Lap Timing

BR2 Receiver

The Beacon Receiver (BR2) is the part of the lap timing system that is fitted in the vehicle. Depending on the other components in the application, the receiver can be connected using a switched output or a CAN bus and should be set up accordingly.

Fitting the BR2

The BR2 should be fitted so that the infra red beam hits the receiver window at a right angle when the car passes the transmitter.

If there are no obstacles between transmitter and receiver, the range of MoTeC's lap timing system is up to 40 meters. The receiver should be positioned carefully in the vehicle to avoid the beam passing through tinted glass or acrylic, which can reduce the range substantially.

Web	Item Number	Description
	M ADL BRX-2	BEACON RECEIVER

Compatible with
- SDL3
- ADL3
- ACL
- MDD
- M400/M600/M800/M880

Specifications

Outputs
- LED indicating
  - Power on
  - Beacon signal received
  - Error codes
- Digital output for beacon information (alternative to CAN output)

Communications
- CAN bus used for
  - communicating beacon information
  - communicating diagnostic information
  - configuring the receiver via the BR2 configuration software

Physical
- 5 pin Autosport connector
- Case size 75 x 36.5 x 25 mm

BTX Transmitter

The Beacon Transmitter (BTX) is the track side mounted part of the lap timing system.

Mounting the BTX

The narrow infrared beam emitted by the BTX should be aimed parallel to the road and at the same height above the road as the receiver in the vehicle. The transmitter mounting system should therefore be capable of height and tilt adjustment.

The spacing between adjacent transmitters must be a least 6 meters.

Web	Item Number	Description
	M ADL BTX	BEACON TRANSMITER

Compatible with
BR2

Specifications

Output
Coded infrared beam
Range up to 40 meter (130 ft) when used with BR2
Status indicator
LED in three colours indicating:
Power OK
Low battery
Fault or very low battery

Power
External via a 12 volt rechargeable battery (10 Ahr capacity recommended)
Power consumption 70 mA typical

Physical
Case size 90 x 80 x 115 mm
Weight 260 gram

MoTeC GPS

The GPS-L5 (5 Hz GPS) and GPS-10 (10 Hz GPS) combine their electronics and antenna into one small unit. A highly sensitive receiver allows the GPS to lock onto signals even in difficult environments. Both are fitted with a DTM connector and are pre-configured to be compatible with the following devices:

GPS-L5 is Compatible with

- MoTeC 'Hundred Series' ECUs - M400, M600, M800, M880 (v3.51U2 and up)
- MoTeC M84 ECU (v1.10K2 and up)
- MoTeC ACL
- MoTeC ADL3, ADL2 (not compatible with original ADLs)
- MoTeC SDL3, SDL

GPS-L10 is Compatible with

- MoTeC ACL
- MoTeC ADL3, ADL2 (not compatible with original ADLs)
- MoTeC SDL3, SDL

Note: Not compatible with MoTeC ECU's

Both units are suitable for speed, position and lap timing.

Web	Item Number	Description
	M GPS-L5	5Hz GPS FOR ECU's
	M GPS-L10	10Hz GPS FOR LOGGERS

Performance

GPS-L5
Update rate 5 Hz
GPS-L10
Update rate 10 Hz
66 satellite channels
Start Up Times
Cold - 35 seconds
Warm - 33 seconds
Hot - 2 seconds
Reacquisition Time - <1 second
Dynamics 4 G
Power supply voltage 4.0 – 6.0 V

Communications

RS232
GPS-L5
Baud rate: 19200
GPS-L10
Baud rate: 38400

Physical

Case size 48 mm x 41 mm x 14 mm
Weight 106 g
1 x 4 pin Deutsch DTM, 3 m flying lead
Built in antenna
Mounting - magnetic base

RaceGrade GPS Radio

The M GPS BL is a 10 Hz GPS which can be upgraded to 20 Hz. The advanced GPS receiver rejects all multi-path signals to ensure accuracy.

It is enclosed in a motorsport aluminium case with a serial output conforming to NMEA standard RS-232 protocol at 57600 baud rate and a speed output for applications that do not accept serial data. It can also be ordered with an optional CAN output.

It is well suited to MoTeC Dash/Data Loggers, and the 10 Hz model may also be pre-configured upon request for use with MoTeC M1 series, 'Hundred Series' and M84 ECUs.

The new improved version is smaller and lighter. It incorporates a foam seal to protect it from the environment and floating circuit board design to be more vibration resistant. It also potted with RaceGrade RaceGel for improved resistance to vibration and the environment. The connections are now all on the top surface to improve flexibility in mounting arrangement. The main connector was changed to utilize a smaller, lighter and more common Autosport connector.

This unit is suitable for speed, position and lap timing.

Compatible with

- ***C125***
- ***C185***
- ***ACL***
- ***ADL3, ADL2***
- ***SDL3, SDL***
- ***By request: MoTeC ECUs - M150, M170, M190, M142, M182, M400, M600, M800, M880, M84***

Note: this unit can be ordered with a 5 Hz update rate for those that need better accuracy with an ECU

Performance
Update rate 10 Hz, upgradable to 20 Hz
12 satellite channels
Horizontal accuracy < 0.7 meter at 95% with DGPS
Power supply voltage 6–18 V
SBAS and WAAS corrections for higher accuracy

Communications
RS232 serial at 57600 baud rate formatted NMEA GGA and RMC messages. Other baud rates and/or message types available upon request.
CAN output for MoTeC devices (bus speed is 1 Mbit/s)

Physical
Case size 100 x 60 x 23 mm
3.95 x 2.35 x 0.9 in)
Weight 230 gram
Connector
1 x 5 pin Autosport connector
1 x SMA connector for antenna

	M GPS BL V3	VER 3 GPS 10Hz