

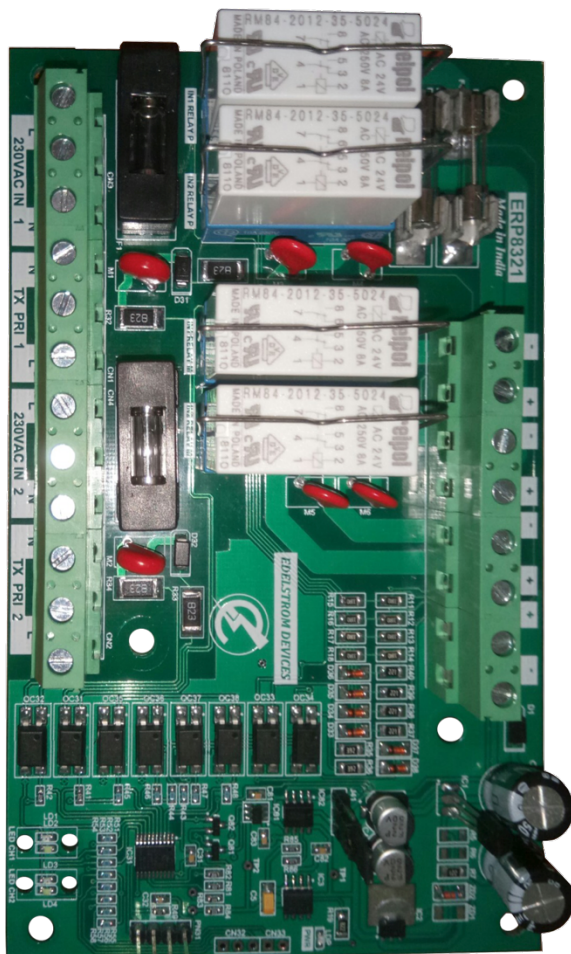


Figure 1: 3D illustration of ERP8321

Features

- Redundant power switch for 24VAC.
- On-board terminals for 230VAC inputs for both main and back-up supply.
- On-Board fuses for both AC230VAC in and 24VAC with 5mmx20mm dimension.
- Immediate switchover to the backup supply in case of the mains supply failure.
- Supports current rating up to 15A.
- Switch-over as fast as <10ms.
- On-board LED indications for main and backup supplies.
- Status signals to the DDC controller for graphics display on the workstation.
- On-PCB texts for all terminals such as “230VAC IN 1”, “TX SEC1”, “24 VAC OUT”, “L”, “N”, “STATUS”, etc.,
- Direct panel mountable.
- Reduced assembly time and easier on-site installation.
- Smaller panel size: This module is very compact with on-board fuses, relays and terminals, which helps to use a smaller enclosure for the assembly.
- On-board provision for panel indicator for main and backup power circuits.

Introduction

ERP8321 is a redundant AC power switch module, which can be used to make an industrial controller resilient to the failure of a single power circuit. ERP8321 is not an uninterrupted power supply by itself, but switches to the back-up power when the primary power fails.

Operation

ERP8321 needs two independent power sources for their operation. Although it is intended to operate as a redundant AC power switch module for 24VAC, ERP8321 has on-board terminals to connect two independent 230VAC sources, namely “230VAC IN1” & “230VAC IN2”. It has on-board terminals for the connections of two transformers. On-board fuses protect transformer’s primary and secondary connections. The transformers are of 24VAC and the secondary connections are represented by “TX SEC1” and “TX SEC2”.

“230VAC IN1” connects to the main power input port and the other power circuit connects to the backup power-input port. If the main power to the ERP8321 fails for any reason, the redundant AC-power switch automatically uses the backup power source. When power is restored, the redundant AC-power switch automatically changes back to the main power source.

ERP8321 has two status LEDs: ‘LED CH1’ for primary source and ‘LED CH2’ for secondary source. LED will glow *blue* if both 230VAC in and 24VAC are healthy. But, if only the 24VAC side fails for any reason, the status LED will glow *orange*. The switchover is by the means of relays. If all relays are healthy, the LED will glow steadily, otherwise LED will blink with duration of 1 second.

It provides status signals for healthy/faulty conditions, which a DDC controller can use for its status monitoring. Generating an alarm in such events on the operator workstation is such an example. Statuses are available for 230VAC, 24VAC & relay fault. The relay fault will be available as a common fault, which means, if any relay is faulty, "Relay health" status will be "0", otherwise the status will be "1". Following table shows all statuses available on ERP8321.

Statuses available for the BMS workstation

1	Primary 230VAC Mains supply	: 0 => Absent : 1 => Present
2	Secondary 230VAC Mains supply	: 0 => Absent : 1 => Present
3	Primary 24VAC supply	: 0 => Absent : 1 => Present
4	Secondary 24VAC supply	: 0 => Absent : 1 => Present
5	Active power source	: 0 => Secondary : 1 => Primary
6	Relay health	: 0 => Fault : 1 => Normal

LED indications

1	LED CH1	: Blue => Primary 230VAC & 24VAC are normal.
2		: Orange => Primary 230VAC mains supply is normal, primary 24VAC is faulty.
3		: Steady => Pair-1 relays are healthy. : Blinking => Pair-1 relays are faulty.
4	LED CH2	: Blue => Secondary 230VAC & 24VAC are normal.
5		: Orange => Secondary 230VAC mains supply is normal, secondary 24VAC is faulty.
6		: Steady => Pair-2 relays are healthy. : Blinking => Pair-2 relays are faulty.

