
MEASUREMENT AND CONTROL

# CVM-D400

## Multi-channel power analyzers

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# All your electrical consumption in one device.


Analyzing energy consumption and the changes in electrical parameters is essential for any electrical installation. One of the most efficient ways to get an overview is to centralize data from each line or load to monitor real-time data, record, and compare energy consumption. This analysis provides continuous control of the installation, helping to identify areas for improvement and implement strategies to optimize energy use.

Multichannel analyzers are ideal solutions for this type of analysis, since they consolidate all electrical measurements and energy consumption data into a single device within the same distribution panel. This reduces integration costs by saving space and requiring less wiring compared to solutions using individual network analyzers for each line or load.

**In summary, multichannel analyzers are a key investment for the sustainability and efficiency of any electrical system.**

# CVM-D400

## Multi-channel power analyzers

The **CVM-D400** series are multichannel network analyzers designed for branch circuit monitoring.

These devices can manage multiple three-phase or single-phase lines, or any combination of them, all in a single unit.

They also allow you to label each type of consumption, automatically grouping the total consumption of all loads with the same purpose, without requiring any programming. The results are displayed automatically on the screen or through communications.


### Saving in every way

Thanks to its compact design, the analyzer occupies half the space required by individual analyzers, optimizing space within the distribution panel. This simplifies installation and maintenance of the electrical system, resulting in a neater and more economical configuration, while also reducing integration and wiring costs.

### Save on:

**Space**
The analyzer is 50% smaller than individual units

**Wiring**
Just one voltage wiring

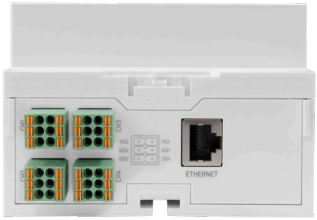
**Installation**
Start-up via Wi-Fi

**Maintenance**
Solve wiring problems remotely

# One device, multiple options

### For all types of loads

**CVM-D400** analyzers are specially designed for installation in distribution panels where multiple types of loads or lines need to be measured. The versatility of the device allows it to accept various configurations to adapt to each situation:




**12 single-phase or 4 three-phase lines**

**Self-powered**

**Wireless settings**

**Memory and web server integrated**

| CVM-D440 | CVM-D441 | CVM-D420 | CVM-D421 |
|---|---|---|---|
| .../250 mA | .../333 mV | .../250 mA | .../333 mV |
| 12 single-phase lines/loads<br>9 single-phase lines/loads + 1 three-phase<br>6 single-phase lines/loads + 2 three-phase<br>3 single-phase lines/loads + 3 three-phase<br>4 three-phase | | 6 single-phase lines/loads<br>3 single-phase lines/loads + 1 three-phase<br>2 three-phase | |

### Main features:

- Analysis of electrical parameters (Over 250 parameters)
- Consumption quality analysis (THD*U*%, THD*I*% and harmonics up to the 15th)
- Grouping of consumption by type of use
- 4 quadrants (consumption and generation)
- 4 or 2 digital outputs for alarms or impulses (depending on model)
- Communications RS-485, Ethernet and Wi-Fi
- Configuration via webpage *(Access point)* or app (Wi-Fi)
- Closed or open core current transformers.

# Accessories designed for all types of installations

**For new installations**

**Closed-core transformers:**

**MC1**
Multi-range single-phase transformer

- Primary current 1000/1500/2000 A
- Transformation ratio .../ 250 mA
- Class 0.5
- Standards **IEC 60044-1**

**MC3**
Three-phase transformer

- Primary current 63 A, 125 A, 250 A
- Transformation ratio.../ 250 mA
- Class 0.5
- Standards **IEC 60044-1**

**For existing installations** (no stoppage)

**Open-core transformers:**

**SCV**
Transformer

- Primary current up to 100 A
- Transformation ratio .../333 mV
- Class 0.5
- Standards **UNE-EN 61869-1, UNE-EN 61869-10**

**Easier to install**

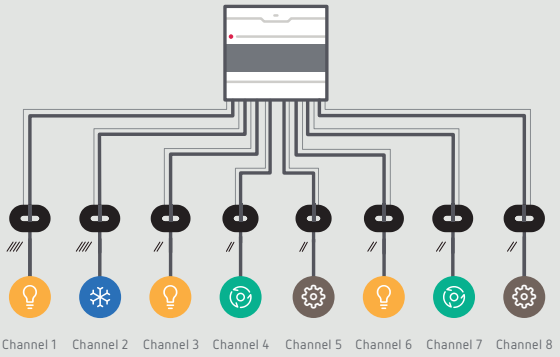
The **CVM-D400** analyzer features push-in terminals for connecting the secondary of current transformers, enabling quick, efficient, and time-saving installation and start-up.

