# DIRIS® N

## Electrical network analysis system

FOR QUALITY CONTROL OF YOUR FACILITIES

*MADE TO MEASURE*


socomec
Innovative Power Solutions

# ***DIRIS***® system, made to measure

## Why do you need energy quality control?

- Are your industrial processes critical, or is some of your production equipment sensitive to electrical disturbances?
- Does the manufacturing quality of your continuous processes depend on the quality of the power supply?
- Are some of your processes "fluctuating load" or "batch" type, which can generate variations which adversely affect the supply (voltage variation, flicker effect, etc.)?
- Do you have costly equipment, or equipment that can be damaged by low quality voltage?
- Does your facility have polluting loads that can potentially contaminate the entire facility, or even reintroduce disturbances into the public network?
- More generally, would you like to implement an energy efficiency project?

If one of these situations applies to you, the quality of the energy flowing through your facility deserves your full attention. Besides metering and monitoring of parameters, SOCOMEC can now offer you an innovative, flexible and comprehensive analysis system capable of running diagnostics on your energy quality in accordance with standards IEC 61557-12 and EN50160.

SITE 060 A

## ***DIRIS:*** innovation at the heart of energy efficiency for the past 20 years

Measurement is the key link in managing an energy efficiency project. With ***DIRIS***, SOCOMEC has developed the most advanced Power Measurement Devices on the market, dedicated to improving your energy performance. For over 20 years, thousands of users, installers or integrators have trusted the innovative solutions of ***DIRIS***.

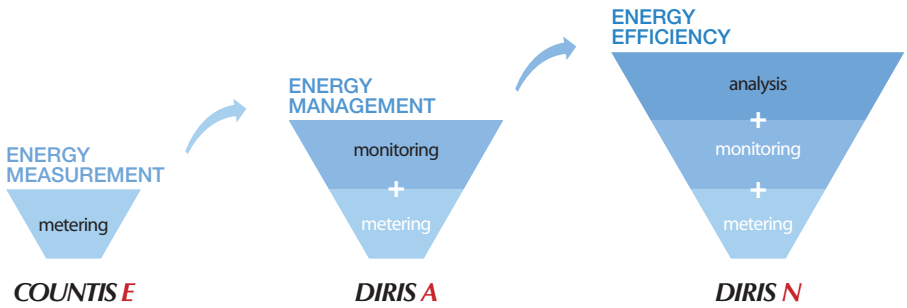
The new ***DIRIS & COUNTIS*** solutions offer an extended range tailored to all requirements for:

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

for electrical networks in an industrial or tertiary environment.

GAMME 115 A GB

Follow the leader and run with the pioneers, the ***DIRIS*** solution




DIRIS 780 A GB

***Measurement***

***COUNTIS E*** *products meter power consumed by loads, thereby enabling control and allocation of consumption.*

***Management***

*Besides metering functions,* ***DIRIS A*** *Power Measurement Devices provide network monitoring and optimisation via alarm management, monitoring of distribution parameters and remote control of electrical apparatus.*

***Analysis***

*Also covering the functions of metering and monitoring,* ***DIRIS N*** *provides quality analysis of the energy supplied, in accordance with the criteria defined by standard EN 50160.*

***Communication***

*The elements of the* ***DIRIS*** *&* ***COUNTIS*** *system are easily interconnected, to enable exchange and processing of the available information, and to ensure efficient system supervision.*

For further information: **www.socomec.com**

# DIRIS® N

## The multi-function network analyser solution

A comprehensive measurement and information processing solution, ***DIRIS N*** optimises the operation of your electrical networks, helping you to:

- analyse the quality of your supply
- improve the efficiency of the facility
- understand and reduce production costs
- reduce operating costs
- optimise maintenance costs


GAMME 114 A GB

### ➲ Metering

***DIRIS N*** enables allocation of multi-fluid consumption (load curves).

### ➲ Monitoring

***DIRIS N*** ensures all parameters that might influence power quality (supplied or consumed) are monitored.

### ➲ Control and Command

Linked to its optional digital and analogue input/output modules, ***DIRIS N*** can integrate and display all types of information. It is also capable of performing control/command functions.

### ➲ Analysing

***DIRIS N*** records events and their waveforms in case of disturbance or failure. It also provides the user with a complete diagnostic of the electrical supply quality (EN50160 report).

### ➲ Communicating

***DIRIS N*** can interconnect with other equipment, and transmit information (supervision, BMS, etc.) via an RS485, Ethernet or USB connection.

