

# DIRIS Digibox A

Enclosed single-point submetering solution



diris\_1041.eps

## Function

**DIRIS DigiBOX A** is an easy-to-install enclosed single-point submetering solution. It provides users with all they need for a complete submeter installation. Simply select the current sensors (CTs) from our wide plug and play selection to complete your system. With just two part numbers, DIRIS DigiBOX A allows you to address a wide range of metering applications.

DigiBOX A is powered by our DIRIS A-40 and DIRIS A-200 power monitoring device, loaded with features, design and performance.

## Advantages

### Easy to order

- Approved for indoor or outdoor installations (NEMA 3R, 12, 4, 4X)
- Universal system voltage and power supply
- DigiBOX A comes standard with flexible I/Os and communication protocols

### Safe and Reliable

- cULus listed enclosures and components
- Assembled at our cULus 508A facility
- Fused voltage connections
- Detailed installation and commissioning instruction guides

### Plug & Play design

- Color-coded RJ12 cables for easy phase identification when wiring current sensors to the DigiBOX A
- Automatic detection of current sensor type and rating
- Using low-voltage mV current sensors, no shorting blocks are needed, they can be disconnected safely under load

### Accurate

Accuracy of measurements meets ANSI C12.20 and IEC 61557-12 standards:

- Class 0.5 system accuracy (Meter + TE/ITR/TF current sensors) from 2% to 120% of rated current
- Class 0.2 DigiBOX A meter accuracy

## The solution for

- > Industry
- > Buildings
- > Infrastructure

## Strong points

- > Easy to order
- > Plug & Play design
- > Accuracy
- > Safe and Reliable

## Conformity to standards

- > cULus 508A
- > ANSI C12.20
- > IEC 61557-12
- > UL 61010-1
- > CSA-C22.2 No. 61010-1
- > Guide PICQ
- > File E257746



## Create your project

- > Find the best power monitoring configuration:  
[www.meter-selector.com](http://www.meter-selector.com)



| Application                                                     | Metering technology                                                                 |                    |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|
|                                                                 |  |                    |
| <b>DIRIS Digibox A</b>                                          | <b>A-40</b>                                                                         | <b>A-200</b>       |
| Number of metering points (3P)                                  | 1                                                                                   | 1                  |
| Number of current inputs                                        | 3                                                                                   | 4                  |
| Display                                                         | •                                                                                   | •                  |
| WEBVIEW webservice                                              | •                                                                                   | •                  |
| <b>Communication</b>                                            |                                                                                     |                    |
| RS485(*) ••                                                     | •                                                                                   | •                  |
| Ethernet (**) •                                                 | •                                                                                   | •                  |
| <b>Enclosure</b>                                                |                                                                                     |                    |
| Type Polycarbonate Polycarbonate                                | Polycarbonate                                                                       | Polycarbonate      |
| Rating NEMA 4X NEMA 4X                                          | NEMA 4X                                                                             | NEMA 4X            |
| Dimensions (H x W x D)                                          | 12 x 10 x 6 in                                                                      | 12 x 10 x 6 in     |
| <b>Electrical characteristics</b>                               |                                                                                     |                    |
| Power supply                                                    | 110 - 277 VAC Ph-N                                                                  | 110 - 600 VAC Ph-N |
| <b>Energy metering</b>                                          |                                                                                     |                    |
| kWh (+/-), kvarh (+/-), kVAh ••                                 | •                                                                                   | •                  |
| kW (+/-), kvar (+/-), kVA ••                                    | •                                                                                   | •                  |
| Demand Profiles (History) ••                                    | •                                                                                   | •                  |
| Power Factor ••                                                 | •                                                                                   | •                  |
| <b>Multi-measurement</b>                                        |                                                                                     |                    |
| Amps, Volts, Frequency                                          | •                                                                                   | •                  |
| <b>Power quality</b>                                            |                                                                                     |                    |
| Voltage/current imbalance ••                                    | •                                                                                   | •                  |
| THDV, THDU, THDI ••                                             | •                                                                                   | •                  |
| Individual Harmonics V, U, I (up to 63rd)                       | •                                                                                   | •                  |
| Waveform capture                                                | •                                                                                   | •                  |
| <b>Alarms</b>                                                   |                                                                                     |                    |
| Measurement thresholds ••                                       | •                                                                                   | •                  |
| Events (voltage sags, swells, interruptions and overcurrent) •• | •                                                                                   | •                  |
| Email notifications                                             | •                                                                                   | •                  |
| <b>Part Nos</b>                                                 |                                                                                     |                    |
|                                                                 | USDBPA40ET                                                                          | USDBPA200RJ        |

