The buttons have two operating methods: display, along with four function buttons, allowing the user to manager conventional Internet browser.

The user can access the setup parameters via the display and IP addressing configuration.

As the device is located in its remote control locations.

For the configuration of the Ethernet network parameters can be integrated via the Ethernet server.

To configure an access route, press the SCROLL RIGHT key, until the YES option appears. When the "ACTIVE MODE" is activated via the EDS ENERGY EFFICIENCY MANAGER

The "ACTIVE MODE" option determines the IP destination where the AMB connections software has been installed. The user must have an access path for connecting all remote devices, in order to establish a transparent communications tunnel.

In this case, access to the Internet connection from the central location will require the use of a connection router, which will establish a NAT access rule to activate a TCP connection port in the connection server (connection path).

An access port must be activated in the Internet access router, which will internally transfer the public communication frames to the AMB internal connection server and to a port specified by and known to the user.

The port activated in the communication router must be configured in the "Port" section.

Each element connected to the AMB system must have an identifier or alias ("AMB ID"). This identifier is alphanumerical and the user must record it in order to enable the setup can be changed.

An "Identifier" cannot be duplicated within the same connection server.

A user and encryption password can be activated in the device, thus avoiding modification of the configuration parameters.

The device displays ID by default. It should be pointed out that if the password is activated, it will be present in all the device's setup and display accesses (keyboard, Web setup and internal applications).

To modify the option displayed on screen, SCROLL RIGHT until the option YES appears. Do this twice and the device cyclically displays both options until one of them is validated.

Establish the parameters for the alphanumerical data entry with the SCROLL UP and DOWN buttons, up to 20 digits corresponding to the USER, and when the data is validated, repeat the operation with the SCROLL DOWN and SCROLL ID.

To go the next setup screen, press the SCROLL DOWN key, enabling the edit cursor in the next option.

After entering the setup menu, the device displays MAC (Media Access Control) physical address on screen, with a 00-0c-29-00-00-XX.XX.XX.XX type format. This is an information panel that the user can use to know the physical address of the device.

To go the next setup screen, press the SCROLL DOWN key.

After entering the setup menu, the device displays DHCP (Dynamic Host Configuration Protocol), and shows the device configuration option. To do this, the device displays the DHCP name of the device to be logged into the Ethernet network.

The device does not synchronize with a time and date NTP server (Network Time Protocol) server in the UTC time system. The device does not display a value by default, indicating that the synchronization is completed via DHCP, if the network server allows this to be done. In this case, it is the main server.

To configure an NTP server that is different from the DHCP (0.1.2.3.4), press the SCROLL RIGHT key, enabling the edit cursor in the first digit. Set parameters for a alphanumerical data entry with the SCROLL UP and DOWN buttons, up to a maximum of 20 digits, indicating an IP address or an external IP (if the device has Internet access). After establishing the parameters, press the SCROLL RIGHT key twice until the edit key disappears, and then validate the data with the SCROLL RIGHT key, by going to the next screen.

This key (IP and NetMask buttons) can be used to parameterise an alphanumerical data entry of up to 20 digits. After the data is entered, press the SCROLL RIGHT key twice until the edit key disappears, and then validate the data with the SCROLL DOWN key, by going to the next screen.

The edit cursor in the first digit is activated via the SCROLL RIGHT key. This key (the SCROLL UP and DOWN buttons can be used to parameterise an alphanumerical data entry of up to 20 digits. After the data is entered, press the SCROLL RIGHT key twice until the edit key disappears, and then validate the data with the SCROLL DOWN key, by going to the next screen.

In this case, the user can access the setup parameters via the display and dynamic configuration parameters.

If the setup is not saved, SCROLL RIGHT until the option NO appears. Do this twice and the device cyclically displays both options until one of them is validated.

Establish the parameters for the alphanumerical data entry with the SCROLL UP and DOWN buttons, up to 20 digits corresponding to the USER, and when the data is validated, repeat the operation with the SCROLL DOWN and SCROLL ID.

When the completed configuration is validated, press the SCROLL DOWN key and the device saves the data and leaves configuration.

If the setup is not saved, SCROLL RIGHT until the option NO appears. Do this twice and the device cyclically displays both options until one of them is validated with the SCROLL DOWN key.

After activation of the DHCP authentication and the subsequent validation, the device displays the CLIENT ID parameter setup on the screen, which makes reference to the DHCP server.