APPLI 385 A

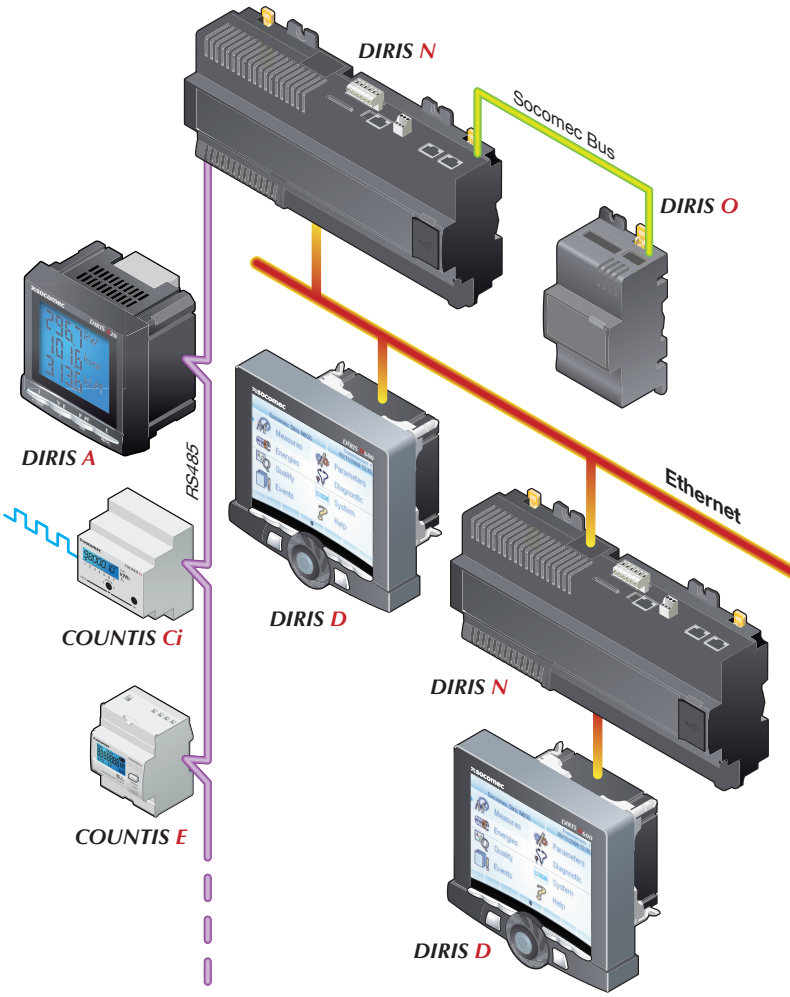
# DIRIS® N

## Configure your own network analysis system

The ***DIRIS N*** system comprises three "functional blocks":

- the data acquisition and processing system ***DIRIS N300/N600***,
- the remote display ***DIRIS D600***,
- the input/output modules ***DIRIS O***.

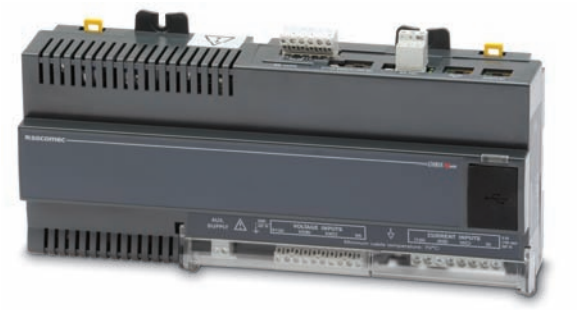
These blocks can be combined to enable a high number of configurations, and can adapt perfectly to your application and environment.




### *DIRIS N300* and *N600*: the core of the analysis system

***DIRIS N300*** and ***N600*** are stand-alone acquisition, processing and memory modules. They are installed inside a cabinet, on a plate or DIN rail. Both have Ethernet, RS 485 and USB communication ports. **Therefore they can communicate with each other, with other equipment or even with Central Monitoring System.** In particular, they can be interconnected with ***COUNTIS*** and ***DIRIS A***, from which they can retrieve and transmit information.

The ***N300*** model performs the essential quality measurement functions. The ***N600*** model also analyses transient events, measures inter-harmonics and calculates flicker. It can also draw up a report which is fully compliant with the EN 50160 standard.



