DIRIS® A

The multi-function multi-measurement range for managing your electrical networks
A comprehensive range for measuring your energy efficiency

The new **DIRIS & COUNTIS** solutions are tailored to the requirements of industrial or tertiary environments: energy metering, quality monitoring and analysis of electrical networks.

Compliant with the new standard IEC 61557-12 specifically for multi-measurement devices (PMD) and UL 61010-1, they guarantee the operator use of a product designed and tested in accordance with the functional requirements of its application, ensuring a high performance level.

The **DIRIS** system: the reference

Measurement is the key link in managing an energy efficiency project.

With **DIRIS**, SOCOMEC has developed the most advanced multifunction measurement range on the market, dedicated to improving your energy performance.

For over 20 years, thousands of users, installers or integrators have trusted **DIRIS** innovative solutions for:

- energy metering and management,
- electrical facility monitoring,
- power quality analysis.

Follow the leader and run with the pioneers, by opting for the **DIRIS** solution.

**DIRIS A**: compliant with **IEC 61557-12**

**DIRIS A** conforms to this new standard, which has been specifically created to govern Performance Measuring and monitoring Devices (PMD). IEC 61557-12 guarantees the user that the product meets all the metrological, mechanical and environmental requirements of an electrical distribution network (EMC, temperature, etc.).

For further information: [www.socomec.com](http://www.socomec.com)

**Customised upgradability**

Thanks to the optional modules which you can use to upgrade the product functions at any time **DIRIS A** has optimum adaptability to the requirements of multi-measurement applications.

SOCOMELEC is once again expanding the field of application of the **DIRIS A** with new modules for:

- Ethernet communication,
- temperature measurement & monitoring.

**Ethernet network connection**

The new communication modules offer direct connection to an Ethernet communication network, and the gateway function enabling Ethernet connection of a cluster of products communicating via RS 485.

**The embedded WEB server**

The new Ethernet communication modules incorporate the embedded web server function, thereby enabling remote operation and configuration of a product without specific software. Access is via your Internet browser, simply by entering the IP address of the **DIRIS**.

**Expanded monitoring**

The new temperature monitoring module:

- enhances energy diagnostics,
- improves monitoring of facilities.

**VERTELIS supervision system**

- Centralising and display.
- Creating load curves.
- Performing measurement campaigns.
The new DIRIS A Power Measurement Devices with extended functionality enabling you to:
- reduce operating costs,
- reduce production costs,
- optimise maintenance costs,
- improve the efficiency of the facility.

**Metering**
Energy consumed by each building or process, in order to allocate and optimise energy costs (multi-fluid management).

**Measure**
All electrical or analogue values (temperature, etc.) to verify that your facilities are working properly.

**Monitoring**
Your electrical networks via alarm management, secure monitoring of distribution parameters and remote control of electrical apparatus.

**Analysing**
Energy quality via detailed breakdown of harmonics and identification of troughs, outages, overvoltages and overcurrents on the electrical network.

**Communicate**
All available information via a network tailored to your facility:
- ETHERNET (Modbus TCP, Jbus/Modbus RTU over TCP),
- RS485 (Jbus/Modbus, Profibus DP).
Standard functions

**DIRIS A10** - Compliant with UL 61010-1
- Multi-measurement and metering.
- THD voltages and currents up to level 51.
- Programmable hour run.
- Alarm management.
- RS485 Jbus/Modbus communication.
- Dual tariff function.
- 4 DIN modules.

**DIRIS A40/A41** - Compliant with UL 61010-1
- Advanced metering and multi-measurement.
- Individual harmonics up to level 63.
- RS485 (Jbus/Modbus and Profibus-DP) and Ethernet communication (Modbus TCP and Jbus/Modbus over TCP).
- Optional additional modules.
- Alarm management.
- Predictive power indicator.
- 96*96 mm unit.

**DIRIS A20** - Compliant with UL 61010-1
- Multi-measurement and metering.
- THD voltages and currents up to level 51.
- Programmable hour run.
- Alarm management.
- RS485 Jbus/Modbus communication.
- Optional additional modules.
- 96*96 mm unit.