The edit cursor in the first digit is activated via the SCROLL RIGHT key. This key (the SCROLL UP and DOWN buttons can be used to parameterise an alphanumerical data entry of up to 20 digits. After the data is entered, press the SCROLL RIGHT key twice until the edit key disappears, and then validate the data with the SCROLL DOWN key, by going to the next screen.

If the DHCP server has not yet been assigned the parameters, press the SCROLL DOWN key twice to go the next NTP option.

The device can be synchronised with a time and date NTP server (Network Time Protocol) server in the UTC time system. The device does not display a value by default, indicating that the synchronization is completed via DHCP, if the network server allows this to be done. In this case, it is the main server.

To configure an NTP server that is different from the DHCP (0.1.2.3.4), press the SCROLL RIGHT key, enabling the edit cursor in the first digit. Set parameters for a alphanumerical data entry with the SCROLL UP and DOWN buttons, up to a maximum of 20 digits, indicating an IP address or external IP (if the device has Internet access). After establishing the parameters, press the SCROLL RIGHT key twice until the edit key disappears, and then validate the data with the SCROLL DOWN key, by going to the next screen.

Server available on the Internet:
- es.pool.ntp.org
- pool.ntp.org

2.2.3.- Confirm Changes - (DPK YES)

The information must be validated to save the setup. The device displays YES by default. If the completed configuration is validated, press the SCROLL DOWN key and the device saves the data and leaves configuration.

If the setup is not saved, SCROLL RIGHT until the option NO appears. Do this twice and the device cyclically displays both options until one of them is validated with the SCROLL DOWN key.

2.2.7.- Gateway - (DPK YES)

The "Identifier" cannot be duplicated within the same connection server.

The configuration of the Ethernet network parameters can be integrated via the Ethernet server, where the edit cursor is located. If there is no cursor on the screen, move up to the next step of the previous setup option.

The buttons have the following functions:
- SCROLL LEFT: edit button, scroll the cursor to the left to modify the numerical or alphanumerical digit.
- SCROLL RIGHT: edit button, scroll the cursor to the right to modify the numerical or alphanumerical digit.
- SCROLL UP: the function of this button is to modify the digit where the edit cursor is located. If there is no cursor on the screen, move up to the next step of the previous setup option.
- SCROLL DOWN: the function of this button is to modify the digit where the edit cursor is located. If there is no cursor on the screen, move down to the next step of the previous setup option.

The device has two clear setup routes: the first one is related to the Ethernet integration start-up (IP addressing), and the second one is related to the setup of the internal application and possible association with other field devices via the RS485 bus.

2.1.- Network address

EDS is a device with self-detecting Ethernet 10/100BaseTX connectivity. This means that, in order to integrate the device into a Local Area Network, it must be provided with a previous IP addressing configuration.

The user can access the setup parameters via the display and the function keys on the front panel of the device, or through the internal setup web site, which is accessible via a conventional Internet browser.

2.2.- Network parameter setup (Keyboard)

The configuration of the Ethernet network parameters can be integrated via the Ethernet server, where the edit cursor is located. If there is no cursor on the screen, move up to the next step of the previous setup option.

To access the setup menu, simultaneously hold down the keys SCROLL RIGHT, SCROLL UP and SCROLL DOWN for more than two seconds. The device shows the text "HOLD ON 2 SECONDS TO ENTER SETUP" on screen and after 2 seconds the display shows "ENTERING SETUP" plus the keys.

The buttons have two operating methods: display, along with four function buttons, allowing the user to manager conventional Internet browser.

The user can access the setup parameters via the display and dynamic configuration parameters.

If the setup is not saved, SCROLL RIGHT until the option NO appears. Do this twice and the device cyclically displays both options until one of them is validated.

Establish the parameters for the alphanumerical data entry with the SCROLL UP and DOWN buttons, up to 20 digits corresponding to the USER, and when the data is validated, repeat the operation with the SCROLL DOWN and SCROLL ID.

When the completed configuration is validated, press the SCROLL DOWN key and the device saves the data and leaves configuration.
2.2.8.5.- Secondary DNS - ( DHCP NO )* 

To configure the secondary DNS server, carry out the same procedure as with the Primary DNS.