DIRIS 734 A

| | *DIRIS N300* | *DIRIS N600* |
|---|---|---|
| Advanced multi-measurement | • | • |
| Measurement history | • | • |
| Harmonics | • | • |
| Monitoring | • | • |
| Load curves | • | • |
| Troughs / Outages / Voltage surges | • | • |
| Vector diagram | • | • |
| Control command (options) | • | • |
| Inter-harmonics measurement | | • |
| Analysis of transient states | | • |
| Flicker | | • |
| EN50160 report | | • |

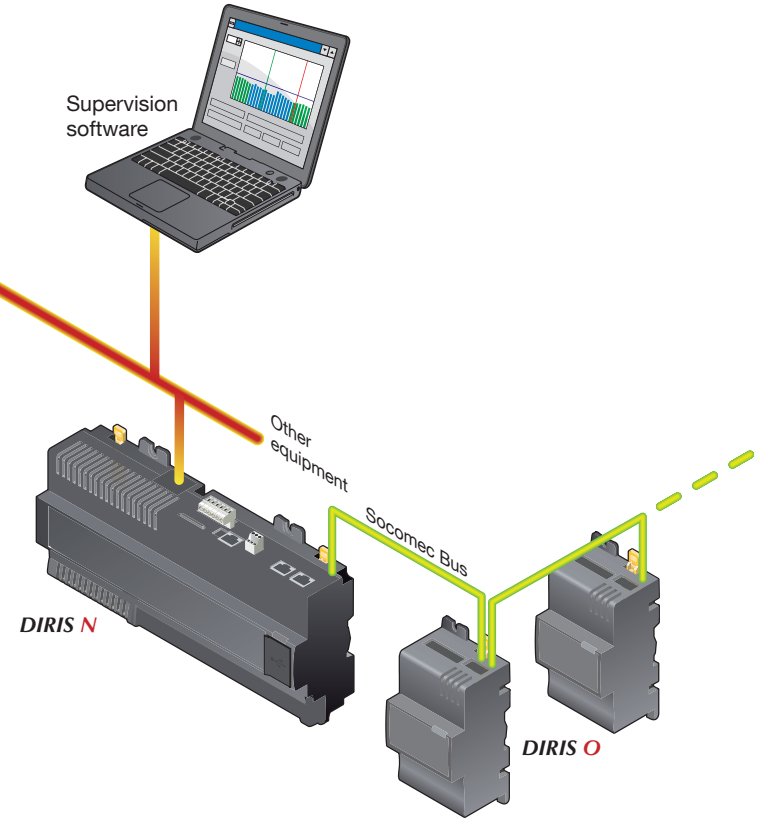
### *DIRIS D*: the ergonomic remote graphic display

The ***DIRIS D600*** provides a tailored local or remote display of the ***DIRIS N300*** and ***N600*** functions.

**A single *DIRIS D 600* display can show information originating from several *DIRIS N* units via screen windows dedicated to:**

- consumption analysis (multi-display, load curves, Fresnel diagram, etc.)
- energy quality analysis (harmonics, inter-harmonics, flicker, remote control signals, EN 50160 report)
- events (troughs, outages, voltage surges, slow or fast transients, etc.)

*A comprehensive and adaptable measurement system with communication functions*




DIRIS 778 A GB

## *DIRIS O*: for extended control-command functions

DIRIS 755 A

***DIRIS O*** are optional analogue and/or digital input/output modules which can extend the system's functions by taking into account all information relevant to facility supervision (fluids, alarms, etc.). Installed on a plate or DIN rail, they communicate with ***DIRIS N*** via a SOCOMEC bus.

They enable you to:

- acquire and apply the positions of breakers, contactors, sensors, etc.
- centralise pulses from water, gas and electricity meters.
- apply information from analogue sensors (temperature, flow, humidity level, pressure, etc.).
- actuate breakers, perform load shedding actions upon alarms. Inputs/outputs can be activated via logic equations.

The configuration software allows you to set up all the optional module functions. (see page 6).

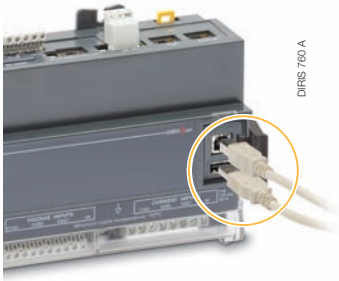
It is a high-definition colour display, characterised by its brightness, direct access buttons, and rotating wheel control. It is panel mounted with a DIN 96 x 96 cut-out.


