MicroARM-A13

Programmable Logic Controller

Manual User

Date	Version	Modification
21/09/18	1	Initial Version
29/08/18	2	Formatting according to the Charter

MicroARM-A13

Programmable Logic Controller

MicroARM-A13

Programmable Logic Controller

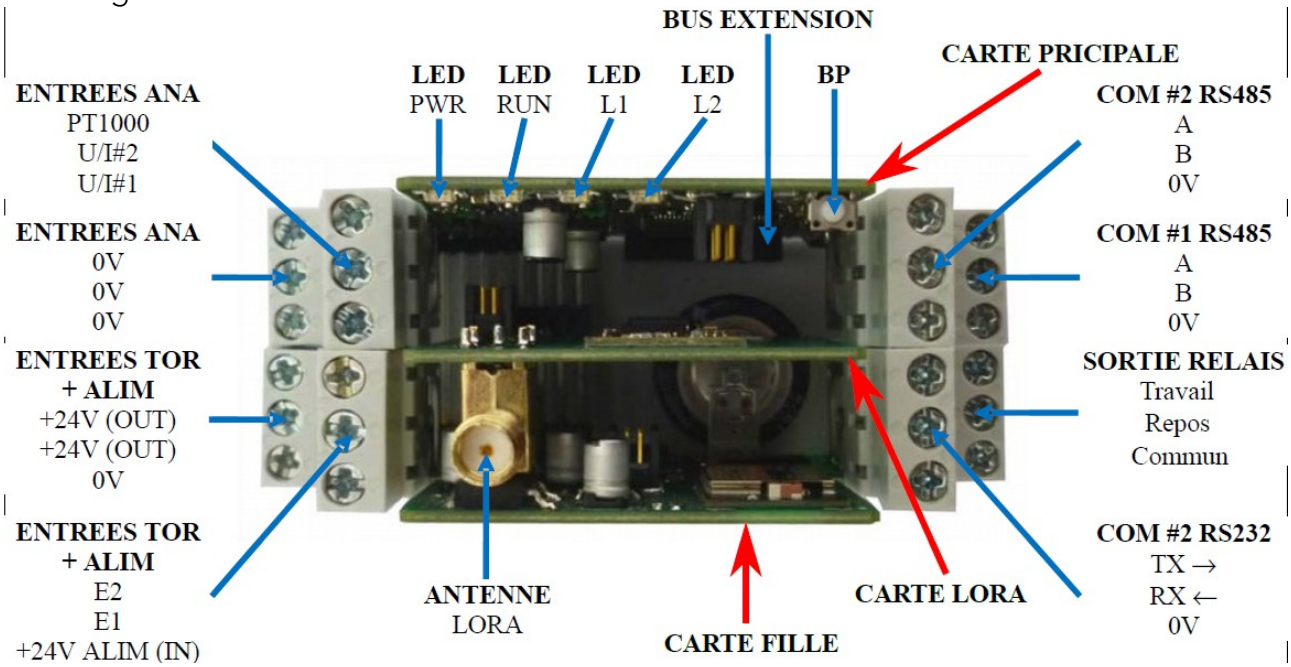
1. Introduction

This manual describes the specific features of the MicroARM-A13 (SAV1312 card).
For information common to programming, see the "MicroLADDER manual".

2. Characteristics

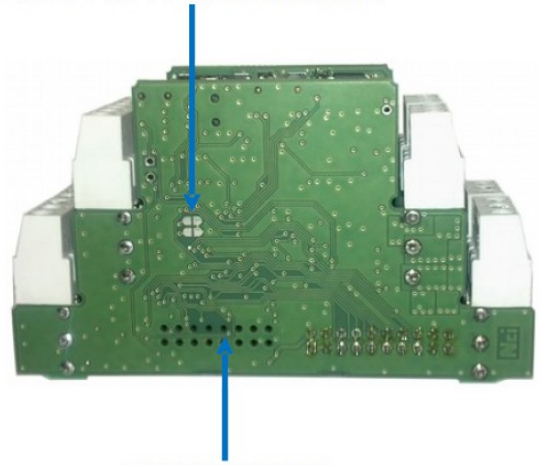
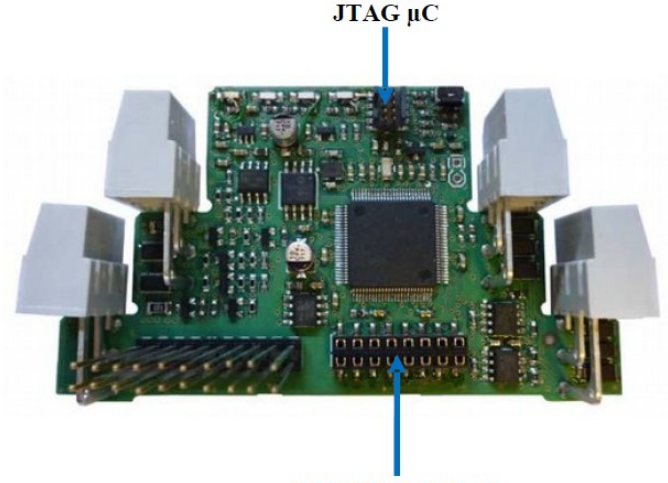
2.1 Board presentation