2.2.8.6.- Other setups - ( DHCP NO )* 

After configuring the secondary DNS, the other setup screens correspond to the parameters as in the activated DHCP mode; consequently, the setup procedure will be the same as the one for sections:

- 2.2.3.- Primary NTP 
- 2.2.3.- Secondary NTP 
- 2.2.4.- Time Zone 
- 2.2.5.- AMB® - Active Mode Bridge 
- 2.2.6.- Enable Security 
- 2.2.7.- Confirm Changes - ( DHCP YES )

2.2.8.7.- Manual Date and Time setup 

If there is no authentication configuration by the DHCP system, and if there is no Primary and Secondary NTP server available, EDS allows the time and date to be configured manually when validating the changes by displaying the capture R<sub>IOR</sub> COL. The time and date are displayed on screen with the following format: 2021-04-02 01:04:0. To configure them, press the SCROLL RIGHT key, activating the edition cursor in the first digit. Use the SCROLL UP and SCROLL DOWN buttons to establish the parameters in the numerical data entry. After establishing the parameters, press the SCROLL RIGHT key twice until the edition key disappears, and then validate the data with the SCROLL DOWN key, leaving setup and validating the configuration.

When the setup is validated, the DONE caption appears, returning to the main screen.

2.2.9.- Display of setup parameters 

To display the setup parameters, the user must enter the menu setup by simultaneously pressing the SCROLL RIGHT, SCROLL UP and SCROLL DOWN keys. The USER key will press the SCROLL DOWN key twice for complete visualisation of the device configuration.

If a user and password are available even when the user does not have all the setup parameters can be visualised without being able to change them (asterisk in top left hand corner).

2.2.9.1.- Ping system 

To confirm IP connectivity via a Local Area Network (LAN) or the Internet using a DSL or 3G router, the user sometimes has to know if the EDS device has this IP access if or if the device has any particular access to a certain host.

To do this, EDS has a PING function, from which the user can carry out an on-line connectivity test with an IP address or name, emulating the ping command of a conventional operating system.

The device displays the physical address within the setup menu, as shown in section 2.2.1.- MAC address. Press the SCROLL RIGHT key to go to the on-screen caption HOST PING. To enter the name or IP address to carry out the ping test, press the SCROLL RIGHT key to activate the edit cursor in the first digit. Press this key and the SCROLL UP and SCROLL DOWN buttons to establish the parameters of the alphanumeric data entry of up to 20 digits. After the data is entered, press the SCROLL RIGHT key twice until the edition key disappears, and then validate the data with the SCROLL DOWN key, by going to the next screen.

When the data is validated, the screen displays the DONE PING caption and will then show the results:

- PING RESULT: OK - a response was obtained from the host
- PING RESULT: NO - no response was obtained from the host

When a result is obtained by the device, press the SCROLL DOWN key and the device goes back to the by default display screen.

2.2.10.- Internal setup web site 

After establishing the parameters with the keyboard and connecting to the Ethernet, the device has a setup web site, where the user can integrate it and perform the data entered with the keyboard. The setup web site is at the http address below:

- http://ip_of_the_device.html

Where xxx.xxx.xxx.xxx is the IP address assigned by the user.

Where name_dhcp is the name assigned and authenticated by the name server of the local area network (LAN).

2.3.- Network parameters setup (Software) 

Configuration of addressing can be done in the same way as using the keyboard via the IPSetup.exe file, available on a CD supplied with the device.

2.3.1.- Fixed IP assignment 

To assign a fixed IP address, enter the MAC address displayed on the device screen as shown in section 2.2.1.- MAC address address, the format of which is 02:26:15:x.x.x.x.x.x.x.x.

2.3.2.- DHCP IP assignment 

To assign the DHCP host name, activate the option using the upper right hand arrow and select On. Once the setup fields have been enabled, the MAC address will be displayed on the device.

In the Address field, enter an unused, temporary IP address, which is within the working range of your computer. In the Host Name field, enter the DHCP name to be assigned to the equipment. Optionally, the user can configure the parameters of the Client field. The default Vendor of the device is CIRCUTOR.

2.3.3.- Setup web site 

Once connection to the Local Area Network (LAN) is established and the IP address or DHCP name is configured, the device has an internal web site where the user can integrate all the parameters concerning network configuration (2.3.10.- Internal setup web site), and even the time and date data.

To access the setup web site, enter the IP address assigned by the user. Where name_dhcp is the name assigned and authenticated by the name server of the local area network (LAN).