# Total management from just one device

## Centralize consumption without programming

Describe the purpose of each circuit or load in your system, and the analyzer will automatically group them without requiring any programming.

The device directly displays the total consumption of each group (lighting, HVAC, power, etc.) on-screen or via communications to track its evolution.



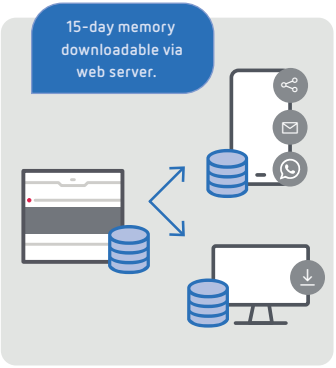

**Total lighting consumption (kWh):**
Channel 1 + Channel 3 + Channel 6

**Total HVAC consumption (kWh):**
Channel 2

**Total power consumption (kWh):**
Channel 4 + Channel 7

**Total consumption of machines (kWh):** Channel 5 + Channel 8

Automatically create consumption groups by load type.



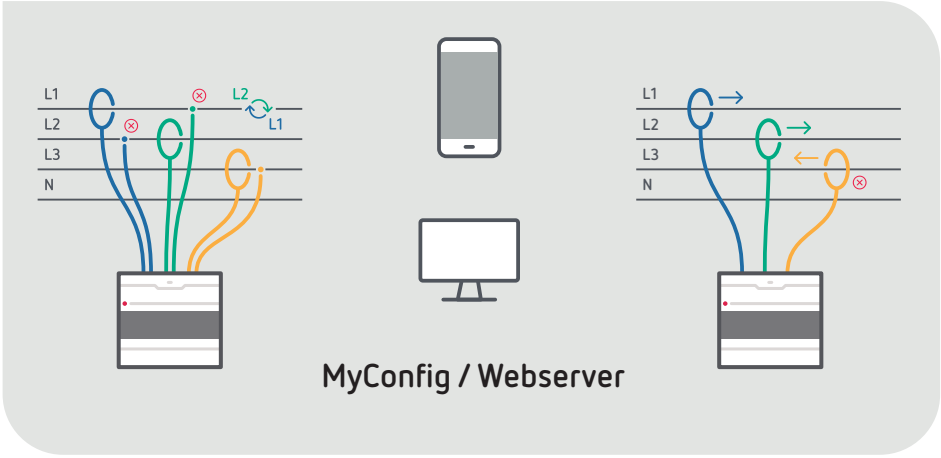

## Download its data easily

The device includes an integrated memory to record all variables (averages, maximum and minimum values, and energy consumption) over the last 15 days. Access these logs at any time via the integrated web server and easily export the data in **.csv* format for hassle-free analysis in Excel.

No physical manipulation of the device is needed—monitor all instantaneous parameters, detect errors, and resolve them directly using MyConfig or any browser (via Wi-Fi or Ethernet).

## Error-free start-up

Avoid errors during start-up thanks to the *Autowiring* system. This system helps resolve common errors during the start-up process, such as adjusting the current transformer to the correct position or ensuring the correspondence of the voltage phases.

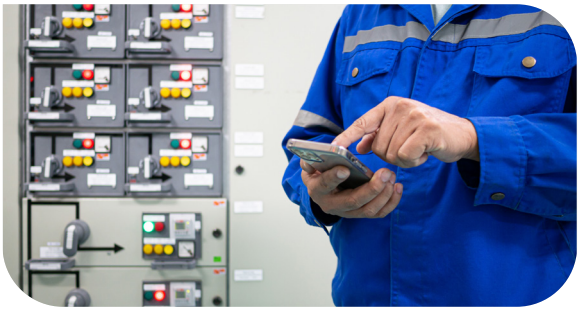



Adjust the voltage and current positions to avoid reading errors in power, energy, power factor, and cos phi.