Supply voltage: 10 to 28 VDC. The case consists of 2 cards connected by a 24-pin internal bus. These two cards are inseparable.
A third card can be interblocked between the two main cards. This card is used to add the LoRa/Sigfox function. It is also connected to the internal bus.



MicroARM-A13

Programmable Logic Controller

Carte principale – Vue extérieure	Carte principale – Vue intérieure
ENTREE DE CONFIGURATION  BUS EXTENSION /PROG +3V3 D0 D2 D4 D6 0V +24V /RESET 0V D1 D3 D5 D7 0V +5V	JTAG µC  BUS EXTENSION +24V 0V D6 D4 D2 D0 +3V3 /PROG +5V 0V D7 D5 D3 D1 0V /RESET

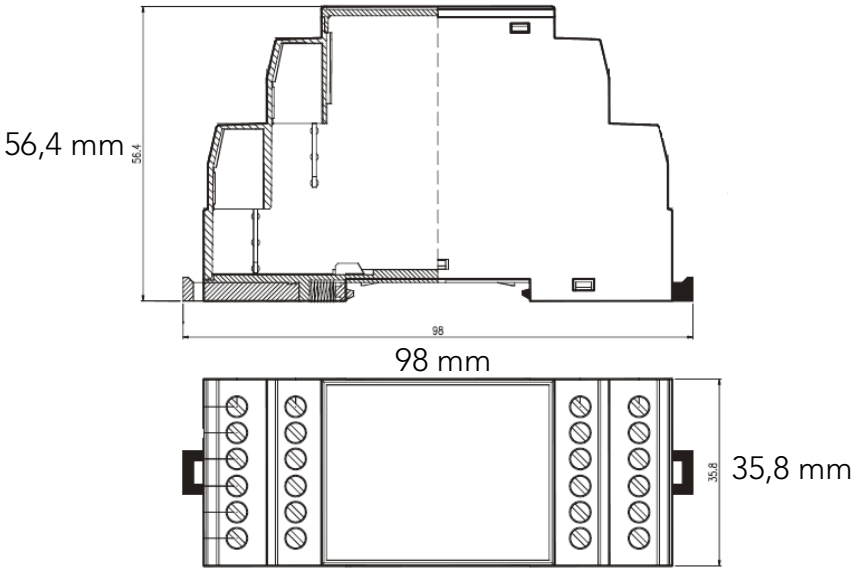
➔ LPC1768FBD Cortex Processor
➔ 512Ko Flash (to save the monitor and the application)
➔ 32 ko of TBC internal RAM (32+16+16)
➔ TBC of external Flash on the SPI bus used by the system and the application
➔ 128 ko of external SRAM on SPI bus (free.. TBC, waitinf for development)
➔ Power saved by super capacity of about one week of duration.
➔ 1 internal to the processor RTC (Real Time clock) with backup battery power saved by super capacity of about one week of duration
➔1 RS232 TTL port (COM0) for loading or free of use
➔1 RS485 port (COM1) for loading or free of use
➔1 RS232 or RS485 port (configuration by sofware) (COM2) for loading or free of use
➔1 LoRa/Sigfox communication module on COM3
➔1 Bluetooth communication module
➔1 internal temperature captor
➔ 1 push-button (inter 3) at the front taken on jumper JP2
➔ 2 bicolor LED
➔ 2 configuration jumper (J3 and J4) free for the application (Coffee bean on the main card)
➔ 2 digital inputs 24 V
➔ 1 digital outputs with relay RT 10 A-250 V
➔ 1PT1000 analog input
➔ 2 analog input 0-10 V or 0-20 mA – 12 bits – configurable by software

Sirea, 1 rue Jean Perrin
ZI de Mélou - 81100 Castres
Phone : +33 (0)5 63 72 93 92
www.sireagroup.com
contact@sirea.fr
Follow us on

2.2 LED meanings

Lexan's landmark	Electronic diagram Marker	Designation
PWR	L2	Voltage Presence 3.3 V
RUN	L1	Operating state of the PLC
L1	L3	LED 1 bicolor free for the application
L2	L4	LED2 bicolor free for the application

2.3 Mechanical dimension

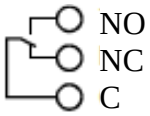


3. Connections

3.1 Digital

3.1.1 Digital input

% I100 to% I103 are digital inputs. The input must be connected to + 24 to mount the input to 1.
% I102 to% I103: Configuration inputs (coffee bean to be soldered to the side of the main board).



