Analog Card Model FAM4400-01 User's Manual

Description – Installation – Technical Data

Hardware Revision: 1.0.0

Software Revision: 2.0.0

Manual Revision: 1.0.0

Technical specifications of the Analogcard

General	
Model	FAM4400-01
Dimensions	10 cm (length) × 5.6 cm (height) × 18.5 cm (depth)
Weight	0.2 Kg
Operating Temperature	-10°C to 45°C
Storage Temperature	-20°C to 60°C
Operating Humidity	0% to 60%
Warranty	2 years
Hardware	
Communication Type	Analogue
Number of Input Channels	4* input voltage, 4* input currents
Minimum Data Transmission Interval	1 second
Data Logging Intervals	1s/5s/10s/30s/1m/2m/5m/10m intervals (can be configured using DIP switches), Line Fault Detection, Easy Calibration
API Data Interchange Formats	CAN
Architecture	ARM 32-bit
CPU Speed	32 MHz

SAFETY PRECAUTIONS

(Before using this product, read the precautions)

Please carefully read this manual before using the product and pay full attention to the mentioned points to use the product correctly. In this guide, safety measures are classified into two levels: " ⚠ Warning" and " ⚠ Caution"

⚠ **Warning**	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ **Caution**	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage

Follow the safety measures at both levels as they are crucial for personal and system safety. Ensure that users read this manual and then keep it in a safe place for future reference.

(Installation precautions)

⚠ Warning

● If you install or remove the Analog card from the FIDAQUIRE data logger, be sure to disconnect the device's power supply. Failure to do so may result in electric shock or damage to the card and data logger.

● Before starting the FIDAQUIRE data logger, make sure to verify the quality of the incoming power voltage. Failure to do so may cause damage to the Analog card.

⚠ Caution

● If additional Analog cards need to be installed, fully insert the card into the card slot. After installation, check to ensure it is properly seated. Failure to do so may lead to poor contact and result in malfunction of the card.

● Use the Analog card in an environment that complies with the general specifications provided in this manual. Using the Analog card in any other operating

environment may result in electric shock, fire, malfunction, or damage, and degrade the quality of the module.

● Never directly touch the conductive parts or electronic components of the Analog card. Doing so may cause malfunction or failure of the data logger.

Note: Never insert or remove cards while the device is powered on.

(Wiring precautions)

⚠ Warning

● Before wiring, be sure to check the integrity and quality of all input and output cables. Failure to do so may result in damage to the product.

⚠ Caution

● The network cable or RJ45 connected to the Analog card of the FIDAQUIRE data logger must be properly installed. An incomplete connection may result in a short circuit, fire, or malfunction.

● When disconnecting the network cable or RJ45 from the Analog card of the FIDAQUIRE data logger, do not pull the cable forcefully. Pulling the cable connected to the card may cause device malfunction or damage to the Analog card or the cable.

Note: The manufacturer assumes no responsibility for the consequences of improper installation, incorrect equipment, or negligence during installation.

(Disposal precautions)

⚠ Caution

● Dispose of the Analog card as industrial waste.

● When discarding the card, separate it from other waste in accordance with local regulations and properly dispose of it at the local waste collection/recycling center.

1. Introduction

The analog data card model FAM4400-01 is one of the analog data acquisition cards with very high accuracy and an error rate of 0.1% FSO. It is compatible with the data logger FIDAQUIRE model FCD6455-01. This card can simultaneously receive four differential voltage lines from 0 -10 volts and four current lines from 4-20 mA. The Open-wire Detection feature on the card allows the user to receive the field side current and voltage without the need to set up and activate the inputs, and to view and record these values in the logger software.
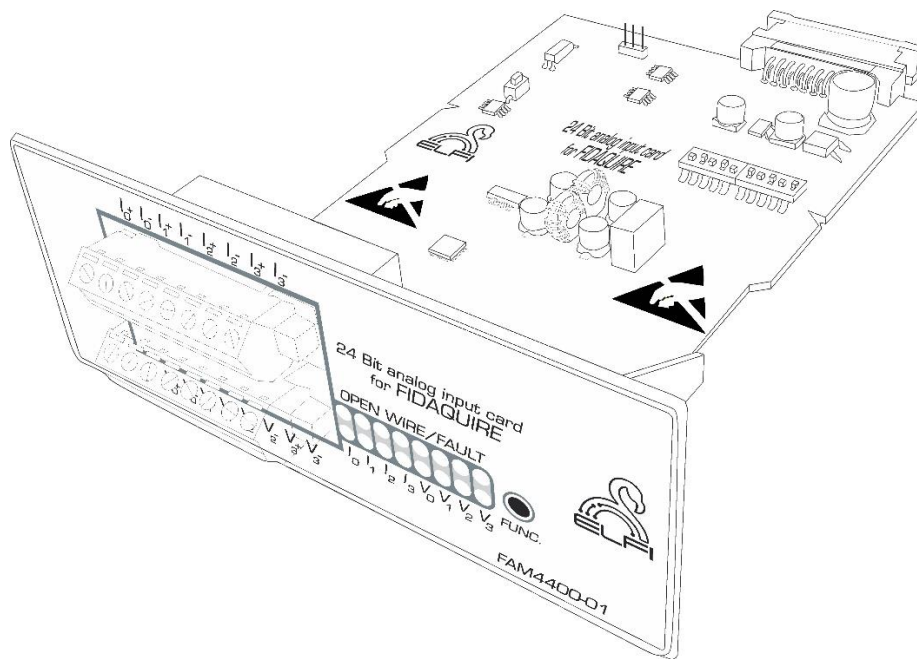
Figure 1: The analog data card