Automatically rotate the current transformer to prevent errors in consumption readings.

## Easier to install

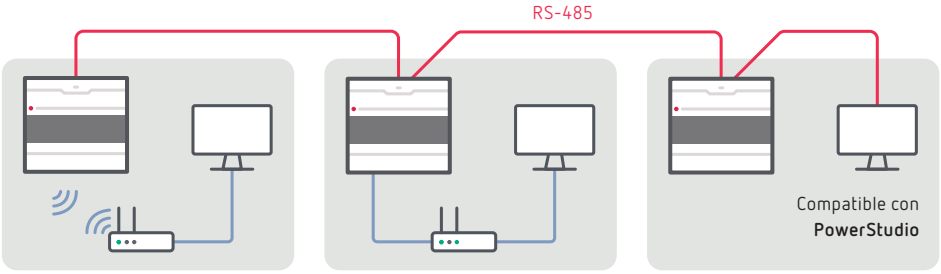
The **CVM-D400** device is set up without a PC, generating a Wi-Fi access point to do so from any browser or the **MyConfig** app. It can also be configured via Ethernet on the LAN network.



# Full control of your parameters

### Maximum connectivity

The device features Ethernet and Wi-Fi communication to connect to **PowerStudio SCADA** or another SCADA data acquisition system using the Modbus TCP protocol. It also includes an RS-485 serial port with the Modbus RTU protocol, allowing simultaneous interrogation from any other data analysis system.



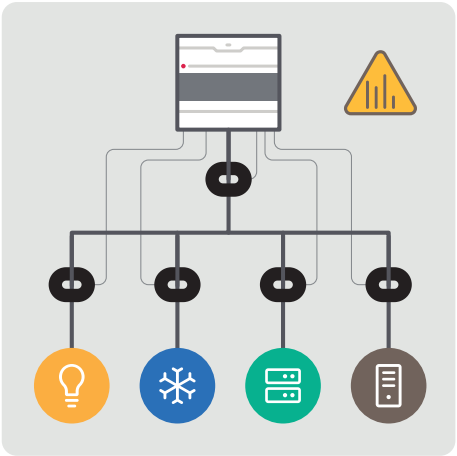

Manage your loads wirelessly

Connect the analyzer to your local network (LAN) and start measuring

Use the RS-485 port to connect it to any data acquisition system

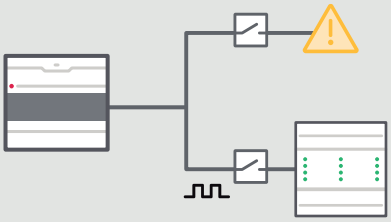
### Detects problems caused by harmonics

The device measures THD% and individual harmonics for voltage and current up to the 15th. Recording the total harmonic distortion rate for voltage and current (THD*U*% and THD*I*%) is highly relevant in this context, as is detecting the predominant harmonics to determine the most suitable filtering solution for each case.



### Alarms under control

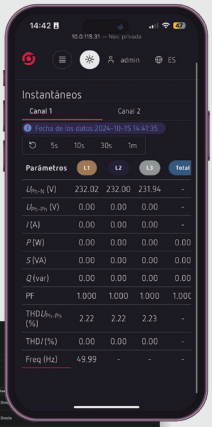
There are two digital outputs to program any alarm you need to monitor when an instantaneous parameter is outside the set range. You can also use the digital outputs to send pulses proportional to any incremental variable.



Impulse centralizer

# Easier to set up

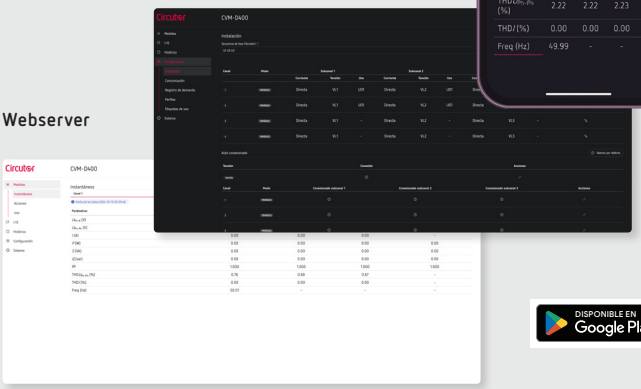
The devices can be configured through an integrated web interface, accessible via Wi-Fi or Ethernet, or directly from the **MyConfig** app. Both options allow you to verify and modify connections using the *Autowiring* feature, avoiding wiring errors and saving time during start-up.