**DIRIS A60**
- **DIRIS A40 +**
- Mean power load curves (P, Q, S).
- Sag, swell and outage detection.
- Overcurrent detection.
- Saving of RMS 1/2 period curves linked to events.
- Tangent φ.
- Voltage and current unbalance.
- 96*96 mm unit.

**DIRIS A80**
- **DIRIS A60 +**
- Permanent monitoring of differential currents and earth fault.
- Adjustable threshold according to the load current.

**DIRIS A20/A40/A41/A60/A80: Optional functions**

For your specific requirements, additional functions may be added via plug-in modules (maximum 4 slots per **DIRIS A40**, 3 per **DIRIS A41/A60** and 1 per **DIRIS A80**).

**DIRIS A20**
- 1 OUTPUT ALLOCABLE TO
  - Pulses: configurable (type, weight, duration) in kWh or kvarh
  - Monitoring: 3I, In, 3V, 3U, F, ZP, ZQ, ZS, TPF, THD 3I, THD 3V, THD 3U and timer
- COMMUNICATION
  - RS485 connection with JBUS/Modbus protocol (speed up to 38,400 bauds): 1 module

**DIRIS A40/A41**
- 1 OUTPUT ALLOCABLE TO
  - 2 configurable pulse outputs (type, weight and duration)
- COMMUNICATION
  - RS485 connection with JBUS/Modbus protocol (speed up to 38,400 bauds): 1 module
- RS485 connection with PROFIBUS DP protocol (speed up to 12 Mbauds): 1 sidecar module
- Ethernet connection with Modbus TCP or JBUS/Modbus RTU over TCP protocol: 1 sidecar module
- Ethernet connection with RS485 gateway (Modbus TCP or JBUS/Modbus RTU over TCP protocol): 1 sidecar module

**DIRIS A60**
- 1 OUTPUT ALLOCABLE TO
  - 2 configurable outputs for all values measured by the DIRIS
  - A maximum of 2 modules may be connected, giving 4 analogue outputs.
  - 2 to 6 outputs allocated to monitoring of all values measured by DIRIS or to remote control
  - 2 to 6 inputs for pulse counting
  - Memorisation of P+, P-, Q+, Q- with an internal or external synchronisation signal of 5, 8.1, 10, 15, 20 and 30 minutes for 31 or 62 days
  - Memorisation of the last 10 time-stamped alarms
  - Memorisation of minimum and maximum instant values for 3U, 3V, 3I, In, F, ± P, ± Q, ± S, THD3U, THD3V, THD3I, THD3N
  - Memorisation of mean values according to the synchronisation signal for 3U, 3V and F
  - Temperature inputs (PT100 sensor)
    - Internal temperature indication
    - Temperature indication via external sensor (T°1)
    - Temperature indication via external sensor (T°2)
    - Temperature indication via external sensor (T°3)

**DIRIS A80**
- 1 OUTPUT ALLOCABLE TO
  - 2 configurable outputs for all values measured by the DIRIS
  - A maximum of 2 modules may be connected, giving 4 analogue outputs.
  - 2 to 6 outputs allocated to monitoring of all values measured by DIRIS or to remote control
  - 2 to 6 inputs for pulse counting
  - Memorisation of P+, P-, Q+, Q- with an internal or external synchronisation signal of 5, 8.1, 10, 15, 20 and 30 minutes for 31 or 62 days
  - Memorisation of the last 10 time-stamped alarms
  - Memorisation of minimum and maximum instant values for 3U, 3V, 3I, In, F, ± P, ± Q, ± S, THD3U, THD3V, THD3I, THD3N
  - Memorisation of mean values according to the synchronisation signal for 3U, 3V and F
  - Temperature inputs (PT100 sensor)
    - Internal temperature indication
    - Temperature indication via external sensor (T°1)
    - Temperature indication via external sensor (T°2)
    - Temperature indication via external sensor (T°3)
For your specific requirements, additional functions may be added via plug-in modules (maximum 4 for DIRIS A40/A41).  

