Glossary E

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EDG

Event Data Grid in the FCU (FLiM Configuration Utility) used to configure CBUS systems. The grid allows you to collect a matrix of events(actions), which nodes they are associated with and what they triggered to happen as a result of the event occurring. The entries can be viewed or subsequently used to train (program) a Consumer (node that acts on events) to perform the action each time the event occurs. See the FCU docs CBUS FLiM for additional information.

EEPROM

EEPROM (also E^2PROM) stands for Electrically Erasable Programmable Read-Only Memory. A modern non-volatile memory device that can be erased and reprogrammed by the microcontroller or microprocessor using it. EEPROMs are normally small ICs soldered onto the PCB (through-hole or surface mount). They are also commonly found integrated into microcontrollers or other multifunction chips for local storage.

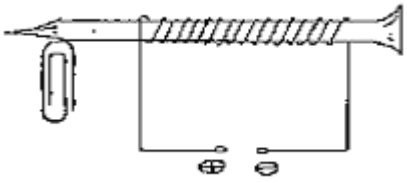
Also see EPROM

Electro Frog

Is a PECO term for a powered frog turnout (switch or points), which some people call power-routing. These powered frog turnouts work well with DC powered rails but may require some modifications to work well with DCC environments. DCCWiki has a very detailed page on the PECO Electro Frog and solutions for use with DCC. https://dccwiki.com/PECO_Electrofrog

Electromagnet

A coil of wire usually around a metal core. When current is passed through the wire a concentrated magnetic field will be produced at the ends of the metallic core. Electromagnets in model railroading are often used to pull other metallic objects toward them to change the direction of track points or move mechanical arms to provide a change in signalling. Alternately they may be used to lift or move a metallic object related to some scenery animation.



http://www.le.ac.uk/se/centres/sci/selfstudy/mam11.htm

EMF

Electomotive Force

Engine Driver

DCC throttle application for Android phones https://enginedriver.mstevetodd.com

EPROM

Erasable Programmable Read-Only Memory. An older technology non-volatile memory device that can be erased using ultraviolet light and reprogrammed with new code. This type of device is normally removed from the PCB to be reprogrammed with an external EPROM programmer. EPROMs are normally socketed since they need to be removed to reprogram. EPROMs are mostly DIL chips with from 24 pins to 40 pins.

Also see EEPROM

ESD

Electrostatic Discharge (ESD) is a phenoma encountered when a static charged object comes in contact with a non-charged or opposite charged object. A sudden discharge current, at typically a high voltage will take place as the objects seek to reach the same voltage potential. Though the discharge may be extremely fast it may contain a large enough charge to destroy some types of semi-conductor components. Static is often caused by friction with a good insulator, such as synthetic clothing in a dry atmosphere.

MERG kit building instructions offer advise such as the following:

While most modern Integrated Circuits (ICs) are reasonably protected from static electricity, today’s centrally-heated/air conditioned houses, & synthetic fibers used in carpets (and underwear!) can cause significant static charge to build up as you move around. Before opening any kit, wear an earth strap or touch a nearby radiator or other earthed metal, and then stay seated while you open and assemble the kit. Leave all the ICs in their protective packaging until ready to insert into their sockets.

Electrostatic discharge

ESR

Equivalent Series Resistance (ESR) is a measure of the AC resistance of a component such as a

capacitor or inductor. Devices like resistors and inductors (coils) have a carbon or wire path end to end so they present an obvious resistance to AC or DC currents. While capacitors may not seem to have an obvious path for current, they appear to have resistance when AC currents are present and this is measured as the equivalent series resistance. ESR measurement of capacitors requires an ESR meter, as nearly all resistance measuring devices (VOMs, VTVM, DMMs, etc.) use DC current for resistance measurement. Typically you would want the lowest possible ESR in a capacitor as this resistance may affect the circuit design. One example of a problem with ESR is if an electrolytic filter capacitor has high ESR resistance, just like a resistor, it may have to dissipate heat and the electrolytic capacitor could heat up and fail over time. For more detailed information see: Equivalent Series Resistance

EV

An Event Variable is a CBUS term referring to a value which controls the action to be taken by a 'consumer' module when a specific event is received. One or more EVs are associated with each event that a module should respond to. As an example in the CANACC8 there are two EVs per event, in the first a set (1) bit indicates that the associated output is affected and normally follows the 'state' of the event. The second EV is a modifier and any set (1) bit that matches EV1 will invert the action for that output. So if the two EVs for a given event were 00000011 & 00000010 then on receipt of that event output 1 would assume the 'state' defined by the event while output 2 would assume the inverse.

Event

A CBUS term for a message that indicates some outside action has taken place such as the press of a button, change in state of a switch, a train has entered or left a particular section of track, a point actuator has completed its commanded move or any number of other things. These messages consist of three or four parts. First, the OPCODE a single byte which defines the meaning and length of the message. Second & third constitute the 'Event' two bytes designating the source module ID and two bytes designating the 'device' within that module that has caused the event. Fourth (optional) from 1 to 3 additional data bytes used to convey other information.

Long Event

An event that uses both the module ID and the device ID and so constitutes a unique event within the system.

Short Event

An event where the module ID is ignored and only the device ID is relevant, thus the event is not unique and may seemingly be produced from two or more sources.

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