

Is PCDIRECT a suitable alternative to using an EQDIRECT?

Although both EQDIRECT and PC-Direct would on the surface appear to do the same job of providing a RS232 interface to the Synta mounts, the means by which this is achieved are quite different.

First of all we need to understand a little about the nature of Synta mount communications. The low level protocol that is used for mount communications is rather basic- it is ASCII based and has no parity checking, message checksum or error correction/detection capability. It is designed for a simple master slave operation and there is no routing information within the protocol structure to support a multi-master environment

An EQDirect device provides a “hardware only” interface to the mount that simply converts RS232 transmit and receive signals (-9V to 9V) to TTL signals (0-5V). When EQASCOM is connected to the mount via an EQDIRECT it becomes the sole master device in control of the mounts stepper controllers (slaves). PC -Direct on the other hand is a firmware based solution that requires the synscan to intelligently buffer and route messages from the PC to the mount and from the mount to the PC. Also, because synscan based control is also active when in PC-Direct mode, it has also to be able to route messages between the synscan and mount. As already discussed the low level mount protocol is not designed to handle routing and the complexity of the functionality the SYNSCAN must be providing whilst in PC-Direct mode should not be underestimated.

Unfortunately Synta have yet to publicly document the intended purpose of PC-Direct mode and there has been no guidance issued as to what represents best practice when using it. Certainly there has never been any mention as to its suitability for use in combination with EQASCOM.

When it comes to EQASCOM it is important to understand that the mount control strategy has been designed around the basic premise that EQASCOM is in sole control of the mount and can exercise this control at any time it wishes. This is certainly the case when using an EQDIRECT but when using PC-Direct it is the synscan that ultimately controls access to the mount and there are now two “masters”, the synscan and EQASCOM, that are capable of commanding the mount. PC-Direct therefore potentially compromises the very basis of EQASCOM mount control.

The susceptibility of the mount communication to undetected corruption, EQASCOM's primary requirement for sole and immediate access to the mount and the lack of insight into the implementation and constraints of PC-Direct mode are the reasons why it is recommended that PC-Direct is only suitable for evaluation purposes only and never for unattended use. The fact that PC-Direct may appear to work with a particular version of EQASCOM is no guarantee that it will continue to do so for any future release of Synscan firmware or EQASCOM software. For those intending to regularly use EQASCOM it really does not make any sense to compromise the reliability and robustness of your set up by choosing PC-Direct in preference to an EQDIRECT. EQDIRECT devices are simple and cheap to make, and full details are given on the EQMOD Project website. Should you feel unable to build your own there are many vendors offering ready made products at quite reasonable prices.