2. Settings

1.2 Data Transmission Settings

To change the data transmission settings, five dip switches are provided on the card (Figure 2). The three switches on the left determine the interval between data transmissions, covering intervals of one second, 5 seconds, 10 seconds, one minute, two minutes, five minutes, and ten minutes. Naturally, reducing the data transmission intervals increases the volume of data in the database and reduces the data duration. The two switches on the right are designed to adjust the accuracy of data readings from the input, changing the data resolution between 10, 16, and 24 bits. It is recommended to set the switch to 10 bits if high accuracy in data readings is not required.

Note: To make any changes to the card settings, make sure to completely turn off the device and disconnect its main power supply. Then, by unscrewing the panel screws, pull out the card, and after making the necessary changes, insert the card back into the device. After ensuring the card is properly connected to the device, you can turn on the data logger.

2.2. Calibration

To calibrate the input signals:

- o Press the `func` button for three seconds.

- o When the green light (bottom row in Figure 3) of the first channel turns on, connect the minimum voltage or current (depending on the type of channel) to the input terminal.

- o By briefly pressing the func button, the lower range of the channel will be calibrated, and the yellow light (top row in Figure 3) of the current channel will turn on.
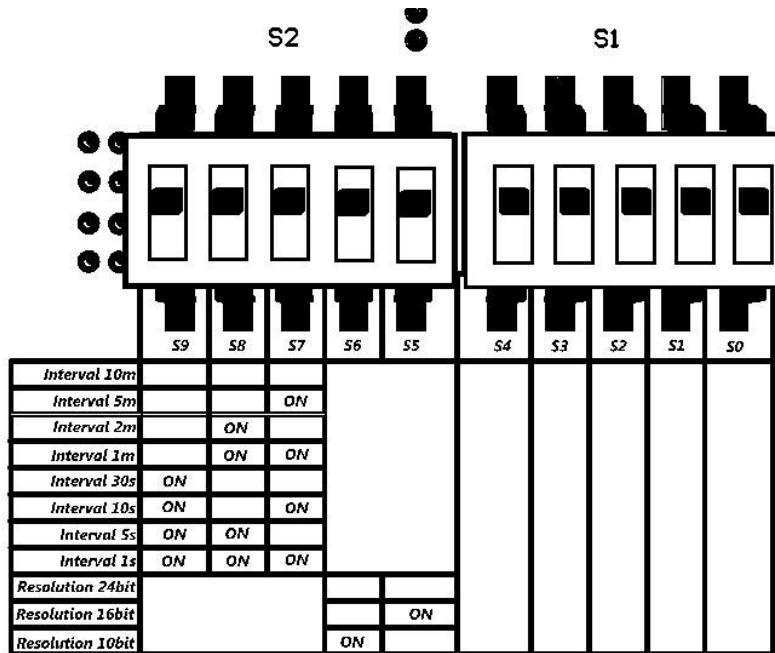
Figure 2: Image related to card settings

	S9	S8	S7	S6	S5	S4	S3	S2	S1	S0
Interval 10m										
Interval 5m			ON							
Interval 2m		ON								
Interval 1m		ON	ON							
Interval 30s	ON									
Interval 10s	ON		ON							
Interval 5s	ON	ON								
Interval 1s	ON	ON	ON							
Resolution 24bit										
Resolution 16bit					ON					
Resolution 10bit				ON						

o Connect the maximum current or voltage value (depending on the type of channel) to the input terminal.