(Primary & secondary are also represented by channel-1 & channel-2 respectively.)

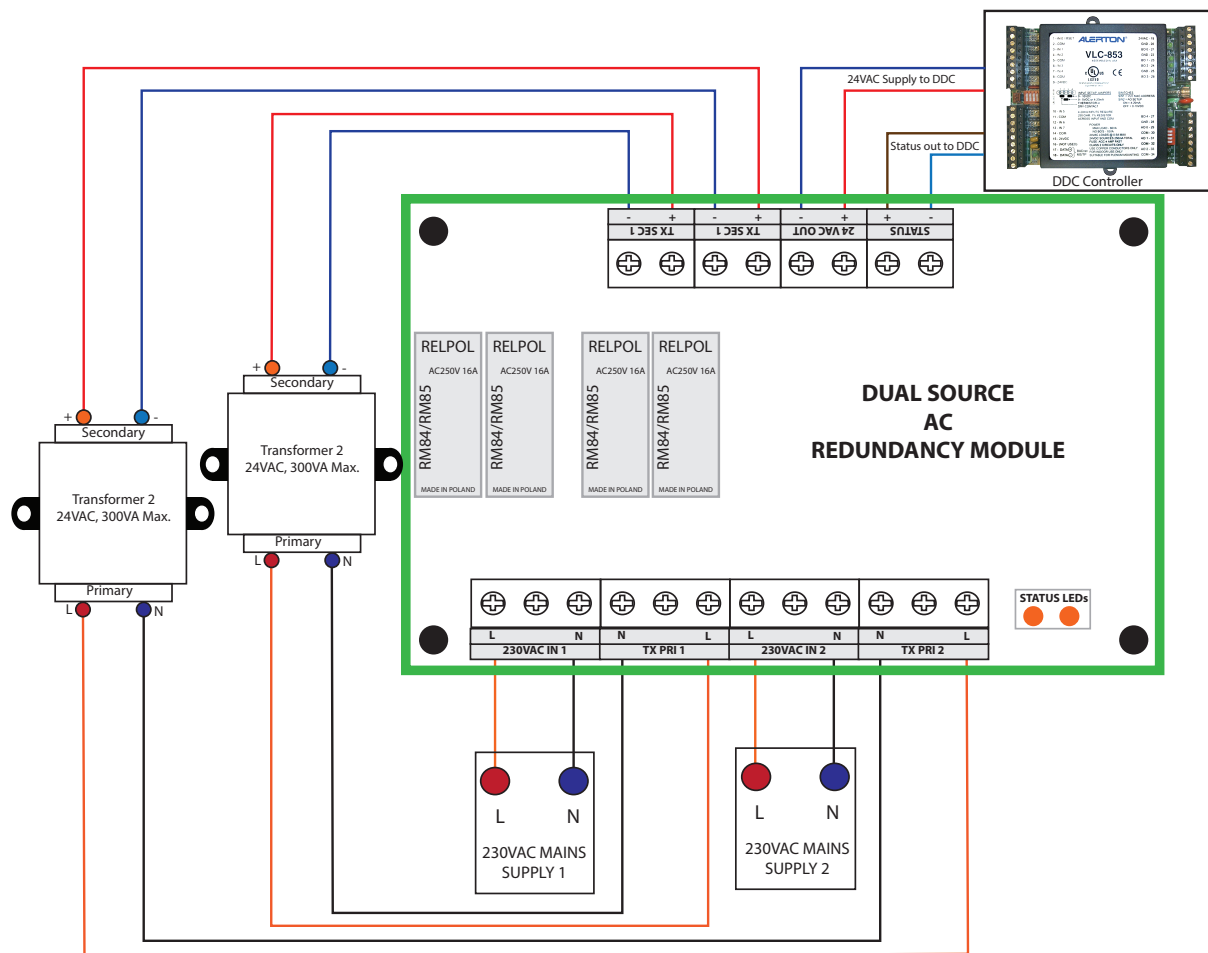
Product Specifications

Power Supply Input	: 230VAC Main and 230VAC backup
Max Power Consumption (Only for the operation of ERP8321)	: 6VA
Output type	: Power output, 24VAC.
Output rating	: 15A @ 24VAC.
Switching time	: <8ms (Primary-to-secondary on primary fail) : <10ms (Secondary-to-primary on primary restore)
Status LED indication	: Blue = "Normal" (Both 230VAC & 24VAC are present). : Orange = "230VAC present, but 24VAC failure". : Steady = Relays are healthy. : Blinking = Relay is faulty.

Status signals	: Dedicated status values for 230VAC, 24VAC & relay-pair health.
Status signal type	: Multiplexed for industrial controllers (0~5VDC or 0~10VDC).
Transformer installation	: Separate installation and connected to the on-board terminals.
Mounting method	: Direct on-to the panel.

Connection

The image below shows the terminal designations and typical wiring diagram of the 'AC redundant power switch module', ERP8321.



CAUTION

ERP8321 module might be used to switch loads with 230VAC line voltages and therefore it is dangerous to work on the module when it is energized. Make sure that the power is isolated from the module before starting to work on it.