**Functions**

<table>
<thead>
<tr>
<th></th>
<th>DIRIS A10</th>
<th>DIRIS A20</th>
<th>DIRIS A40/A41</th>
<th>DIRIS A60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currents, voltages, frequency, active, reactive and apparent power, power factor</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
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<tr>
<td>Predictive power</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Voltage/current unbalance; Tangent $\delta$</td>
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<td></td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Temperature(s)</td>
<td>•</td>
<td>1...4 option</td>
<td>1...4 option</td>
<td>•</td>
</tr>
<tr>
<td>Average currents, voltages and frequency</td>
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<td></td>
<td>•</td>
<td>•</td>
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<tr>
<td>Average power</td>
<td>•</td>
<td></td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

**ENERGY MANAGEMENT**

- Energy meters (cf. 0.5S IEC 62053-22; cf. 2 IEC 62053-22)
- Pulse meter 1* 2...6 option 2...6 option

**Load curves**

- Quality analysis and event detection
  - THD 3U, 3V, 3I/n level 51 level 51 level 63 level 63
  - Individual harmonics 3V, 3U, 3I/n (level 63)
  - Sag, swell and outages, overcurrent
  - RMS 1/2 period curve backup
  - Alarm output 1* 1* option 2...6 option 2...6 option

**MEASUREMENT AND EVENT HISTORY**

- Load curves
- Events & Alarms
- Maximum average power kW kW
- Maximum average currents

* 1 configurable

**Selection guide**

**Requirements**

- Feeder measurement & control
- Energy breakdown & allocation
- Load analysis & management
- Event monitoring
- Detection & storage of network perturbations

- Form factor: 4 modules panel mounted 96x96 panel mounted 96x96 panel mounted 96x96

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**References**

- DIRIS A10 4825 0010
- DIRIS A10 with RS485 Jbus/Modbus communication 4825 0011
- DIRIS A20 4825 0200
- DIRIS A20 110 to 400 V AC and 120 to 350 V DC supply 4825 0201
- Module 1 output 4825 0202
- RS485 JBUS/MODBUS communication module 4825 0203
- DIRIS A40/A41 4825 0204
- DIRIS A40/A41 110 to 400 V AC and 120 to 350 V DC supply 4825 0205
- DIRIS A40/A41 12 to 48 V DC supply 4825 0206
- DIRIS A40/A41 12 to 48 VDC supply 4825 0207
- DIRIS A60 4825 0208
- DIRIS A60 110 to 400 V AC and 120 to 350 V DC supply 4825 0209
- Module option: DIRIS A40/A41/A60 4825 0200
- Pulse outputs module 4825 0010
- RS485 JBUS/MODBUS communication module 4825 0011
- RS485 PROFIBUS-DP communication module 4825 0012
- Ethernet module 4825 0013
- Ethernet module with RS485 gateway 4825 0014
- Temperature module 4825 0015
- Analogue output module 4825 0016
- Monitoring or control/command module 4825 0017
- Memory module (DIRIS A40/A41) 4825 0018
- Functional earth module 4825 0019

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**Associated current transformers**

<table>
<thead>
<tr>
<th>Primary wound CT</th>
<th>Through cable CT</th>
<th>Three phase</th>
<th>Bar or cable-through CT</th>
<th>Split-core CT</th>
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<td>88.5 x 42</td>
<td>126 x 115</td>
<td>100 x 187.5</td>
<td>100 x 246</td>
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<tr>
<td>65 x 110</td>
<td>122 x 225</td>
<td>175 x 32</td>
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<td>210 x 450</td>
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<td>80 x 100</td>
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<td>37 x 70</td>
<td>150 x 300</td>
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<td>20 x 100</td>
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<td>300 x 500</td>
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<td>37 x 70</td>
<td>450 x 750</td>
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<tr>
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<td>37 x 70</td>
<td>1000 x 2000</td>
<td>60 x 600</td>
<td>50 x 600</td>
<td>1000 x 8000</td>
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</tbody>
</table>

Others types of transformers in our catalogue.