2.3.4.- Access via password 

If an access user name and password have been parameterised, the device will dismiss access the parameters when trying to access via the web site in the following pop up screen:

3.- Operation 

EDS is an energy efficiency manager with a Web server directory from which the user can see the status of the device inputs and outputs in real time, as well as any possible action to be taken.

As well as serving the data stored internally via the Web, the device has an XML server, enabling the user to send GET and PUT type requests.

3.1.- Web Server 

Once the Ethernet addressing is configured and integrated into the Ethernet network, the device variables are visible to the terminal or Internet Explorer browser with Java plug-in installed on the computer (http://www.java.com/es/download/). Another access interface is the PowerStudio OAS Client.

To see the Web display interface, the user must access it via the http address below:

- http://xxx.xxx.xxx.xxx

Where xxx.xxx.xxx.xxx is the IP address assigned by the user.

3.2.- XML server 

The XML server is an excellent integration tool for external applications. EDS has a server available whose access requests are identified in this manual (see XXX).

3.3.- Digital inputs 

The device has a total of 8 digital inputs, whose function is to count energy impulses coming from external sensors, or for detection of the logical status of the input. The contacts associated to the digital inputs of the device must be voltage-free dry contacts.

3.3.1.- Impulse meter function 

The electronic meters have an impulse output that is proportional to the recorded power. With its inputs, EDS is a centralising unit with 8 digital inputs (opto-coupled) for reading impulses from electricity, water, gas, etc. The value of these impulses is associated to 8 memory records, stored in a non-volatile memory.

Each registry is 32 bits (4 bytes), so it counts a maximum of up to 4,294,967,295 impulses. When a memory record reaches this value, the meter is reset back to zero.

The minimum duration of the impulse or status change of the digital input must be 50 ms. The minimum time between two successive impulses must have a minimum duration of 50 ms. This represents a maximum sampling frequency of 10 Hz.

Its Web server and internal memory enable the user to extract graphics and tables of impulses received during a certain period (table and graphic function).

3.3.2.- Input logical status function (0/1) 

The 8 digital inputs in the device are voltage-free and have an input logical status detection function. This means that when a bridge is set up between the common and one of the digital inputs, the device detects that the input has closed, and displays the status via both communications servers.

3.4.- Digital outputs 

The device has 6 relay digital outputs. The user can use remote control to carry out actions on the outputs (open, close, create an impulse).

These actions can be manual, or via programming in the events section of the device (see PowerStudio Scada manual).

3.5.- RS-485 expansion bus 

The device has an RS-485 communications bus that allows it to communicate with external peripherals, act as a communications master and store data recorded in its 200Mb memory.

Its Web accessibility and memory enable the user to view data coming from devices connected to the bus in real time, and easily and simply view graphics and tables of the parameters registered by the device.

As well as linking communications with devices connected to its RS-485 communications bus, the device also has the capacity to make connections with other equipment (local or remote), either through an IP address or DHCP name.

To add devices to the EDS energy device setup, the user must install the PowerStudio or PowerStudio Scada 

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application, so as to export a new setup of the device, adding new analyzers or slaves connected to the unit. EDS allows configuration of up to 5 slave devices connected to its network.

3.6. Additional PS/PS features

To configure the other system features, read the PowerStudio / Scada Editor manual. It has all the information the user needs about:

- Importing or exporting the setup of the EDS system
- Setup of new devices or slaves
- Tariff discriminators / calendars
- Calculated variables
- System events and alarms
- Authentication setup
- Web system security

Without the PowerStudio Editor tool, the measurement application cannot be configured to provide new features for the EDS device. Consequently, the user must install the software, thus making it possible to integrate the display server and vary the settings of the display, connected devices, alarms, etc.

4. - XML instructions

Not only does EDS function as an excellent energy efficiency manager for local and multi-point networks, it also has a default XML requests server that enables it to be easily and intuitively integrated into a SCADA or remote monitoring system. The device, via its IP address, attends to GET and PUT requests that can carry out different functions on the device.

4.1. - Type of variables

The device has a list of available variables, in accordance with the device features. The basic code is made up of the device name and the variables separated by a dot:

- name.variable

This way the software knows which variable it is and what device must be asked to find out the value of the variable.

When an incremental variable is discriminated (energy, impulses, meter or similar), the information about the parameterised discriminator is added to the basic code:

- name.discriminator@type_time.variable

The discriminable variables are shown in the list with an asterisk.

4.2. - EDS variables list

If slave devices are provided, the frames sent to EDS are identified in the same way by name and variable, as shown in section 4.1.-.

