Circutor

CVM-B100 CVM-B150

M-CVM-B-DATALOGGER XML Manual

INSTRUCTION MANUAL

(M034B01-03-19A)

CE

SAFETY PRECAUTIONS

Follow the warnings described in this manual with the symbols shown below.

⚠	**DANGER** Warns of a risk, which could result in personal injury or material damage.

⚠	**ATTENTION** Indicates that special attention should be paid to a specific point.

If you must handle the unit for its installation, start-up or maintenance, the following should be taken into consideration:

⚠	Incorrect handling or installation of the unit may result in injury to personnel as well as damage to the unit. In particular, handling with voltages applied may result in electric shock, which may cause death or serious injury to personnel. Defective installation or maintenance may also lead to the risk of fire. Read the manual carefully prior to connecting the unit. Follow all installation and maintenance instructions throughout the unit's working life. Pay special attention to the installation standards of the National Electrical Code.

⚠	**Refer to the instruction manual before using the unit** In this manual, if the instructions marked with this symbol are not respected or carried out correctly, it can result in injury or damage to the unit and /or installations.

CIRCUTOR, SA reserves the right to modify features or the product manual without prior notification.

DISCLAIMER

CIRCUTOR, SA reserves the right to make modifications to the device or the unit specifications set out in this instruction manual without prior notice.

CIRCUTOR, SA on its web site, supplies its customers with the latest versions of the device specifications and the most updated manuals.

www.circutor.com

⚠	**CIRCUTOR,** recommends using the original cables and accessories that are supplied with the device.

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REVISION LOG

Table 1: Revision log.

Date	Revision	Description
11/15	M034B01-03-15A	Initial version
08/17	M034B01-03-17A	Modification of the device name Changes in the following sections: 1.
12/19	M034B01-03-19A	Color and corporate image change

Note : Devices images are for illustrative purposes only and may differ from the actual device.

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1.- INTRODUCTION

The **M-CVM-B-Datalogger** can be used to store data in the embedded PowerStudio platform integrated in the module.

The information stored in the module can be accessed with a WEB browser compatible with HTML5 and/or with HTTP Requests sent to the integrated XML server.

Once the module has been connected to an Ethernet network and an IP address has been assigned to the module, use the web browser of a computer in the same local network and enter the IP address in the browser's navigation bar. The embedded PowerStudio environment of the module can be used to display the data in real time, as well as the data stored over time.

Refer to the PowerStudio manual and tutorials found on **CIRCUTOR***'s website for more information about additional configurations, sending emails, generation of additional calculations, etc.*

2.- XML SERVICES

PowerStudio provides a range of XML services to enable, in some respects, communication with other applications.

In requests where it is necessary to express a date and time, both in service request and the data from the response, these will be represented in UTC (Universal Coordinated Time) with the format DDMMYYYYHHMMSS (two digits for the day, two for the month, four for the year and two for the hour, minutes and seconds. It is also possible to represent only a date as DDMMYYYY assuming that the time is 00:00:00, or represent an hour as HHMMSS. Finally in cases where milliseconds are required these are represented with three digits after the seconds, DDMMYYYYHHMMSSUUU or HHMMSSUUU.

The requests must follow the URI standard (RFC 2396), so the user of these requests must take into account this detail when making such calls (especially in cases where the name of any device contains non-ASCII characters).It should also be taken into account that the length of the request may not exceed 4000 characters.

2.1**.**- /services/user/devices.xml

/services/user/devices.xml

Returns the list of configured devices.

<devices>
    <id> … </id>
    …
</devices>

Where:

Table 2: Parameter description (2.1).

Parameter	Description
devices	Main field which will identify the main XML as a response to the device list request.
id	Name of each one of the devices.

2.2.- /services/user/deviceInfo.xml?id=dispositivo?...

/services/user/deviceInfo.xml?id=dispositivo?...

Returns information on devices. Each of the devices on which information is required must be included in the request as:

?id=device2?id=device2

<devices>
    <device>
        <id> … </id>
        <description> … </description>
        <type> … </type>
        <typeDescription> … </typeDescription>
        <var> … </var>
        …
    </device>
    …
</devices>

Where:

Table 3: Parameter description (2.2).

Parameter	Description
devices	Main Field which will identify the XML as a response to the device information request.
device	Information from each of the devices requested:
id	Name of the device.
description	Description of device

Tabla 3 (Continuation) : Parameter description (2.2).