3.1.2 Digital output

% Q100 : RT relay outputs.

3.2 Analog input

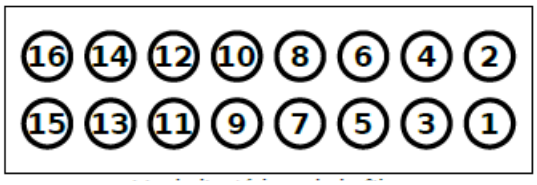
% IW100: external temperature by connecting a PT1000 sensor. Value expressed in tenth of a degree (TBC).
% IW101: internal temperature. Value expressed in tenth of a degree (TBC).
% IW102 to% IW103: analog inputs 0 – 10 V or 0 – 20 mA, configurable by software.

3.3 Serial port

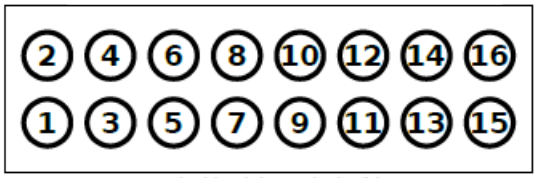
The COM0 port is present on the extension bus. It is in RS232 TTL.
The COM1 port is present on the terminal block. It is in RS485.
The COM2 port is present on the terminal block. It is in RS232 or RS485 (software configuration).
The COM3 port is internal. It allows you to communicate with the LoRa/Sigfox or Bluetooth modules (the 2 modules are exclusive).

3.4 Extension bus

The extension bus is located on the side of the box, on the outside of the main board. It connects extension modules.



View from the outside of the box



View from the inside of the box

1: + 5 V
2: + 24 V
3:0 V
4:0 V
5: D7
6: D6
7: D5
8: D4
9: D3
10: D2
11: D1 = COM 0 TX
12: D0 = COM 0 RX
13:0 V
14:3.3 V
15:/RESET
16:/PROG

3.5 Human Machine Interface (HMI)

% I0: Push button
% Q0: Green of the LED 1
% Q1: Red of the LED 1

% Q2: Green of the LED 2
% Q3: Red of the LED 2
The two colors of the same LED can be controlled at the same time. The color obtained is a mix of the two colors.

4. Flash memory

This memory is used in part by the system (calibration of analog inputs, system variables,...) and the application.
The saved variables are stored in this flash memory. It is necessary to use the bit% S18 (SAV_VARS) to cause memorization.
TBC: Finish This chapter when things are done.
TBC: See for historical variables.

5. Safety and warnings

If the device is not used as per these instructions, the safety of people and equipment can be compromised. We disclaim any liability for any material damage or due to improper handling or failure to comply with the safety instructions.
The interventions on the devices must be made by staff who are competent to work on electric installations.
Before all interventions, all power supplies must be switched off. The cutting devices of the installation must be dimensioned and placed according to the standard UTE C 15-100.
For all interventions on a device installed on an electric installation, the Personal Protective Equipment (PPE) as defined by the safety regulations on the electric installations must be carried by the worker.
In the event of a failure or malfunction, the device must not be opened and must be returned to the factory.

Observe the following pictograms:

	Attention. On the product label this symbol means that the notice must be consulted. In this manual, this symbol indicates important information.
	Direct current.
	This device is CE approved and complies with the national and European guidelines.

6. Protection device

Quick fuse protections must be positioned on the 24 volt continuous start feeding the PLC. These fuses will be sized according to the number of devices set in series behind the start.

7. Elimination

Old electronic devices are recyclables goods that should not be thrown into the trash can. If the device reaches the end of its life, it should be eliminated in accordance with the legal regulations in force to the recovery centres in your municipality. Elimination in the household trashes is prohibited.

8. Cleaning

For cleaning, use a clean, dry, antistatic, lint-free cloth without corrosive products.

9. Technical features

Power supply	12 to 28 V ⎓
Maximum operating Altitude	2000 m
Maximum operating Temperature	45 °celsius
Maximum Operating Humidity	70 %

Sirea, 1 rue Jean Perrin
ZI de Mélou - 81100 Castres

Phone : +33 (0)5 63 72 93 92

www.sireagroup.com
contact@sirea.fr

Follow us on