DIRIS 762 A GB - DIRIS 763 A

# Optimised connectivity

In addition to the Ethernet and RS 485 communication ports, the USB ports facilitate numerous operations such as:

- exporting files to USB drives (e.g.: metrological report, measurement history, curves).
- loading a software update from a USB drive,
- backing up a configuration, with the option to export it to other ***DIRIS*** units.



DIRIS 760 A

DIRIS 759 A GB

# DIRIS® N

## Get the most out of your system

***DIRIS N*** is delivered with two kinds of software:
- configuration software
- a tool for remote display on a PC

### Configure your analyser via the software

Configuration software is supplied as standard with ***DIRIS N300*** and ***N600***.
It enables easy updating and configuration of all parameters required for correct operation:
- network parameters
- measurement data
- event related parameters
- thresholds associated with the EN50160 report
- histories and load curves
- functions related to ***DIRIS O*** optional modules

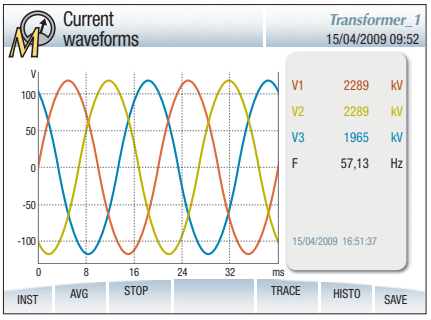
In addition, this software enables you to check that ***DIRIS N*** is correctly connected and working properly.

DIRIS 787 A

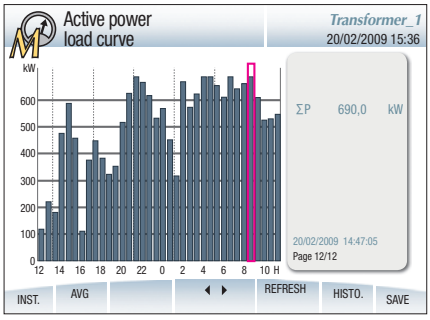
DIRIS 786 A

### Transfer the display to PC

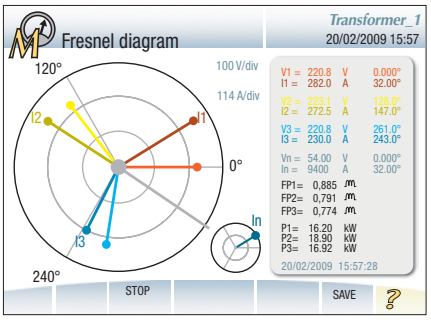
It is possible to transfer all elements displayed locally on the ***D600*** to a remote computer screen.
This function gives the user remote operation of all the functions of the ***DIRIS N*** units connected to the network.
Communication between the PC and the ***DIRIS N*** units is via Ethernet.
This remote operating software is supplied free of charge with all ***DIRIS N***.



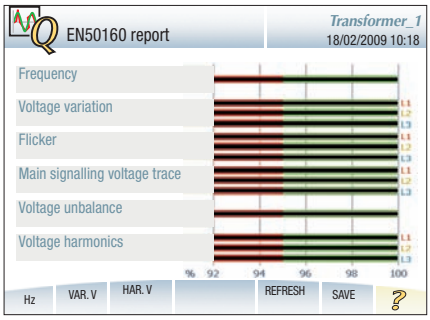
DIRIS 782 A



DIRIS 783 A



DIRIS 784 A



DIRIS 785 A

## References


Base modules


Display


Optional modules

| Product | ***DIRIS N300*** | ***DIRIS N600*** | ***DIRIS D600*** | ***DIRIS O*** 4 inputs/2 outputs, digital | ***DIRIS O*** 2 analogue inputs, 0/4-20 mA | ***DIRIS O*** 2 analogue outputs, 0/4-20 mA |
|---|---|---|---|---|---|---|
| References | 4826 **0001** | 4826 **0002** | 4826 **0003** | 4826 **0071** | 4826 **0072** | 4826 **0073** |

# DIRIS® N

## Associated service package

SOCOMEC can provide you with support for analysing and assessing your facility.
Various solutions can be put forward to best meet your needs or requirements.

- Remote supervision of your facility by specialists in network quality measurement analysis can provide you with access to a relevant and continuous audit of your facility, without the need to train or recruit qualified personnel.
- A targeted spot audit on the facility may also provide you with a necessary assessment under certain circumstances.

