Summary of Node variables and Event Variables for combined modules. (FLiM mode)

ACC4 Solenoid driver with four output pairs.

Node Variables = 8

Each NV sets the time of the output pulse of the corresponding output.
Values from 1 to 255 set the time in increments of 10 milliseconds.
A value of 0 sets the time as constant. This should not be used for solenoid
operation but could allow the module to become a high current switch with
suitable modification. With this NV arrangement it is possible to have different
times for each of the solenoids in a pair. The reset default values are 5.

Event variables = 2

EV1 sets which output pair(s) are activated by an event. Each of the lower 4
bits of EV1 correspond to an output pair. If set to a 1, that pair is activated. A
single event can activate any combination of output pairs. The reset default
value is all off (XXXX0000)

EV2 sets the polarity of the output action relative to the ON or OFF of the
event. A value of 0 with an ON event turns the lower of the pair outputs on.
A value of 1 reverses that pair. The reset value is all zeroes.

Node type.   The value for the node identifier in parameter 3 is 1.

Event number.   The maximum number of events is 32.

ACC5 and ACC8   ACC5 is a high current driver with 8 outputs, each of which can source
or sink 1 amp but the total current is also limited to 1 amp.

ACC8 is an 8 output module where the outputs are sinks only, (open
collector) suited to lamps, relays etc. limited to 0.5 amps per output
and 1 amp total.

Node variables = 0

This module does not have any node variables.

Event variables = 2

EV1 sets which outputs are activated by an event. Each of the 8 bits of EV1
correspond to an output. If set to a 1, that output is activated. A single event
can activate any combination of outputs. The reset default value is all off
(00000000)

EV2 sets the polarity of the output action relative to the ON or OFF of the
event. A value of 0 with an ON event turns the outputs on. A value of 1
reverses that output. The reset value is all zeroes. For the ACC5, an output
ON is a high voltage drive. For the ACC8, ON is a low voltage – the output
drive transistor is conducting.

Node type.   The value for the node identifier in parameter 3 is 3.

Event number.   The maximum number of events is 32.

ACE3 A multiplexed input module for control panels.

Node variables = 1

The node variable for this module establishes the mode of operation for the row / column combinations. It can have values from 0 to 5

0   All row / column intersections produce an ON / OFF event. ON when connection made, OFF when broken. Events numbered 1 to 128.

1   Adjacent rows produce event pairs for pushbutton (PB) operation. Odd numbered rows to column produce an ON event when made, even numbered rows produce an OFF event when made. Events numbered 1 to 64.

   Note: Modes 0 and 1 correspond to the SLiM modes with the jumper to 0V (Mode 0) and jumper to +5V (Mode 1)

2   Rows 1 to 4 when connected to columns (1 to 16) produce ON / OFF events when made / broken as for mode 0. Events numbered 1 to 64. Rows 5 to 8 work with pushbutton pairs as in mode 1. Events numbered 65 to 96.

3   Rows 1 to 4 when connected to columns (1 to 16) produce ON / OFF events when made / broken as for mode 0. Events numbered 1 to 64. Rows 5 to 8 produce ON events for every 'make' connection for use with single PBs, each producing an ON event only. Events numbered 65 to 128.

4   Rows 1 to 4 produce event pairs for pushbutton (PB) operation. Odd numbered rows to column produce an ON event when made, even numbered rows produce an OFF event when made. Events numbered 1 to 32. Rows 5 to 8 produce ON events for every 'make' connection for use with single PBs, each producing an ON event only. Events numbered 33 to 96.

5   All row / column intersections produce an ON event only when made. Events numbered 1 to 128.

   The above modes allow a control panel to be arranged in different ways depending on whether toggle switches, PB pairs or single PBs are required. The default mode is 0.

The ACE3 is a producer only node. It does not store events.

Node type.   The value for the node identifier in parameter 3 is 4.

ACE8C   An 8 input node with triggered response capabilities.

Node variables = 1

Each input of the ACE8C has two modes of operation. With the corresponding bit in NV1 set to 0, every change on the input produces an ON event when the input is switched to 0V or an OFF event when released or put to 5V.
If the corresponding bit in NV1 is set to a 1, pulling the input to 0V produces an ON event but no OFF event when released. The node has pull-ups to 5V so inputs are normally 'off'. The node can be driven from external 5V logic. With the mode bit set to a 1, it allows a PB to produce single ON events. The reset default is all mode 0. (00000000).

Note: In FLiM mode, individual inputs can be ON/OFF or ON only. In SLiM mode, all are either ON/OFF or ON only.

Event variables = 1

The ACE8C module can respond to learned events in one of two ways as determined by the EV. If the EV is 0, the node produces a set of 8 events in sequence, each corresponding to the state of an input. If the input is ON (low), there will be an ON event, if the input is open (high) it will be an OFF event. If the EV is 1, the node will produce a single event where the least significant byte (EN0) is the bit pattern of the inputs at that time. The LSbit of EN1 will also be set. This mode allows for 256 distinct events depending on the input state bit combination.

Note: Any input left 'open' will read as a 1.

Other modes may be added in the future. Currently only 0 and 1 are supported.

Node type.   The value for the node identifier in parameter 3 is 5.

Event number.   The maximum number of events is 32.

CANLED   A driver node for 64 LEDs

Node variables =   0

    This module does not have any node variables.

Event variables = 1

    Each event has one associated event variable. This defines the LED associated with the event, the polarity relative to ON or OFF events and whether it is a 'toggle' for LED pairs.

    The format of the EV byte is   T, P, L5,L4,L3,L2,L1,L0

    The lowest 6 bits of the EV defines the LED. Hence 000000 is the first LED (LED 1) and 111111 is the last LED (LED 64). P is the polarity bit. If set to 0, the polarity is normal, if set to 1, the polarity is reversed. The toggle bit T, if set, enables LEDs to work in pairs, as would be normal for turnout indication on a control panel. Here, one event activates two successive LEDs. An ON event puts the LED defined by the LED number ON and the next highest LED OFF. An OFF event reverses the LEDs. Note that any LED can be controlled separately so it is possible to have the same LED as the upper of a toggled pair and also control it individually. Normally, if using toggle mode, the LEDs should be numbered alternately. However, you may want both LEDs of a pair off so use the number of the upper of the pair in non-toggle mode to turn it on or off separately.

    Node type   The node identifier is 6

    Event number   248 events maximum

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