

General Use Display Controller (GUDC)



The General Use Display Controller was designed to prove between four and eight controlled lamp outputs. The lamp actuation may be configured as ON only or ON with automatic redundancy upon primary lamp failure. The lamp output circuit may be designated as flash ON-OFF or steady state. The GUDC circuit card has provision for serial data in, active switched inputs for lamp selection or simple 'power-on' to operate. The card has a low voltage lamp state output, which may be used to illuminate LED status indication of lamp failed/redundancy operation.

The GUDC circuit card is a single circuit control card located within a weatherproof enclosure mounted appropriately for signal display assembly on a roadside pole or overhead gantry. The card receives serial instructions from a local TMSO (Traffic Management System Outstation), field processor, land line communications or switched radio transceiver input. Various combinations of lamps (flashing or not flashing) may be selected remotely.

Options and Functions

- GUDC circuit modules have several options making the card a multifunction remote controlled lamp switching card with lamp monitoring (lamp failure detection) and automatic failsafe lamp redundancy
- GUDC circuit modules can operate at 240 volt AC or ELV supply voltages ranging from 12 volt to 48 volt
- GUDC circuit modules incorporate sequence timers and interval timers to control lamp on-off cyclic rates
- GUDC circuit modules facilitate from four to eight lamps with lamp monitoring
- ERDIS (En Route Driver Information Signal) configuration facilitates the yellow lanterns always flash, when commanded to switch on and until commanded to switch off
- RAD (Roundabout Display) configuration facilitates the yellow is on until switched off. The devices can be commanded to turn on any combination of red and yellow aspects
- LUSC lamp control has typically four lamp outputs with software conflict monitoring to ensure no green signal is 'back-to-back'. There is also an optional relay interlock to prevent conflicting signals
- Variable Speed Sign controller allowing selection of speeds and a flashing or NON flashing annulus
- NO RIGHT TURN displays activated typically by traffic controller ELV or 240 volt AC switched contact



General Specification

Physical

- Weight: < 0.4 Kg
- Operational temperature: 65 degrees 90% humidity
- Circuit card size: 210 mm length x 155 mm width x 6 cm height (varies according number of lamps and lamp currents, that is, need for HEATSINKS)
- Circuit cards are conformal coated and will operate within Australian Standard Guidelines for Traffic Control Devices as per TSC/3 and TSC/4
- The conformal coating material has a dielectric strength of 90KV/mm and an operational temperature range of -70°C to 200°C and is self-extinguishing when exposed to a flame

Power Supply

- Current consumption card: 200 milliamps PLUS rated lamp current (ELV 3.5 amps)
- Operational voltage: single 240 volt AC supply or selected ELV supply voltage
- Voltage regulation and control is provided by onboard transformer and regulation

Connector Specification

- Easy to connect through PCB Modular Terminal 'Phoenix style' connectors, 10 amp rated voltage 300 volt AC
- Connectors allow disassembly without removing wiring

Digital I/O

- Dig-Output devices: PVAZ172 MOSFET Photovoltaic relay 60 volt 500 milliamp capability
- Dig-Inputs are optically isolated by PC844 Opto-isolator 5000 volt RMS isolation devices, input 20 milliamps at 1.2volts
- The circuit operation is fully microprocessor operated – the circuit card range includes MICROCHIP Microprocessors including PIC 17C756 and PIC 16C74

Communications Interface

- RS422 dual pair differential communication interface (typical operation 1 Km)
- Optional galvanic isolation circuit module interface

Lamp Switching

- User selectable voltage operation – factory set and configured to user requirements
- 240 volt AC, 24 volt AC, 12 volt AC, and a range of ELV DC Voltages
- AC Switch - TRIACs MAC210
- DC Switch - FET BUK543

Typical Communication Protocol

All command messages, so long as they are not broadcast, cause the device being addressed to respond. If a SET command is received correctly, an ACK message is replied. If the message was invalid a NACK message will be returned instead. No reply is sent for a broadcast message. For request messages, no ACK is sent. Rather, the requested data is returned instead.

For more information, sample software and diagnostic software please contact Excel Technology Group Pty Ltd.