o By briefly pressing the `func` button, the maximum value of the current channel will be recorded.

o Repeat this process for all channels.

o If you do not wish to calibrate one of the channels, press the `func` button for three seconds to move the calibration process to the next channel.
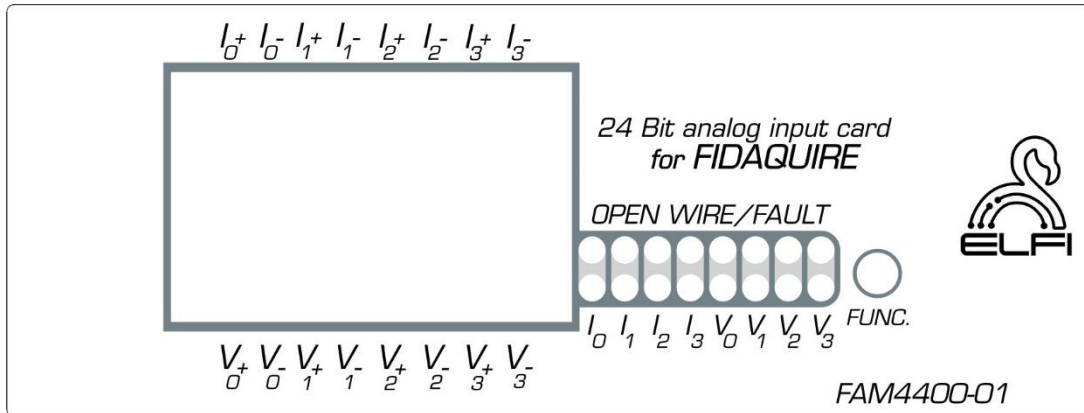
Figure 3: Image related to the card surface

3.2. Connections

The power supply and input circuit of the analog data card model FAM4400-01 are designed to be completely isolated. Additionally, a connection point to the chassis is provided on the ground of the isolated section of this card (by default, this connection is open) so that it can be connected to the chassis if needed, depending on the schematic of the existing equipment. The default input connection modes to the circuit are as follows:

- o If the data logger inputs come from an isolated source, they can be directly connected to the data logger.

- o If the inputs come from several different sources to the data logger, it is necessary to use a voltage or current isolator to create a floating ground at the source and a reference ground at the destination.

- o Connecting non-isolated inputs to the data logger is not recommended at all. However, if connected, it is preferable that all inputs come from a single source.

3- Installing the Analog card on the FIDAQUIRE data logger

The process of identifying and initializing the card is fully automated, and after the data logger device is installed and set up, the card will appear on the "Cards list" page. For initial configuration, refer to the FCD6455-01 product manual. After initializing the card, the input channel information (input sensors) will also be displayed on the same page (Figure 4). Channels labeled "Error" indicate a data transmission error, and "Offline" mrans the connection between the device and the Node is lost.
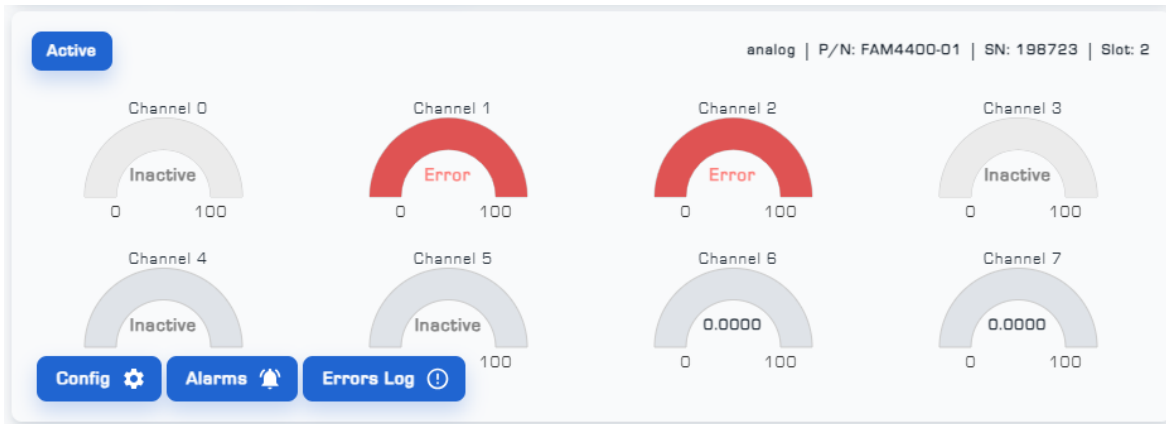
Figure 4: View of the Analog Card Display Page in the Device's User Interface