Parameter	Description
type	Type of device (for example CVM144)
typeDescription	A description of the type of device (for example: CVM-144)
var	Name of each of the variables of the device. The name will be expressed as device.variable

2.3.- /services/user/varInfo.xml?var=dispositivo.variable?...?id=dispositivo?...

/services/user/varInfo.xml?var=dispositivo.variable?...?id=dispositivo?...

Returns variable information when carrying out the XML request. Each of the variables from which a value is desired should be included in the request as:

?var=device.variable

And if you want to get information from all the variables of a device this must be indicated as:

?id=device

With it being possible to request information from one or more variables and one or more devices in the same request.

<varInfo>
    <var>
        <id> … </id>
        <title> … </title>
        <hasValue> T </hasValue>
        <hasLogger> T </hasLogger>
        <sampleMode> … </sampleMode>
        <measureUnits> … </measureUnits>
        <unitsFactor> … </unitsFactor>
        <decimals> … </decimals>
    </var>
    …
<varInfo>

Where:

Table 4: Parameter description (2.3).

Parameter	Description
varInfo	Main field which identifies the XML as a response to the request for information about variables
var	Information from each of the variables requested:
id	Name of the variable in device.variable format
title	Brief description of the variable.
hasValue	Indicates if it is possible to ask the instantaneous value of the variable (T) or not (F).

Tabla 4 (Continuation) : Parameter description (2.3).

Parameter	Description
hasLogger	Indicates whether it is possible to ask the log value of the variable (T) or not (F).
sampleMode	Variable type, mode used to group together the values of a variable: **none**: Without type **average**: Average value **max**: Maximum value. **min**: Minimum value. **pfAverage**: Power factor, average value. **pfMax**: Power factor, maximum value **pfMin**: Power factor, minimum value **last**: Last value **differential**: Differential current value between the current value and the previous one **samples**: samples: The value cannot be grouped **discrete**: Discreet values. The value cannot be grouped
measureUnits	Variable units: **#NONE** : Without units **#V** : Voltage **#A** : Current **#VA** : Apparent power **#W** : Active power **#VARL** : Inductive power **#VARC** : Capacitive power **#PF** : Power factor **#HZ** : Frequency **#PERCENT** : Percentage **#WH** : Active energy **#VARLH** : Inductive energy **#VARCH** : Capacitive energy **#DATETIME** : Date and time If not preceded by # it is a user defined unit
unitsFactor	Power of 10 that indicates the value the variable is multiplied by in the log file.
decimals	Decimals with this variable.

2.4.- /services/user/values.xml?var=dispositivo.variable?...?id=dispositivo?...

/services/user/values.xml?var=dispositivo.variable?...?id=dispositivo?...

Returns the instantaneous value of the variable when the XML request is carried out. Each of the variables that the value is required from should be included in the request as:

?var=device.variable

If you want to ascertain the value of all the variables of a device it should be indicated as:

?id=device

With it being possible in a single request to request the value of one or more variables and values of one or more devices

<values>
    <variable>
        <id> … </id>
        <value> … </value>
    </variable>
    …
</values>

Where:

Table 5: Parameter description (2.4).

Parameter	Description
values	Main field which will identify the XML as a response to the request for variable values
variable	List of variables:
id	Identifier of the variable in device.variable format
value	Value of variable at the time of the request.

2.5.-/services/user/forceVariables.xml?id=dispositivo

/services/user/forceVariables.xml?id=dispositivo

With this request we may send the order to force variables to PowerStudio. The request must include the name of the device we want to force so that, if necessary, authentication can be checked. Only variables belonging to the device indicated in the request will be forced.

<forceVariables>
    <forceVar>
        <forceName> … </forceName>
        <forceValue> … </forceValue>
    </forceVar>
    …
</forceVariables>

Where:

Table 6: Parameter description (2.5).

Parameter	Description
forceVariables	Main field that will identify the XML as a request to force variables.
forceVar	Information on each of the variables to be forced:
forceName	Name of the variable in device.variable format. Only variables that can be forced, for example digital output variables.
forceValue	Value to which we wish to force the variable.

2.6.-/services/user/records.xml?begin=…?end=…?var=…?period=900

/services/user/records.xml?begin=…?end=…?var=…?period=900

Returns information on one or more variables between the dates "begin" and "end". Each of the variables that the information is required from should be included in the request as:

?var=device.variable

The format of "begin" and "end" will be DDMMYYYY when you wish only to indicate the date (in this case the hour will 00:00:00) or DDMMYYYYHHMMSS when both the date and the hour are specified. Both "begin" as "end" must be expressed in UTC (Universal Coordinated Time).