The following table shows the definition of the variables available in EDS.

<table>
<thead>
<tr>
<th>Digital inputs</th>
<th>XML - Status Value</th>
<th>XML - Motor Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Input 1</td>
<td>D1</td>
<td>C1</td>
</tr>
<tr>
<td>Digital Input 2</td>
<td>D2</td>
<td>C2</td>
</tr>
<tr>
<td>Digital Input 3</td>
<td>D3</td>
<td>C3</td>
</tr>
<tr>
<td>Digital Input 4</td>
<td>D4</td>
<td>C4</td>
</tr>
<tr>
<td>Digital Input 5</td>
<td>D5</td>
<td>C5</td>
</tr>
<tr>
<td>Digital Input 6</td>
<td>D6</td>
<td>C6</td>
</tr>
<tr>
<td>Digital Input 7</td>
<td>D7</td>
<td>C7</td>
</tr>
<tr>
<td>Digital Input 8</td>
<td>D8</td>
<td>C8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Digital Output Status</th>
<th>XML - Force Output</th>
<th>Forced Open / Close</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Output 1</td>
<td>D1</td>
<td>O1 / I</td>
</tr>
<tr>
<td>Digital Output 2</td>
<td>D2</td>
<td>O2 / I</td>
</tr>
<tr>
<td>Digital Output 3</td>
<td>D3</td>
<td>O3 / I</td>
</tr>
<tr>
<td>Digital Output 4</td>
<td>D4</td>
<td>O4 / I</td>
</tr>
<tr>
<td>Digital Output 5</td>
<td>D5</td>
<td>O5 / I</td>
</tr>
<tr>
<td>Digital Output 6</td>
<td>D6</td>
<td>O6 / I</td>
</tr>
<tr>
<td>Digital Outputs Impulse</td>
<td>XML - Impulse</td>
<td>Forced Impulse</td>
</tr>
<tr>
<td>Digital Output 1</td>
<td>D1</td>
<td>P1</td>
</tr>
<tr>
<td>Digital Output 2</td>
<td>D2</td>
<td>P2</td>
</tr>
<tr>
<td>Digital Output 3</td>
<td>D3</td>
<td>P3</td>
</tr>
<tr>
<td>Digital Output 4</td>
<td>D4</td>
<td>P4</td>
</tr>
<tr>
<td>Digital Output 5</td>
<td>D5</td>
<td>P5</td>
</tr>
<tr>
<td>Digital Output 6</td>
<td>D6</td>
<td>P6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date and time</th>
<th>XML - Value</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOTIM</td>
<td>Last server communications</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Device status</th>
<th>XML - Impulse</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Communicator OK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Not initialized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Permanent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Comm Errors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Dev. Inactive</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3. - XML Services

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

4.3.1.- Configured devices request

With this request the XML service returns the list of connected devices to the EDS Energy efficiency manager.

- http://x.x.x.x/services/user/devices.xml

```
<devices>
  <id> ... </id>
</devices>
```

- devices: field identifying the XML as a response to the device list request
- id: name of each one of the devices

4.3.2. - Information about the device

Request for detailed information about the devices. Each of the requests you want more information, should be included in the XML sentence (where device?device2?:

- http://x.x.x.x/services/user/devicesinfo.xml?id=device?

```
<device>
  <description> ... </description>
  <type> ... </type>
  <typeDescription> ... </typeDescription>
  <var> ... </var>
</device>
```

- description: description of device
- type: device type
- typeDescription: detailed description of the device
- var: name of each of the variables of the device; expressed as name.variable

4.3.3.- Information about the variable

The user can request detailed information about one or more variables from a device and even make one single request for the information about all the variables available in the device.

4.3.3.1.- Information about one or more variables

Request for detailed information about one or more variables of the device (if information is needed about more variables, link the other requests below with var=device.variable?):

- http://x.x.x.x/services/user/varInfo.xml?var=device.variable

```
<varInfo>
  <device>
    <id> ... </id>
    <description> ... </description>
    <type> ... </type>
    <typeDescription> ... </typeDescription>
    <var> ... </var>
  </device>
</varInfo>
```

- description: description of device
- type: type of variable and mode used to group the data
- typeDescription: detailed description of the variable
- var: name of each of the variables of the device; expressed as name.variable

4.3.3.2.- Information about all the variables

Request for information about all the variables of the device (if information is needed about more devices, link the other requests below with id=device?):

- http://x.x.x.x/services/user/varInfo.xml?id=device?

```
<varInfo>
  <device>
    <id> ... </id>
    <description> ... </description>
    <type> ... </type>
    <typeDescription> ... </typeDescription>
    <var> ... </var>
  </device>
</varInfo>
```

- description: description of device
- type: type of variable and mode used to group the data
- typeDescription: detailed description of the variable
- var: name of each of the variables of the device; expressed as name.variable

4.3.4.- Instantaneous variable value

The user can request the instantaneous values of one or more variables, and can even request the information about all the instantaneous data with just one request.