(\*) Supported RS485 protocol: Modbus RTU

(\*\*) Supported Ethernet protocols: Modbus TCP/IP, BACnet IP

## Commissioning

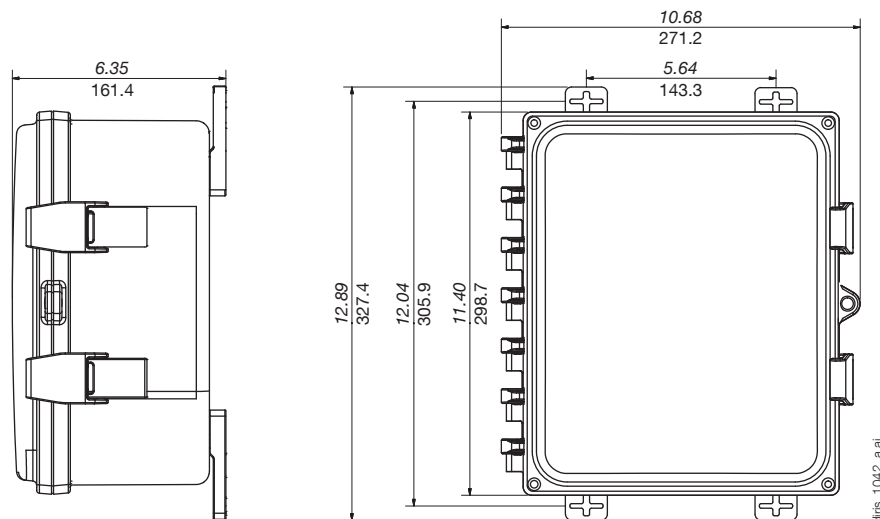


To get your DIRIS DigiBOX A up and running quickly with peace of mind, Socomec experts are here to assist you with commissioning.

Our commissioning services consist of:

- Verifying the installation and wiring of your power monitoring system (phase association, orientation of CTs etc.)
- Configuring your DIRIS DigiBOX A
- Performing communication tests to ensure measurement data gets communicated to your energy management system.
- Information on how to operate the power monitoring system and associated software
- A detailed commissioning report summarizing the system settings, passwords etc.

## Dimensions (in/mm)



## Technical characteristics

### Electrical characteristics

| Input Power |                                                                                             |
|-------------|---------------------------------------------------------------------------------------------|
| Voltage     | 110-277 VAC (Ph-Ph or Ph-N) with USDBPA40ET<br>110-600 VAC (Ph-Ph or Ph-N) with USDBPA200RJ |
| Frequency   | 50-60 Hz                                                                                    |

### Measurement characteristics

| Power and energy measurement            |                                                                                                                 |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Accuracy active energy and active power | Class 0.2, DigiBOX A (Meter Only)<br>Class 0.5 (Meter with TE, iTR, TF sensors)<br>Class 1 (Meter + TR sensors) |
| Accuracy reactive energy                | Class 1 (Meter with TE, iTR, TF sensors)                                                                        |

### Power factor measurement

|          |                                                                               |
|----------|-------------------------------------------------------------------------------|
| Accuracy | Class 0.5 (Meter with TE, iTR, TF sensors)<br>Class 1 (Meter with TR sensors) |
|----------|-------------------------------------------------------------------------------|

### Voltage measurement

|                            |                                                                                                                                    |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Electrical network type    | Single-phase (1P2W) / Two-phase (2P2W)<br>Two-phase with neutral (2P3W)<br>Three-phase (3P3W)<br>Three-phase with neutral (3P4W)   |
| Voltage measurement rating | 50-300 VAC L-N / 87-520 VAC (Ph-Ph) - CAT III with USDBPA40ET<br>50-600 VAC (Ph-N) / 90-690 VAC (Ph-Ph) - CAT III with USDBPA200RJ |
| Voltage accuracy           | Class 0.2                                                                                                                          |
| Voltage input consumption  | ≤ 1 VA                                                                                                                             |
| Frequency range            | 45 – 65 Hz                                                                                                                         |
| Frequency accuracy         | Class 0.02                                                                                                                         |

