Sepam series 20 is a family of digital units used for current or voltage protection, in any medium or low voltage distribution system.

Sepam series 20 and its optional modules

1. Base unit, with various User Machine Interface levels (UMI):
   - basic UMI
   - advanced UMI with graphical LCD screen.
2. Remote advanced UMI.
3. 10 logic inputs and 8 output relays, 4 outputs on the base unit + 1 optional module providing 10 inputs and 4 outputs.
4. 1 Modbus communication port:
   - direct connection to 2-wire RS 485, 4-wire RS 485 and fibre optic networks
   - connection to Ethernet TCP/IP network via PowerLogic Ethernet server (Transparent Ready™).
5. Processing of temperature data from 8 sensors, Pt100, N100, or N120.
6. 1 low level analogue output, 0-10 mA, 4-20 mA or 0-20 mA.
7. Software tools:
   - Sepam parameter and protection setting, control logic customisation
   - local installation operation
   - recovery and display of disturbance recording data.

Characteristics

Conformity to standards
- IEC 60255 – Protection relays
- IEC 60529 – Degree of protection IP52 on front panel
- IEC 60068 – Operating temperature -25 °C to +70 °C

Certifications
- UL508, CSA C22.2
- Auxiliary power supply 24-250 V DC and 110-240 V AC
- Overall size of base units (H x W x D) 202 x 176 x 130 mm

Selection guide

The Sepam series 20 family includes 5 types to offer the right solution for each common application:

- 3 current applications:
  - S20, substation incomers and feeders protection
  - T20, transformer protection
  - M20, motor protection
- 2 voltage applications:
  - B21, busbar protection
  - B22, loss of mains protection.
### Sepam series 20, 3 current applications

- **S20**: substation incomers and feeders protection
- **T20**: transformer protection
- **M20**: motor protection

#### Protections

<table>
<thead>
<tr>
<th>Protections</th>
<th>ANSI code</th>
<th>S20</th>
<th>T20</th>
<th>M20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase overcurrent</td>
<td>50/51</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Earth fault</td>
<td>59/59EN</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Negative/positive sequence</td>
<td>86</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Thermal overload</td>
<td>48 RMS</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Phase undercurrent</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excessive starting time, locked rotor</td>
<td>48S1/LH1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start per hour</td>
<td>86</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Resistance (ohms)</td>
<td>19</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Thermostat / Auxilier</td>
<td>46-8N</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Metering

- Temperature monitoring: 58491

#### Network and machine diagnosis

- Phase current (I2/I3 RMS)
- Resistance current (I)
- Average current (I1, I2, I3)
- Phase-to-neutral voltage (U1, U2, U3)
- Phase-to-ground voltage (V1, V2, V3)
- Frequency

#### Switchgear diagnosis

- Cumulative breaking current
- Trip circuit supervision
- Number of operations (U, H, D)
- Operating time (U, D)
- Charging time (U, D)

#### Control and monitoring

- Circuit breaker / contactor control: 94A8B
- Monitoring / acknowledgment: 86
- Alarm
- Switching of groups of settings
- Annunciator: 30

### Sepam series 20, 2 voltage applications

- **B21**: busbar protection
- **B22**: loss of mains protection

#### Protections

<table>
<thead>
<tr>
<th>Protections</th>
<th>ANSI code</th>
<th>B21</th>
<th>B22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive sequence undervoltage</td>
<td>2/4/47</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Negative sequence undervoltage</td>
<td>2/4/47</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Phase-to-phase undervoltage</td>
<td>27</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Phase-to-neutral undervoltage</td>
<td>27S</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Phase-to-ground undervoltage</td>
<td>59</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Neutral voltage displacement</td>
<td>59N</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Overfrequency</td>
<td>81H</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Underfrequency</td>
<td>81L</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Rate of change of frequency</td>
<td>81R</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Metering

- Line voltage (U1, U2, U3): 2/4/47
- Phase-to-neutral voltage (V1, V2, V3): 27S
- Resistance voltage: 59
- Positive sequence voltage / rotation direction: 81H
- Frequency: 81L

#### Network diagnosis

- Disturbances recording

#### Control and monitoring

- Circuit breaker / contactor control: 94A8B
- Monitoring / acknowledgment: 86
- Annunciator: 30

---

Schneider Electric Ltd
123 Jack Lane
Leeds
LS10 1BS
Tel: 0870 608 8 608
Fax: 0870 608 8 606

http://www.schneider.co.uk

As standards, specifications and designs change from time to time, please ask for confirmation of the information given in this publication.