Attention: If you remove the card from the device, the card will go offline. When the card is reconnected to the datalogger, the Nodes will also reconnect and start transmitting data. However, if you delete the card from the datalogger, all data stored by the Nodes will be erased, and you will need to re-identify and reconnect the Nodes from the beginning.
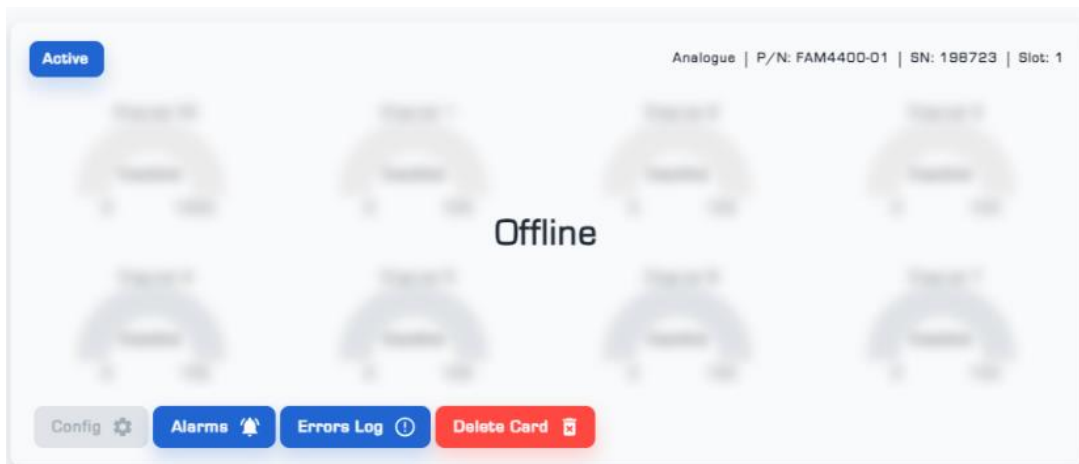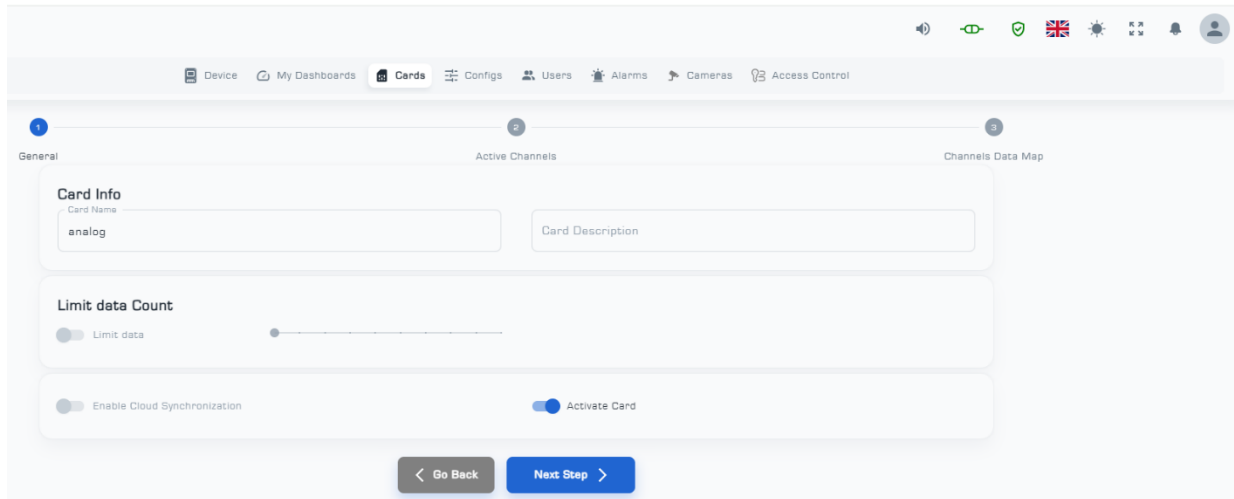
Figure 5: Image showing the removal of the card from the datalogger.

4. Card and Channel Settings

● To configure the analog card, follow the steps below:

(1) Select the "Config" menu to open the "General" page from the settings menu (Figure 6).