### Current measurement

|                            |                                                                                                                   |
|----------------------------|-------------------------------------------------------------------------------------------------------------------|
| Number of current inputs   | 3 with USDBPA40ET<br>4 with USDBPA200RJ                                                                           |
| Associated current sensors | Solid-core TE, split-core TR/iTR, flexible TF current sensors                                                     |
| Connection                 | Socomec RJ12 cables                                                                                               |
| Accuracy                   | Class 0.2 DigiBOX A (Meter Only)<br>Class 0.5 (Meter with TE, iTR, TF sensors)<br>Class 1 (Meter with TR sensors) |

### Mechanical characteristics

|                           |                                                                                           |
|---------------------------|-------------------------------------------------------------------------------------------|
| Application               | Application Indoor or outdoor installations                                               |
| Enclosure                 | Polycarbonate with UV inhibitors<br>UL94-5VA flammability rating                          |
| Enclosure dimensions (in) | 12 (H) x 10 (W) x 6 (D)                                                                   |
| Protection rating         | NEMA 4X / IP66                                                                            |
| Operational temperature   | +14...+158°F/-10°C...+70°C with USDBPA40ET<br>-13...+158°F/-25°C...+70°C with USDBPA200RJ |
| Altitude                  | ≤ 9840 ft / 3000 m                                                                        |

### Communication characteristics

| RS485           |                      |
|-----------------|----------------------|
| Link            | RS485                |
| Connection type | Half-Duplex, 2 wires |
| Protocol        | Modbus RTU           |
| Baudrate        | 9600 – 115200 baud   |

| Ethernet        |                          |
|-----------------|--------------------------|
| Link            | Ethernet                 |
| Connection type | RJ45 10/100 Mbps         |
| Protocol        | Modbus TCP/IP, BACnet IP |

| USB      |                  |
|----------|------------------|
| Link     | Micro USB Type b |
| Protocol | Modbus RTU       |

