*Suggested revision of the SoD entry, Section 7.1 in the Flim configuration Utility User Guide.*

*Draft 1 August 2nd 2016 Philip Willis*

**Start of Day Events**

'Start of Day' or ‘SoD’ [<-click for Glossary needed] is the process by which the state of a [CBUS](http://www.merg.org.uk/merg_wiki/doku.php?id=glossary:glossary_c#cbus) system is initialised. First it ensures input modules are in the correct state in case any switches etc have been moved while the system was unpowered; and then these input modules send events as though those input switches had just been switched there. This ensures that all modules consuming these events go into the state matching the input.

In [CBUS](http://www.merg.org.uk/merg_wiki/doku.php?id=glossary:glossary_c#cbus) this is usually achieved by an input module generating an event which other input modules have been taught to recognize as a SOD. In response, these other modules generate a set of events corresponding to the current state of each of their inputs.

There is nothing special about the SOD event itself. It is an event like any other and you need to teach it to those input modules which need it. However those input modules which make use of it treat the message in a special way. Any SOD message accepted by them will cause the behaviour just described: it sends an event for each of its inputs in turn. If there are eight inputs, then eight events will be sent, one for each input.

Because the SOD event is general, there can be more than one, so allowing different sections of the network to respond to different events.

It is important that any SOD message should not be used for other purposes as well. There is nothing to prevent this, so it is a matter of self-discipline to prevent unexpected side effects.

*Example*

*Let’s take the example of control panel toggle switch which has been changed while the power was off. The switch and the item it controls, such as a point motor, will now be out of step. A module controlling a stall motor such as a Tortoise retains its settings when the power is off. It will thus be firmly holding the point in the same position as when the power was previously on, even though the switch is now in the opposite position.*

*[Do LED boards retain state when the power is off? If not, that is another example.]*

*It would be tedious to have to toggle every switch on every control panel every time an installation was powered, so MERG’s CBUS provide a mechanism to handle this. This is the “Start of Day” message. The name conveys the idea that it is used when an installation is powered up, before using the installation for controlling the layout more generally. Its purpose is to make every input module which has been taught to respond to it send one event for each of its inputs. These events are those which would have been sent, had that input just changed to its current state. In our example, this ensures the point motor moves to the switch’s current position. Other point motors may receive events telling them to move to where they already are, which will have no effect.*

[Above is new material]

[Below is a modification of the existing manual]

**Modules responding to SOD Events**

The CANACE3C, CANACE8C, CANTOTI, CANPAN, enhanced CANACC5/8s and CANSERVO8C can be taught to respond to a Start of Day event. The CANPAN also supports Start of Day Events but please refer to the CANPAN section in the FCU Guide to CBUS Modules for full details. The CANACE3C can also be taught to generate a Start of Day Event automatically, after a delay from power-up.

The CANACE8C and CANTOTI will each respond with 8 events indicating the current state of each of the 8 inputs. The CANSERVO8C will respond with an event for each servo with an event indicating the current servo position. This does assume that servos have been taught to generate events; only servos that have been taught will respond. The enhanced CANACC5 will respond with an event for all outputs that have been taught to generate an event. Care must be taken to avoid the situation where the responses to a Start of Day event trigger further start of day responses, potentially leading to a never-ending sequence of responses. The responses from the CANACE3C and CANPAN will depend on how the switches have been configured.