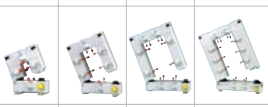

DIRIS_383.A

## Specifications

| | |
|---|---|
| MEASUREMENTS | |
| Networks | Three-phase without Neutral or with Neutral, LV and HV |
| Number of current transformers | 3 or 4 |
| Measurement category | cat III 600 V |
| Measurement method class | A, except for temporal aggregation |
| Measurement sampling frequency | 10,340 Hz (nominal frequency) |
| Transient sampling frequency | 750 kHz i.e. 1.33 µs |
| STANDARDS AND CERTIFICATION | |
| Product standard | IEC 61557-12 |
| Active energy | IEC 62053-22 class 0.2S |
| Reactive energy | IEC 62063-23 class 2 |
| Harmonics and interharmonics measurement method | IEC 61000-4-7 |
| Flicker measurement method | IEC 61000-4-15 |
| Supply quality measurement method | IEC 61000-4-30 |
| Specifications of voltage supplied by public distribution networks | EN50160 |
| AUXILIARY POWER SUPPLY | |
| Power supply | 110-240 V AC (50/60 Hz) (+/-10%) and 48 - 250 V DC (+/- 10%) |

| | |
|---|---|
| PRECISIONS | |
| Currents | class 0.1 (In/10 to 2xIn) |
| Voltages | class 0.1 |
| Frequency | class 0.02 (Fn +/-15%) |
| Active power | class 0.2 (5% In to 2xIn) |
| Active energy | class 0.2 (5% In to 2xIn) |
| WAVE CAPTURE | |
| Configurable mode | oscilloscope or event |
| Pre-trigger | adjustable |
| CURRENT INPUTS | |
| Number of inputs | 3 Phase + Neutral |
| Nominal current | 5 A |
| Current transformers (primary/secondary) | 5…10,000 A / 5 and 1 A |
| VOLTAGE INPUTS | |
| Number of inputs | 3 Phase + Neutral + Earth |
| Nominal voltage | 346 V AC (phase/Neutral) at 600 >V AC (phase/phase) |
| Voltage transformer (primary/secondary) | up to 20,000 V |
| COMMUNICATION | |
| Ethernet | Modbus TCP or proprietary |
| RS 485 | Jbus/Modbus RTU |

## Associated current transformers

| | Primary wound CT | Through cable CT | | Through-bar or through-cable CT | | | | | | | Through-bar CT | | | | Split-core CT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TRB 70 | TCA 21 | TCA 13-3P | TCB 17-20 | TCB 28-30 | TCB 32-40 | TCB 44-50 | TCB 44-63 | TCB 85-100 | TCB 100-125 | TBA 60 | TBA 100 | TBA 103 | TBA 127 | TO 23 | TO 58 | TO 812 | TO 816 |
| H (mm) | 88.5 | 65 | 90 | 65 | 70 | 88.5 | 101.5 | 108.5 | 187.5 | 187.5 | 132 | 170 | 150 | 175 | 106 | 152 | 198 | 246 |
| W (mm) | 71 | 45 | 105 | 49.5 | 49.9 | 71 | 86 | 96 | 172 | 172 | 88 | 129 | 99 | 100 | 93 | 125 | 155 | 195 |
| D (mm) | 45 | 30 | 65.2 | 50 | 68 | 58 | 58 | 58 | 52 | 52 | 78 | 78 | 55 | 55 | 58 | 58 | 58 | 79 |
| cable d (mm) | | 21 | 13.5 | 17.5 | 28 | 32 | 44 | 44 | 85 | 100 | 31 | 55.5 | 41 | 38 | 20 | 50 | 80 | 80 |
| bar x 1 (mm) | | | | 20x5 | 30x10 | 40x10 | 50x12 | 63x10 | | | 60x30 | 100x30 | 100x35 | 128x38 | 20x30 | 50x80 | 80x120 | 80x160 |
| bar x 2 (mm) | | | | | | | 40x10 | 40x10 | 100x10 | 120x10 | | | | | | | | |
| bar x 3 (mm) | | | | | | | | | 80x10 | | | | | | | | | |
| |  |  | |  | | | | | | |  | | | |  | | | |
| Primary (A) | 5 ... 40 | 5 ... 300 | 50 ... 160 | 60 ... 400 | 50 ... 600 | 50 ... 1000 | 100 ... 1250 | 200 ... 1500 | 750 ... 3000 | 1000 ... 4000 | 200 ... 2000 | 600 ... 4000 | 400 ... 2000 | 400 ... 4000 | 100 ... 400 | 250 ... 1000 | 250 ... 1500 | 1000 ... 5000 |
| Secondary (A) | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

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