

# Rocoil

PRECISION ROGOWSKI COILS

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## ROCOIL REMOTE CONTROL INTEGRATORS

### Integrators

These integrators incorporate some design features that are different from integrators supplied previously which are described below.

- 1) The green light on the front of the integrator means that the mains supply is connected. The red light indicates that the integrator is switched on. When the mains is connected the battery will charge up.
- 2) The on-off switch at the rear of the integrator can be used to turn the integrator on and off. However, when this switch is OFF the integrator can be turned on remotely along the remote-control cables.

### Remote-Control Box

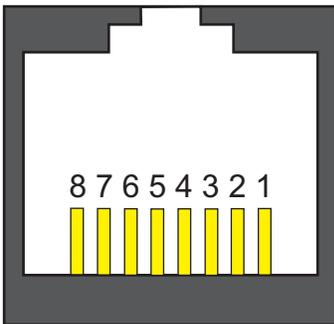
- 1) The remote-control box uses a standard RJ45 computer networking cable. A separate cable is needed for each channel. Previous systems have been tested successfully along more than 90m of cable. The type of cable that worked best was designated 'Enhanced Category 5'. With this cable the RF noise measured at the outputs on the Remote-Control Box was low.
- 2) The Remote-Control Box needs its own power supply. This should be about 12V and it can be connected either polarity. A simple 'PlugPack' supply could be used. A red LED lights on the side of the Remote-Control Box to indicate that it is powered. If one side of this supply is earthed this may reduce the level of noise at the output of the integrator.
- 3) The output connectors on the Remote-Control Box are in parallel with the corresponding output connectors on the integrator and can be used for monitoring the current waveform.
- 4) For each channel there is a rotary switch for selecting the ranges. When all the switches are OFF the integrator will be turned off provided that the ON/OFF switch on the integrator is also turned off. This facility can be used to prolong battery life. Selecting a range on any channel will turn the integrator on. After switching the integrator should be allowed to settle for at least a minute before taking readings. A red LED lights on the Remote-Control Box when the integrator is switched on. This light does NOT start to flash when the battery voltage is low.
- 5) The BNC connector on the top of the Remote-Control Box can be used to monitor the battery condition. This gives the voltage of the positive supply rail and it can be monitored using a high-impedance voltmeter. It is better not to short-circuit this connector although short-circuit current limitation is fitted. When the integrator is switched on using the Remote-Control Box, typical voltages are as follows:

Voltage >16V: The integrator is connected to the mains and the battery is being charged.  
Voltage =10.5 -12.5: This is the typical operating voltage range with battery operation.  
Voltage < 10.5V The battery is nearly discharged.

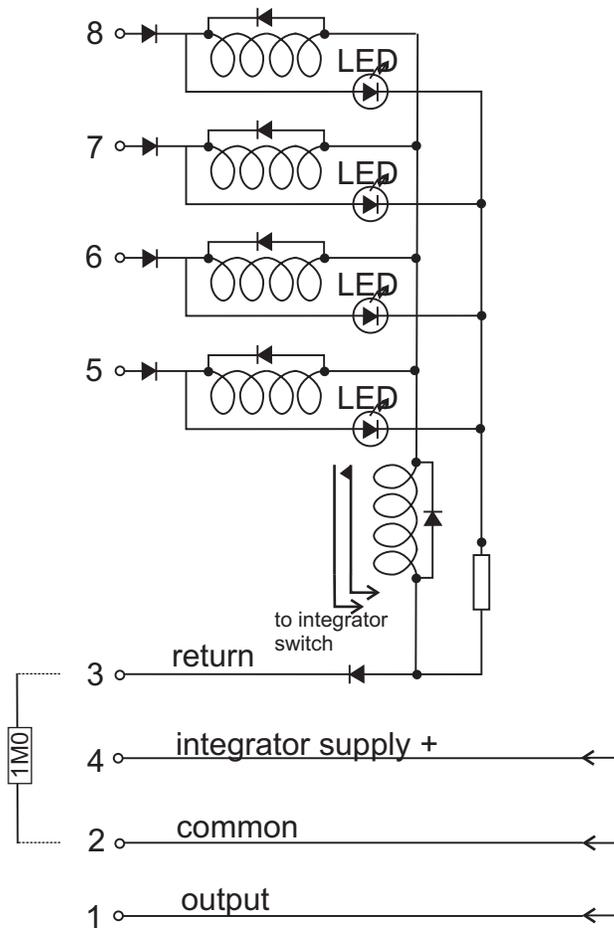
When the integrator is switched on using the ON/OFF switch at the back of the integrator the voltage levels will be about 1V higher.

- 6) The output of the integrator is linear up to a peak voltage which is 2V lower than the supply voltage.
- 7) The remote-control system can be used without the Remote-Control Box by applying the appropriate voltages to the cable termination.
  - 7.1) The polarity of the supply used to energise the relays is important. The positive rail goes to Pins 5 - 8 the negative rail to Pin 3.
  - 7.2) The 'integrator supply +' terminal (pin 4) should not be used to power relays. This is intended only for monitoring the supply voltage.
  - 7.3) The relay coils circuit is electrically floating. If this circuit is not earthed either directly or via a resistor it can cause mains interference on the integrator output. In the Remote-Control Box this is tied to the integrator earth (Pin 2) via a 1M $\Omega$  resistor.

View looking into the front of the integrator.



Check: Pin 1 is connected to the centre pin of the output BNC connector.



REV		DRN/ DATE	Integrator Remote Control		
A			NUMBER	SHEET 1 OF 1	
			CLIENT	DRAWN BY DW	