(2) Fill in the fields for "Card Name" and "Card Description[1]".

Figure 6: General Page from the Config Menu

(3) Select "Next Step" to proceed to the "Active Channels" page. On this page, voltage and current inputs are displayed separately, and you can enable or disable channels as needed (Figure 7).

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[1] Filling out this field is optional.
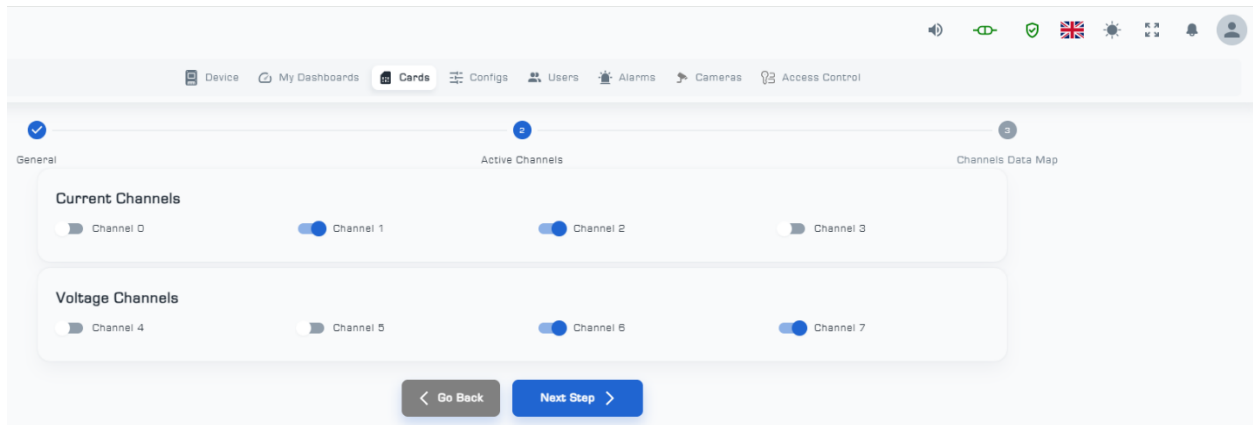
Figure 7: Active Channels Page from the Config Menu

(4) By selecting the "Next Step" option, you will enter the "Channels Data Map" page, where you can configure the settings for each channel (Figure 8).
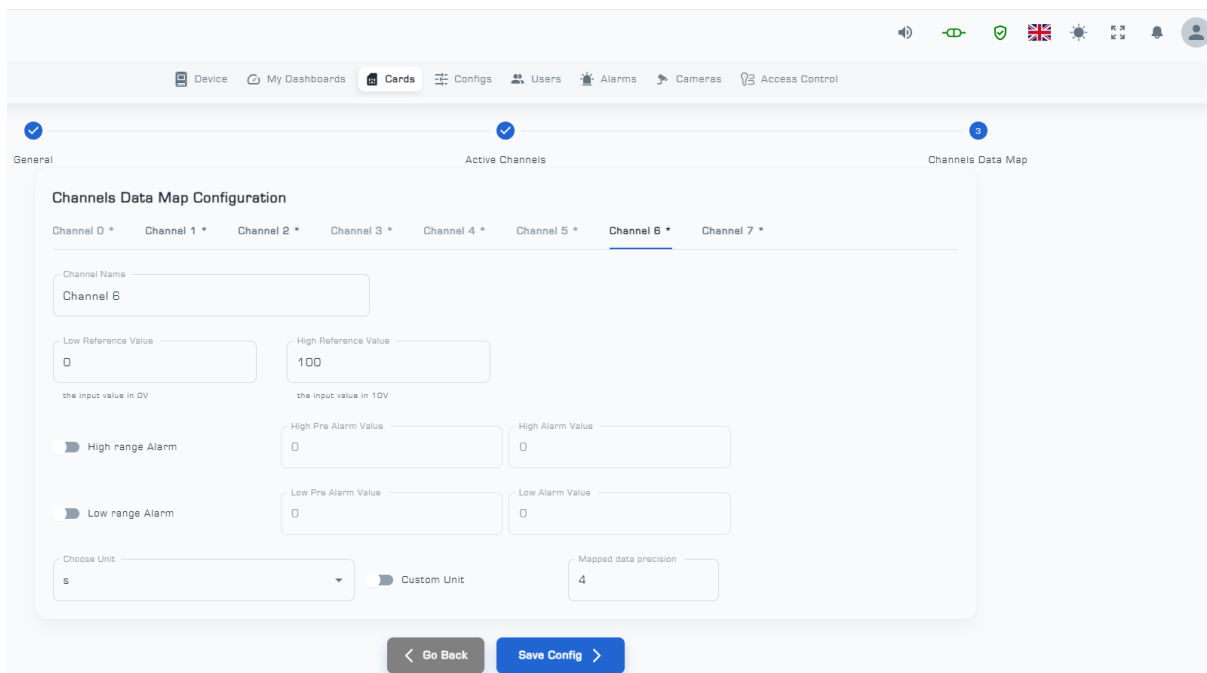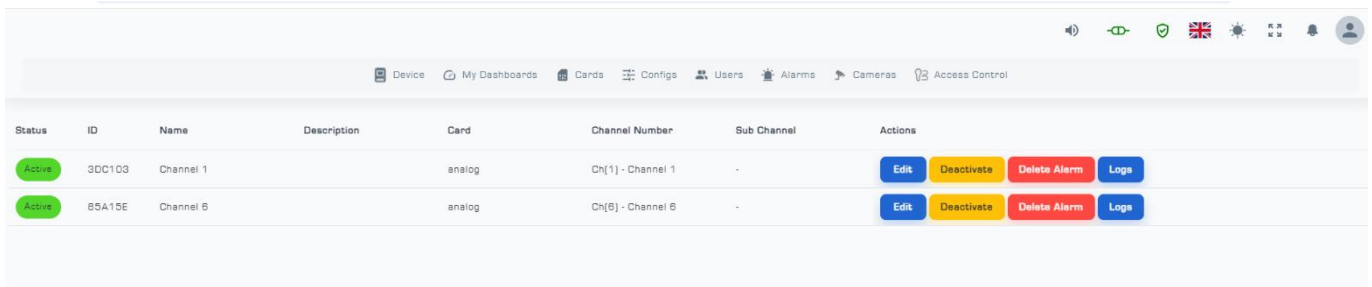
Figure 8: Channels Data Map Page from the Config Menu

