
10-20VDC or 20-60VDC (internally fused)	Connect to the Disable input of the Micha CPC. Can be used as VFC contact to other equip.	These terminals can be used to switch an external contactor. Max. current: 2A	

All terminals: plug and socket type, rising clamp, max. cable: 2.5mm². Antenna: SMA female.

Fuse: The module and switched output (terminals 1 & 2) are protected by a 2A (max) 20mm fuse.

VR1: Potentiometer VR1 – fitted by the fuse – can be used to adjust the contrast of the LCD display.

Terminology:

Program: A sequence of ON and OFF times which activate (ON time) and deactivate (OFF time) the GPS Interrupter Output. Each Program has a Start time, a Run time, and the Program can start with the Output ON or OFF

Output: The GPS Interrupter Output will be 'Active' during the ON time, and inactive during the OFF time. Where an output is described as 'Active' or 'ON', it means that the module outputs are switched on and a connected CP Controller is considered to be DISABLED, or 'Interrupted'.

Document History:	Date:	Software:	Notes:
802535 Version 1	08-Jun-2018	802 537 V1.0	First issue.

Power Up Screen

GPS Interrupter
Controller Mk3

Menu 0

**** Menu 0 ****
Information

↑ Up Down ↓
UTC: 12:34:56
* 01-Jun-2018

↑ Up Down ↓
Lat: 12o34'56.7N
Lon:123o45'67.8W

↑ Up Down ↓
Test Output:
Press --> Select

↑ Up Down ↓
Reset Programs:
Press --> Select

↑ Up Down ↓
Software:
802537 Ver 1.0

Menu 1

**** Menu 01 ***
Program 01

↑ Up Down ↓
Program 01
Status: Disable

↑ Up Down ↓
Program 01 Start
12:00 01-Jan-18

↑ Up Down ↓
Program 01 hh:mm
RUN Time: 01:00

↑ Up Down ↓
Program 01
ON Time: 10.0s

↑ Up Down ↓
Program 01
OFF Time: 10.0s

↑ Up Down ↓
Program 01
Output Start:ON

Menu 2

**** Menu 02 ***
Program 02

↑ Up Down ↓
Program 02
Status: Disable

↑ Up Down ↓
Program 02 Start
12:00 01-Jan-18

↑ Up Down ↓
Program 02 hh:mm
RUN Time: 01:00

↑ Up Down ↓
Program 02
ON Time: 10.0s

↑ Up Down ↓
Program 02
OFF Time: 10.0s

↑ Up Down ↓
Program 02
Output Start:ON

Menu 3

**** Menu 03 ***
Program 03

↑ Up Down ↓
Program 03
Status: Disable

↑ Up Down ↓
Program 03 Start
12:00 01-Jan-18

↑ Up Down ↓
Program 03 hh:mm
RUN Time: 01:00

↑ Up Down ↓
Program 03
ON Time: 10.0s

↑ Up Down ↓
Program 03
OFF Time: 10.0s

↑ Up Down ↓
Program 03
Output Start:ON

Menu 4-29

**** Menu xx ***
Program xx

↑ Up Down ↓
Program xx
Status: Disable

↑ Up Down ↓
Program xx Start
12:00 01-Jan-18

↑ Up Down ↓
Program xx hh:mm
RUN Time: 01:00

↑ Up Down ↓
Program xx
ON Time: 10.0s

↑ Up Down ↓
Program xx
OFF Time: 10.0s

↑ Up Down ↓
Program xx
Output Start:ON

Menu 30

**** Menu 30 ***
Program 30

↑ Up Down ↓
Program 30
Status: Disable

↑ Up Down ↓
Program 30 Start
12:00 01-Jan-18

↑ Up Down ↓
Program 30 hh:mm
RUN Time: 01:00

↑ Up Down ↓
Program 30
ON Time: 10.0s

↑ Up Down ↓
Program 30
OFF Time: 10.0s

↑ Up Down ↓
Program 30
Output Start:ON

ORIGINAL SCALE 1:1 TOLERANCES:
NO D.P. ± 0.5mm
ONE D.P. ± 0.25mm
TWO D.P. ± 0.1mm

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TITLE
**GPS Interrupter Mk3
Software 802537 V1.0**

DATE	ISS	CHANGE	E C REF
DRN	MF	Product / Ref	A4
DRW NO.		802 537	SHT 1 OF 1