MyConfig

Webserver



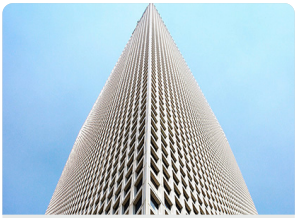

DISPONIBLE EN Google Play

Consíguelo en el App Store

# Where to install the analyzers

The **CVM-D400** series network analyzers are specially designed for data acquisition in distribution panels, centralizing all your consumption into a single device and analyzing multiple electrical variables in your installation, saving both space and installation time.

Industry



Buildings

Hotels

Data Centers

Tertiary sector

Shopping centres

## Technical specifications

| | | |
|---|---|---|
| **Power circuit** | Nominal voltage | Self-powered |
| | Frequency | 45...65 Hz |
| **Voltage measurement circuit** | Nominal voltage ($U_n$) | 300 VAC (p-N)/520 VAC (P-P) |
| | Voltage measurement range | 120... 300 VAC (Ph-N)/120... 520 VAC (Ph-Ph) |
| | Frequency measurement range | 45...65 Hz |
| **Current measurement circuit** | Nominal current ($I_n$) | .../333 mV or.../250 mA |
| | Minimum current measurement ($I_{start}$) | 3% $I_n$ |
| | Current measurement margin | 5...120% $I_n$ |
| | Number of loads | From 1 to 4 three-phase loads/lines and from 1 to 12 single-phase loads/lines (**D440/D441**)<br>From 1 to 2 three-phase loads/lines and from 1 to 6 single-phase loads/lines (**D420/D421**) |
| **Digital outputs** | Quantity | 2 (**D420/D421**) or 4 (**D440/D441**) |
| | Maximum voltage | 24 VDC |
| | Max. current | 50 mA |
| | Pulse width | Minimum: 30 ms, Maximum: 500ms |
| **Measurement accuracy** | Voltage measurement | 0.5% |
| | Current measurement | **CVM-D440/D420** 0,5 % (5 ... 110 % In)<br>**CVM-D441/D421** 0,5 % (10 ... 120 % In) |
| | Active energy measurement | Class 1 |
| | Reactive energy measurement | Class 2 |
| **Communications** | RS-485 | Modbus/RTU |
| | Ethernet | Modbus/TCP |
| | Communications | 2.4 GHz |
| **Environmental characteristics** | Operating temperature | -10... +60 °C |
| | Relative humidity (without condensation) | 5 ... 95% |
| | Maximum altitude | 2000 m |
| | Protection rating | IP 30 - Front IP 40 |
| **Mechanical characteristics** | Dimensions | 105 x 104 x 72 mm |
| | Weight | 500 g |
| | Enclosure | Self-extinguishing V0 plastic |
| | Attachment | DIN rail |
| **Standards** | **UNE-EN 61000-4-4, UNE-EN 61000-4-5, UNE-EN 61000-4-11, UNE-EN 61000-6-3, UNE-EN 61000-6-1, UNE-EN 61010-1, UNE-EN 60068-2-1, UNE-EN 60068-2-2, UNE-EN60068-2-78, IEC 61010-2-030, IEC 61236-1, UNE-EN 61000 4-20, ETSI EN 301 489-1 V2.2.3, ETSI EN 301 W489-17 V3.2.4** | |

## References

| Model | Code | Current input | Channels | Outputs |
|---|---|---|---|---|
| **CVM-D420** | **M551A2.** | .../250mA | 1PH 1... 6 / 3PH. 1...2 | 2 |
| **CVM-D421** | **M55132.** | .../333mV | 1PH 1... 6 / 3PH. 1...2 | 2 |
| **CVM-D440** | **M551A4.** | .../250mA | 1PH 1... 12 / 3PH. 1...4 | 4 |
| **CVM-D441** | **M55134.** | .../333mV | 1PH 1... 12 / 3PH. 1...4 | 4 |
| 3x **SCV1-100 A/333mV** | **M73811.** | .../333mV | - | - |

The models with current input .../250 mA are compatible with **MC** transformers (check codes on: *www.circutor.com*)

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