

## General Requirements for using transponders at a BMX track

Two sets of detection loop conduit set into the ground, one at the bottom of the Start Hill, the other on the Finish Line.

These should be made from 20mm medium-duty conduit, and the parallel sides must be 60cm apart.

The two parallel runs of conduit need to terminate in an End Box (junction box). The centre of this End Box must be exactly on a line midway between the two long runs of conduit. *Unlike the drawings provided by MyLaps the lengths of conduit running into the junction box should be a gentle bend rather than going through a sharp right-angle. This makes it easier to pull the MyLaps detection loops through the conduit, and remove at the conclusion of the race meeting if you are not installing a permanent setup.*

These conduit constructs are set into the ground, to a depth of about 10cm.

There must be an overlap of at least 30cm either side of the track, and the maximum length of the whole construct is 12 metres\* (*\* because 12 metres is the maximum length detection loop that MyLaps Sports Timing supply*).

**IMPORTANT:** Both loops must be absolutely clear of any possible causes of interference such as metal barriers, wire fencing, mains power lines etc.

The Club must provide an electrical connection from their Gate Start mechanism back to the Score Room which will run into a BMXV interface box. If you have a 'Smart Start' a connection must be provided from terminals 1 & 7, speaker wire is ideal, and the polarity of the two wires must be marked. Smart Start terminal '7' is the Positive, and '1' the Negative. The voltage and polarity of the output pulse must be checked prior to the meeting. It should be 12v with a maximum of 35v.

Tracks with a ProGate use a different connection which is built in to your ProGate control box and will connect to the BMXV MyLaps setup via a special connection on our interface boxes.

If you are not installing a permanent setup then prior to the race meeting BMXV will install their detection loops through the conduit and then connect it all back to your Score Room. The detection loops are connected to a MyLaps Decoder box, one for the Start Hill loop and one for the Finish Line loop. You need to provide chaser cord through the conduit loops, which must also be free of mud or water inside. The chaser cord is to pull the MyLaps detection loops through.

Previously the connections from the detection loops back to the rest of the network was done by running mains electrical wire out to the Hill and Finish line decoders, which were situated out on the

track next to the two loops, then running Cat 5e/Cat 6 (computer network cable) from the decoders back to the Score Room.

Based on what we've learnt at South Eastern BMX Club with their permanent installation, in future we will be locating the MyLaps Decoders in the Score Room and connecting them to the Start Hill and Finish Line detection loops using coaxial cable (RG-6 quad-shield, 75Ω impedance with BNC connections).

If Clubs are installing a permanent transponder loop setup at their track they should do so using the above quad-shield coax and running it back to the Score Room.

If you do not have a permanent setup, then you need to provide the means to run the coax cable back to the Score Room safely, which may involve running overhead lines to hang the cable from. The Club will be responsible for setting up the aerial support line from the Start Hill and Finish Line back to the Score Room, if it is required, prior to the race meeting.

A temporary setup takes quite a few hours to complete, and to take down at the completion of a race meeting. Clubs running transponder scoring need to allow for this in the event schedules.

For Clubs wishing to install a permanent loop setup at their track, the following are items that you need to purchase from MyLaps Sports Timing (contact BMXV first for details). *Prices are ballpark, include GST and are rounded up, purely to give you an idea of the costs involved (prices as of Aug. 2011)*

2x	MyLaps Detector loops	price	\$200 pair
2x	MyLaps Coax Connection boxes	price	\$350 pair

RG6 75Ω Quad Shield coax cable in a quality brand such as Belden is currently \$1.80 per metre from Jaycar Electronics, or \$100 for a 100 metre length. The coax cable uses BNC RG6 connectors on its ends which are currently from around \$3.50 each.

Clean mains voltage power is required in the Score Room to run the decoders, computers and associated network equipment. *Portable generators are not suitable (unless the very large industrial type as used at Mount Gambier at the recent meeting there).*

BMXV will provide the computers necessary to run the transponder equipment, the decoders, network equipment, and UPS etc.

Clubs wanting to run transponder timing need to have the latest version of BEM to use when they create the Event file for the race meeting. If you're not sure of the version that you are running, please contact Diane Lacey, [registrar@bmxv.com.au](mailto:registrar@bmxv.com.au) and/or Lyndon Downing [willah@bigpond.com](mailto:willah@bigpond.com)

The South Eastern BMX permanent transponder cabling setup was made possible by Club member James Trevelyan of Pro Active Controls who provided the expertise (and much else) for the

installation. James has said that he will be happy to provide advice to other BMX clubs installing a similar setup. He may come to regret this offer.

The above is not an exhaustive list of what is necessary to set up your track to run transponders, but it should give you a very good idea of what is involved.

SH  
17<sup>th</sup> August 2011