4.3.4.1.- Instantaneous value of one or more variables

Request for the instantaneous value one or more variables of the device (if information is needed about more variables, link the other requests below with var=device.variable?):

- http://x.x.x.x/services/user/values.xml?var=device.variable

```
<values>
  <value> ... </value>
</values>
```

- id: identifier of the variable
- value: value of the variable at the time of the request

4.3.5. - Historical data

Request for historical data registry of an incremental variable. Returns information on one or more variables between the "begin" and "end" dates. Each variable for which information is required must be included in the request as var=device.variable.

When the date is required, the format is DDMYYYY; When the date and time are required, the format is DDMYYYYHHMMSS. Both the date and the time must be expressed in UTC (Universal Coordinated Time).

The grouping period can be defined by different criteria:

- value in seconds (for example 900): value in seconds in which the data is grouped
- ALL: the data is grouped into a single value
- AUTO: grouping is automatic with predefined intervals according to "begin" and "end"
- FILE: data not grouped. returns the information as registered in the database
- if the period parameter does not appear in the request, it is considered as value 0 and the data is not grouped

```
http://x.x.x.x/services/user/records.xml?begin=20101100000000&end=20101100000000&var=device.variable
```

```
http://x.x.x.x/services/user/values.xml?id=device?
```

<recordGroup>
<period> ... </period>
<record> ... <record> ... </record>
<field> ... <field> ... </field>
</recordGroup>

<recordGroup>
<recordGroup>
<field> identifying XML as a response to the variable register request
<period> recording period; time between recordings
<record> identifies each recording (dateTime: date and time of the sample)
<field> standard recording value (for others consult PSI manual)
<value> value of variable at the time of the request
4.3.6.- Historical events file

As this user manual describes, the PowerStudio / Scada Editor makes it possible to configure events or alarms within the EDS device and record them in the internal memory. With the following request, the user can request the historical events file between the dates defined. Every event that is requested with a historical events file is expressed as an event identifier. The event identifier must be included as an event identifier when the EDS device and record them in the internal memory.

When only the date is required, the format is DDMMYYYY; when the date and time are required, the format is DDMMYYYYHHMMSS. Both the date and the time must be expressed in Universal Coordinated Time.

4.3.7.- Device events

Returns the information about recorded events of one or more devices between the dates 'begin' y 'end'. Each device for which information is required must be included as a device identifier.

When only the date is required, the format is DDMMYYYY; when the date and time are required, the format is DDMMYYYYHHMMSS. Both the date and the time must be expressed in Universal Coordinated Time.

4.3.8.- Active Events

EDS has an XML active events service whose aim is to enable an external agent or integration system to be registered as a listener and register the events or alarms that occur in the device.

The device keeps a distribution list of active users, to which it sends events that take place locally via the creation of incidents.

4.3.8.1.- Test commands

Before initiating implementation of the active events system, there are a number of PUT type test requests between the listener and the producer (remote engine) and vice versa, the aim of which is to test and ensure connectivity between both systems.

The listener can send the request with the following message body to check connectivity with the remote search engine (producer):

```
<http://ip_producer:port/services/user/testListener.xml

<listener>
    <ip>ip_listener</ip>
    <port>80</port>
    <all>T</all>
    <whyFired>DEACTIVATION</whyFired>
    ...
</listener>
```

The request contains the following information in XML format in the body of the message: information about the events produced:

```
<producer>
    <name>producer_name</name>
    <description>Description</description>
    <annotation>Anotation</annotation>
    <dateTime>25112010201034</dateTime>
    <http://ip_producer:port/services/user/listener.xml

<event>
    <ip>ip_listener</ip>
    <port>80</port>
    <all>T</all>
    <whyFired>DEACTIVATION</whyFired>
    ...
</event>
```