Finally, we may specify the period of data grouping using the "period" parameter. This value may be:

- ✓ **FILE**: data not grouped, returning the register as they have saved in the log.
- ✓**AUTO**: Grouping will take place automatically depending on the specified dates "begin" and "end"
- ✓ **ALL**: Data is grouped into a single value.
- ✓ **> 0** : Value in seconds in which the data is grouped.

If the "**period**" parameter does not appear on the request it shall be considered as value 0 and the data will not be grouped.

```
<recordGroup>
      <period> … </period>
      <record>
            <dateTime> … </dateTime>
            <field> … </field>
            <fieldComplex> … </fieldComplex>
            <fieldARM> … </fieldARM>
            <fieldFO> … </fieldFO>
            <fieldEVQ> … </fieldEVQ>
      …
      </record>
      …
</recordGroup>
```

Where:

Table 7: Parameter description (2.6) (Table 1)

Parameter	Description
recordGroup	Main field which will identify the XML as a response to the variable register request.
period	Register period. Will report on time elapsed between records.
record	Will Identify each of the records:
dateTime	Date and time of the sample.
field	Standard value register.
fieldComplex	Complex value register

Tabla 7 (Continuation) : Parameter description (2.6) (Table 1)

Parameter	Description
fieldARM	Harmonic value register
fieldFO	Waveform value record
fieldEVQ	EVQ event register

Here are the different types of values that can be returned by this request:

✓ Standard value registers (voltages, currents, power, energy, etc.).

\<field\>
    \<id\> … \</id\>
    \<value\> … \</value\>
\</field\>

Table 8:Parameter description (2.6) (Table 2)

Parameter	Description
id	Variable identifier (device.variable)
value	Value

✓ Complex value register (PLT, etc.).

\<fieldComplex\>
    \<id\> … \</id\>
    \<value\> … \</value\>
    \<flags\> … \</flags\>
\</fieldComplex\>

Table 9:Parameter description (2.6) (Table 3)

Parameter	Description
id	Variable identifier (device.variable)
value	Value
flags	Additional information from the variable formed by the union of one or more of the following values: **0x0000** : The PLT is correct **0x0001** : The PLT calculation has been done with fewer samples than expected **0x0002** : The PLT calculation has been done with more samples than expected **0x0004** : The samples used in the PLT calculation do not have an equidistant separation in the sampling window **0x0008** : Some PST used in the calculation of the PLT contain events in phase 1 **0x0010** : Some PST used in the calculation of the PLT contain events in phase 2 **0x0020** : Some PST used in the calculation of the PLT contain events in phase 3 **0x0040** : Some PST used in the calculation of the PLT are not complete

✓ Harmonic value record

\<fieldARM\>
> **\<id\> … \</id\>**
> **\<element\>**
>> **\<harmonic\> … \</harmonic\>**
>> **\<value\> … \</value\>**
>
> **\</element\>**
> **…**

\</fieldARM\>

Table 10:Parameter description (2.6) (Table 4)

Parameter	Description
id	Variable identifier (device.variable)
element	Registers from each of the harmonics
harmonic	Harmonics number
value	Harmonic value.

✓ Waveform value record

\<fieldFO\>
> **\<id\> … \</id\>**
> **\<element\>**
>> **\<msec\> … \</msec\>**
>> **\<value\> … \</value\>**
>
> **\</element\>**
> **…**

\</fieldFO\>

Table 11:Parameter description (2.6) (Table 5)

Parameter	Description
id	Variable identifier (device.variable)
element	Information from each of the points that make up the waveform
msec	millisecond
value	value

✓ EVQ event Record.