(5) Select "Save Config" to save the applied settings (Figure 8).

Note: To deactivate the card, you can do so on the "General" page from the Config menu.

● The "Alarms" menu displays a list of defined alarms for each channel. It allows you to edit alarms, enable or disable them, and delete alarm alerts. Additionally, the "Logs" menu provides a detailed list of alarm information and the time of occurrence (Figure 9).
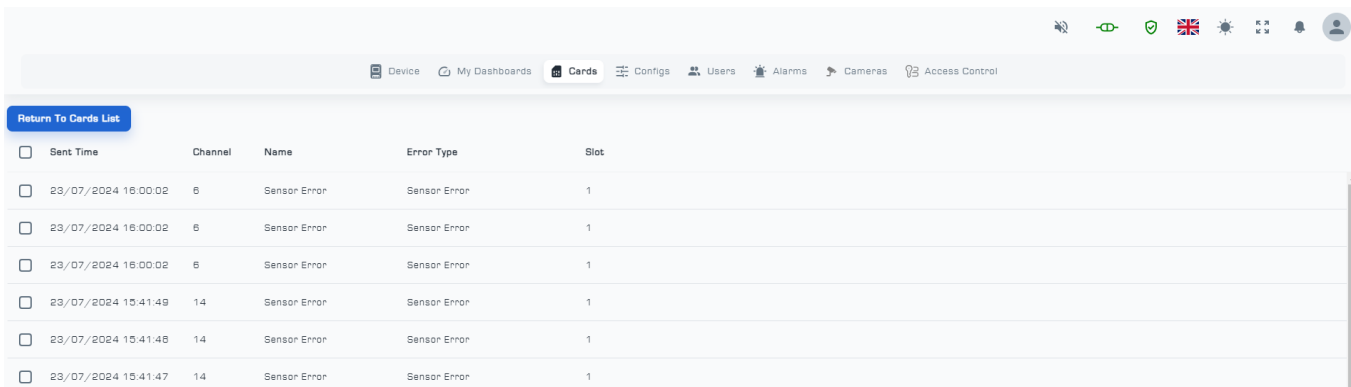
Figure 9: Page for Viewing Defined Alarms for the Card

● The "Errors Log" menu displays a list of channels that have encountered data transmission errors (Figure 10).

Figure 10: Errors Log Page for the Analog Card

Note: The images provided in this manual of the channel settings menu are examples from a sample channel.

Contact information

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