4.3.9.- Forcing of variables

This request is used to send the variable forcing order (or writing) to the system. The request should include the name of the device that wants to make the request. It is important to incorporate the authentication data when this is necessary.

```
<forceVariables>
    <forceVar>
        <forceName>name</forceName>
        <forceValue>value</forceValue>
    </forceVar>
    ...
</forceVariables>
```
### 5.- Technical specifications

#### Power circuit
- Single-phase (phase – neutral) A1 – A2:
  - Frequency: 47...63 Hz
  - Maximum consumption: 5...8 VA
  - Maximum switching intensity: -10...+ 60 ºC
  - Water content (non-condensing): Standard version
  - Input voltage: 85...264 Vac / 120...300 Vdc
  - Frequency: 47...63 Hz
  - Maximum consumption: 5...8 VA
  - Working temperature: -10...+ 60 ºC
  - Water content: 5 %

#### Output Features:
- Type: Relay
- Maximum switching power: 750 VA
- Maximum switching voltage: 250 Vac
- Maximum switching intensity: 5 A with resistive load
- Electrical life: 3 x 104 operations
- Mechanical working life: 2 x 107 operations

#### Mechanical features:
- Case material: UL94 - V0 self-extinguishing plastic
- Equipment protection degree: IP 20
- Dimensions: 105 x 70 x 90 mm (6 modules)
- Weight: 250 g
- Maximum operating height: 2,000 m
- Standard version

#### Inputs features:
- Type: Voltage-free opto-insulated (dry contact)
- Maximum activation current: 50 mA
- Insulation: 1500 V

#### Network interface:
- Type: Ethernet 10BaseT / 100BaseTX self-detectable
- Connectors: RJ45
- Network protocols: HTTP / Modbus/RTU in RS-485 bus

#### Serial interface:
- Type: Three-wire RS-485 (A/B/S)
- Transmission speed (configurable): 4800, 9600, 19,200, 34,800, 57,600, 115,200 bps
- Data bits: 8
- Parity: No parity, odd, even
- Stop bit: 1 / 2

#### LED symbols:
- Equipment power supply and CPU activity
- Communicating slave devices shutdown
- Green: Full duplex / Yellow: Half duplex / Activity
- Green: 100 Mbps / Yellow: 10 Mbps / Link

#### Inputs features:
- Type: Voltage-free opto-insulated (dry contact)
- Maximum activation current: 50 mA
- Insulation: 1500 V

#### Network interface:
- Type: Ethernet 10BaseT / 100BaseTX self-detectable
- Connectors: RJ45
- Network protocols: HTTP / Modbus/RTU in RS-485 bus

#### Serial interface:
- Type: Three-wire RS-485 (A/B/S)
- Transmission speed (configurable): 4800, 9600, 19,200, 34,800, 57,600, 115,200 bps
- Data bits: 8
- Parity: No parity, odd, even
- Stop bit: 1 / 2

#### Display:
- Type: 2 lines, alphanumeric
- Characters: 20
- Back lighting: Yes

#### Mechanical features:
- Case material: UL94 - V0 self-extinguishing plastic
- Equipment protection degree: IP 20
- Dimensions: 105 x 70 x 90 mm (6 modules)
- Weight: 250 g
- Maximum operating height: 2,000 m
- Standard version

#### Inputs features:
- Type: Voltage-free opto-insulated (dry contact)
- Maximum activation current: 50 mA
- Insulation: 1500 V

#### Network interface:
- Type: Ethernet 10BaseT / 100BaseTX self-detectable
- Connectors: RJ45
- Network protocols: HTTP / Modbus/RTU in RS-485 bus

#### Serial interface:
- Type: Three-wire RS-485 (A/B/S)
- Transmission speed (configurable): 4800, 9600, 19,200, 34,800, 57,600, 115,200 bps
- Data bits: 8
- Parity: No parity, odd, even
- Stop bit: 1 / 2

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### 6.- Connections

#### DETAILS OF THE POWER SUPPLY AND RS-485 COMMUNICATION (SLAVE EQUIPMENT)

#### DETAILS OF DIGITAL INPUT 4 ACTIVATION

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### 7.- Technical Service

If you have any doubts about the operation of the unit or suspect any malfunction, contact our service staff at CIRCUTOR, SA

**CIRCUTOR, SA** - Technical Assistance Service

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08232 – Viladecavalls (Barcelona), SPAIN

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