\<fieldEVQ\>
> **\<id\> … \</id\>**
> **\<value\> … \</value\>**
> **\<phase\> … \</phase\>**
> **\<duration\> … \</duration\>**
> **\<averageValue\> … \</averageValue\>**
> **\<previousValue\> … \</previousValue\>**
> **\<eventType\> … \</eventType\>**
> **\<endForced\> … \</endForced\>**
> **\<semicycleVoltage\>**
>> **\<date\> … \</date\>**
>> **\<value\> … \</value\>**
>
> **\</semicycleVoltage\>**
> **…**

\</fieldEVQ\>

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Table 12:Parameter description (2.6) (Table 6)

Parameter	Description
id	Variable identifier (device.variable)
value	Value of the event:
phase	Phase in which the event occurs
duration	Duration of the event in milliseconds
averageValue	Average value
previousValue	Old value
eventType	Type of event : **0** : Interruption **1** : gap **3** : Overvoltage
endForced	Mark if the event has finished correctly (F) or has be forced to finalise (T)
semicycleVoltage	Each of the points that make up the semi-circular effective voltage associated with the event. This field is optional and may not exist.
date	Date and time (DDMMYYYYHHMMSSUUU)
value	Value

2.7.-/services/user/events.xml?begin=…?end=…?id=…

/services/user/events.xml?begin=…?end=…?id=…

Returns the events log of one or more events between dates "begin" and "end". Each of the events on which information is required must be included in the request as:

?id=name_event

The format of "begin" and "end" will be DDMMYYYY when you wish only to indicate the date (in this case the hour will 00:00:00) or DDMMYYYYHHMMSS when both the date and the hour are specified. Both "begin" as "end" must be expressed in UTC (Universal Coordinated Time).

```
<main>
    <recordGroup>
        <id> … </id>
        <record>
            <date> … </date>
            <eventId> … </eventId>
            <annotation> … </annotation>
            <value> … </value>
        </record>
        …
    </recordGroup>
    …
</main>
```

Where:

<div align="center">Table 13:Parameter description (2.7)</div>

Parameter	Description
main	Main field that will identify the XML as a response to the request.
recordGroup	Field that groups all the records of an event.
id	Event identifier.
record	Will Identify each of the records:
date	Event date and hour
eventId	Event identifier.
annotation	Event annotation.
value	Event value: **ON** : Event enabled **OFF** : Event disabled **ACK** : Event acknowledged

2.8.-/services/user/recordsEve.xml?begin=…?end=…?id=…

/services/user/recordsEve.xml?begin=…?end=…?id=…

Returns information on events recorded by one or more devices between the dates "begin" and "end". Each of the devices on which information is required must be included in the request as:

?id=device

The format of "begin" and "end" will be DDMMYYYY when you wish only to indicate the date (in this case the hour will 00:00:00) or DDMMYYYYHHMMSS when both the date and the hour are specified. Both "begin" as "end" must be expressed in UTC (Universal Coordinated Time).

```
<main>
    <recordGroup>
        <device> … </device>
        <record>
            <dateTime> … </dateTime>
            <field>
                <id>…</id>
                <value>… </value>
            </field>
            …
        </record>
        …
    </recordGroup>
    …
</main>
```

Where:

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Table 14:Parameter description (2.8)

Parameter	Description
main	Main field that will identify the XML as a response to the request.
recordGroup	Field that groups all the records of an event.
device	Device the records refer to.
record	Will Identify each of the records:
dateTime	Date and time of the sample.
field	Will identify each of the fields.
id	Iden
value	Value of the event.

3.- TECHNICAL SERVICE

In the case of any query in relation to device operation or malfunction, please contact the **CIRCUTOR, SA** Technical Support Service.

Technical Assistance Service
Vial Sant Jordi, s/n, 08232 - Viladecavalls (Barcelona)
Tel: 902 449 459 (España) / +34 937 452 919 (outside of Spain)
email: sat@circutor.com

4.- GUARANTEE

CIRCUTOR guarantees its products against any manufacturing defect for two years after the delivery of the units.

CIRCUTOR will repair or replace any defective factory product returned during the guarantee period.

⚠️	• No returns will be accepted and no unit will be repaired or replaced if it is not accompanied by a report indicating the defect detected or the reason for the return. •The guarantee will be void if the units has been improperly used or the storage, installation and maintenance instructions listed in this manual have not been followed. "Improper usage" is defined as any operating or storage condition contrary to the national electrical code or that surpasses the limits indicated in the technical and environmental features of this manual. • **CIRCUTOR** accepts no liability due to the possible damage to the unit or other parts of the installation, nor will it cover any possible sanctions derived from a possible failure, improper installation or "improper usage" of the unit. Consequently, this guarantee does not apply to failures occurring in the following cases: - Overvoltages and/or electrical disturbances in the supply; - Water, if the product does not have the appropriate IP classification; - Poor ventilation and/or excessive temperatures; - Improper installation and/or lack of maintenance; - Buyer repairs or modifications without the manufacturer's authorisation.