## References

| DigiBOX A - Single-point submeter                                                               |                                                                                                  |                            |                           | Reference     |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------|---------------------------|---------------|
| DigiBOX A-40 enclosed power meter with RS485 and Ethernet - 110-277 VAC power supply            |                                                                                                  |                            |                           | USDB PA40ET   |
| DigiBOX A-40 enclosed power meter with RS485 and Ethernet - 110-480 VAC power supply            |                                                                                                  |                            |                           | USDB PA40ET-D |
| Solid-core current sensors                                                                      |                                                                                                  |                            |                           | Reference     |
| Model                                                                                           | Nominal current range (A)                                                                        | Real range covered (A)     | Window size (in/mm)       |               |
| TE-18                                                                                           | 5 ... 20                                                                                         | 0.1 ... 24                 | Ø 0.33 / 8.6              | 4829 0500     |
| TE-18                                                                                           | 25 ... 63                                                                                        | 0.5 ... 75                 | Ø 0.33 / 8.6              | 4829 0501     |
| TE-25                                                                                           | 40 ... 160                                                                                       | 0.8 ... 192                | 0.53 x 0.53 / 13.5 x 13.5 | 4829 0502     |
| TE-35                                                                                           | 63 ... 250                                                                                       | 1.26 ... 300               | 0.82 x 0.82 / 21 x 21     | 4829 0503     |
| TE-45                                                                                           | 160 ... 630                                                                                      | 3.2 ... 756                | 1.22 x 1.22 / 31 x 31     | 4829 0504     |
| TE-55                                                                                           | 400 ... 1000                                                                                     | 8 ... 1200                 | 1.61 x 1.61 / 41 x 41     | 4829 0505     |
| TE-90                                                                                           | 600 ... 2000                                                                                     | 12 ... 2400                | 2.52 x 2.52 / 64 x 64     | 4829 0506     |
| Split-core current sensors                                                                      |                                                                                                  |                            |                           | Reference     |
| Model                                                                                           | Nominal current range (A)                                                                        | Real range covered (A)     | Window size (in/mm)       |               |
| TR-10                                                                                           | 25 ... 63                                                                                        | 0.5 ... 75.6               | Ø 0.39 / 10               | 4829 0555     |
| ITR-10                                                                                          | 25 ... 63                                                                                        | 0.5 ... 75.6               | Ø 0.39 / 10               | 4829 0655     |
| TR-14                                                                                           | 40 ... 160                                                                                       | 0.8 ... 192                | Ø 0.55 / 14               | 4829 0556     |
| ITR-14                                                                                          | 40 ... 160                                                                                       | 0.8 ... 192                | Ø 0.55 / 14               | 4829 0656     |
| TR-21                                                                                           | 63 ... 250                                                                                       | 1.26 ... 300               | Ø 0.83 / 21               | 4829 0557     |
| ITR-21                                                                                          | 63 ... 250                                                                                       | 1.26 ... 300               | Ø 0.83 / 21               | 4829 0657     |
| TR-32                                                                                           | 160 ... 600                                                                                      | 3.2 ... 720                | Ø 1.26 / 32               | 4829 0558     |
| ITR-32                                                                                          | 160 ... 600                                                                                      | 3.2 ... 720                | Ø 1.26 / 32               | 4829 0658     |
| Flexible Rogowski current sensors (*)                                                           |                                                                                                  |                            |                           | Reference     |
| Model                                                                                           | Nominal current range (A)                                                                        | Real range covered (A)     | Window size (in/mm)       |               |
| TF-40                                                                                           | 100 ... 400                                                                                      | 2 ... 480                  | Ø 1.57 / 40               | 4829 0573     |
| TF-80                                                                                           | 150 ... 600                                                                                      | 3 ... 720                  | Ø 3.15 / 80               | 4829 0574     |
| TF-120                                                                                          | 400 ... 2000                                                                                     | 8 ... 2400                 | Ø 4.72 / 120              | 4829 0575     |
| TF-200                                                                                          | 600 ... 4000                                                                                     | 12 ... 4800                | Ø 7.87 / 200              | 4829 0576     |
| TF-300                                                                                          | 1600 ... 6000                                                                                    | 32 ... 7200                | Ø 11.81 / 300             | 4829 0577     |
| TF-600                                                                                          | 1600 ... 6000                                                                                    | - 110-480 VAC power supply | Ø 23.62 / 600             | 4829 0578     |
| Set of 3 RJ12 female/female connectors for RJ12 lead extension between DigiBOX A and TF sensors |                                                                                                  |                            |                           | 4829 0670     |
| (*) TF Rogowski sensors come with a 6-ft cable lead with RJ12 male connector                    |                                                                                                  |                            |                           |               |
| RJ12 sensor lead cables                                                                         |                                                                                                  |                            |                           | Reference     |
| Model                                                                                           | Number of cables                                                                                 | Length (ft/m)              | Color coding              |               |
| RJ12 3 x 0.5m                                                                                   | 3                                                                                                | 1.64 / 0.5                 | Black, Red, Yellow        | 4829 0595     |
| RJ12 3 x 1m                                                                                     | 3                                                                                                | 3.3 / 1                    | Black, Red, Yellow        | 4829 0583     |
| RJ12 3 x 2m                                                                                     | 3                                                                                                | 6.5 / 2                    | Black, Red, Yellow        | 4829 0584     |
| RJ12 3 x 3m                                                                                     | 3                                                                                                | 9.84 / 3                   | Black, Red, Yellow        | 4829 0606     |
| RJ12 3 x 5m                                                                                     | 3                                                                                                | 16.4 / 5                   | Black, Red, Yellow        | 4829 0607     |
| RJ12 3 x 7m                                                                                     | 3                                                                                                | 22.9 / 7                   | Black, Red, Yellow        | 4829 0608     |
| RJ12 3 x 10m                                                                                    | 3                                                                                                | 32.8 / 10                  | Black, Red, Yellow        | 4829 0609     |
| Commissioning                                                                                   |                                                                                                  |                            |                           | Reference     |
| 1/2-day remote commissioning                                                                    | Remote commissioning including installation verification, programming and communication testing  |                            |                           | 9230 100027   |
| 1/2-day on-site commissioning                                                                   | On-site commissioning including installation verification, programming and communication testing |                            |                           | 9230 100004   |