



Panacea (351P)

The Panacea is based on the SEL 351R Relay and includes many features only associated with substation class protection, offering the optimum in the control and protection of distribution networks.

The Panacea includes:

- » Advanced control and protection functions including directional protection, voltage synchronisation, load encroachment logic and underfrequency load shedding.
- » An intelligent communications port for direct connection to a radio or modem, eliminating the need for an additional Remote Terminal Unit and so saving on the overall purchase price.



GVR Control and Diagnostics

Operation of the GVR actuator is through energy stored in long life capacitors.

Uninterruptable Power Supply

The Panacea Uninterruptable Power Supply (UPS) is suitable for 120 vac. It includes a long life 24 volt lead acid battery for standby use, with temperature controlled charging and a battery test facility.

The UPS module monitors the auxiliary supply status, operating characteristics and battery temperature to ensure continuity of supply under all operating conditions.

The Power System Variables

The line and residual currents are measured using CT's located inside the GVR. The voltage on both sides of the GVR and the residual voltage are taken from internal capacitive dividers or external VT's. The output of these transducers is produced in the Protection and Measurement module using a combination of high speed analogue circuitry and digital signal processing.

Protection

In addition to directional over current, earth fault and sensitive earth fault auto-reclose protection, advanced directional earth fault algorithms allow the Panacea to make an automatic selection of the best earth fault directional element for the system conditions. Other protection features such as load encroachment logic and underfrequency load shedding increase the functionality of the GVR to levels previously only available in complex substation schemes.

Metering and Load Profile

The power system variables including the volts, amps, watts and vars, can be viewed in real time on the Panacea front panel or remotely through the serial port. It is also possible to average the current and voltage measurements over 5, 15, 30 or 60 minute periods to produce a load profile. This can be stored in memory and later downloaded through the local or remote serial ports.

Event Reporting

The Panacea can be set up to record various events such as loss of auxiliary power or a protection event. Up to 512 events can be stored in non-volatile memory, each one date and time-stamped. This is supported by a separate oscillogram report showing up to thirty 15-cycle or fifteen 30-cycle reports.

Local Control

The Panacea local control panel offers the same basic functionality as the Polarr - push-buttons are provided for the standard auto-recloser functions, while separate keys and LED indication are used for the circuit breaker control. Local LED indication has been increased to offer even greater operational and system status information.

Remote Control

The Panacea controls, status indication, settings and history are available remotely through one of 2 serial ports on the back of the relay. It is possible to connect directly to a radio or modem and to communicate with a SCADA system using the DNP3.0 protocol. Space is provided in the control box to mount a suitable radio or modem and the UPS provides a 12 volt 0.5 amp fused supply.

Capacitive Voltage Sensing (CVTs)

Located inside the GVR, these CVTs are a cost effective method of measuring source and load voltage. They can be used with the Panacea for direct voltage measurement.

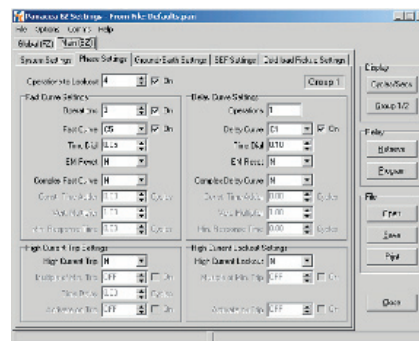
The Loop Scheme Control System (LSCS)

The Loop Scheme Control System (LSCS) is used to automatically restrict permanent faults to a smaller section of a distribution system, whilst maintaining supply to the un-faulted sections. For a typical five recloser based Loop Scheme, a permanent fault anywhere on either feeder should never result in the loss of more than one third of the load on the affected feeder. Using the power and flexibility of SEL logic a customer specific logic scheme can be developed.

The SEL-351R Recloser Control

For recloser users whose policy it is to standardise on the Schweitzer 351-R Protection and Control rather than the Panacea, then the option is available. The SEL-351R Recloser Control combines traditional recloser control functions with technologically advanced SEL relaying features.

In the USA, Schweitzer Engineering Laboratories provide complete technical support for the entire control cabinet.



User friendly Windows based software for EZ settings and history retrieval (above)

OTHER PROTECTION AND CONTROL OPTIONS

» Polarr

The Polarr offers full auto-reclose protection and control functionality, for stand alone applications and utilises a lithium battery to eliminate the requirement for a pole-mounted auxiliary supply.

» VISIONr

The VISIONr is a high specification relay dedicated to the protection and control of outdoor overhead line circuit breakers and this coupled with its in built RTU offers one of the most cost effective solutions on the market today.

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