



ARES PLC



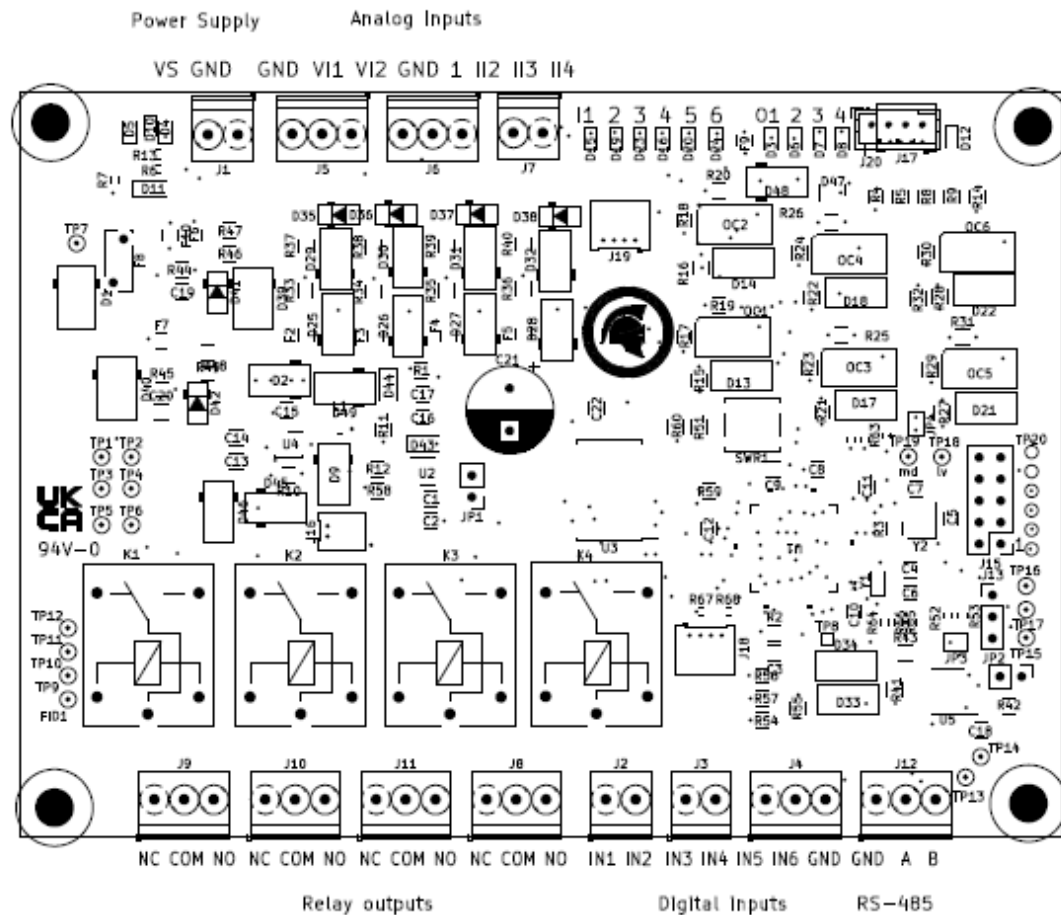
Hardware Manual



ARES PLC	
Microcontroller	R7FA4M1AB3CFM
Core Processor	ARM® Cortex®-M4
Control method	Statically stored (Flash memory).
I/O control method	Combination of the cyclic scan and immediate refresh processing methods.
Flash Memory	256KB of which 8KB are used by the bootloader
Program capacity (SRAM)	32-KB
Clock Speed	48 MHz
Communications	– USB – RS485 -- SPI
Power supply voltage	12 to 24Vdc
Operating voltage range	11.4 to 25.4Vdc
Absolute Max Range	8 to 30Vdc max.
Power consumption	180 mA max at 12Vdc, 90 mA at 24Vdc
Insulation resistance	100MΩ min.at 500Vdc between the AC terminals and the protective earth terminal.
Dielectric strength	1.000 VAC at 50/60 Hz for one minute with a leakage current of 10mA max. Between all Inputs (power and signal) and Outputs (Dry-type relay output terminals)
Shock resistance	80m/s ² in the X, Y and Z direction 2 times each.
Ambient temperature (operating)	-20° to 50°C
Ambient humidity (operating)	10% to 90% (no condensation)
Ambient environment (operating)	IP20 With no corrosive gas
Ambient temperature (storage)	-20° to 50°C
Weight	445g max.
Input Voltage	Resettable Fuses/ Polarity inversion protection
Size	145 x 90 x 40 mm
An/Dig Input 12bit	0 to 10V Input Impedance: 20.9 kΩ
Digital Isolated Input	Opto-coupled inputs, Low active (+5V pull-up included reading « 0 » not connected) « 1 » Logic: 0-2 Vdc (< 5 mA sinking) « 0 » Logic: 5-24 Vdc (< 1 mA sourcing)
Digital Isolated Output	28V Vdc I @1.5A Galvanic Isolation Diode protected for Relay
Mounting Type	Din Rail or Traditional mounting



Power/Inputs/ output's locations



VS = 12 to 24Vdc Positive input

GND = Ground 0V Negative input

VI1, VI2 = Analog Inputs (V) 0-10V Tol 3%

II1, II2, II3, II4 = Analog Inputs (I) 0-20mA Tol 2%

NC COM NO = Digital outputs Dry type relays 1 to 4 from left to right

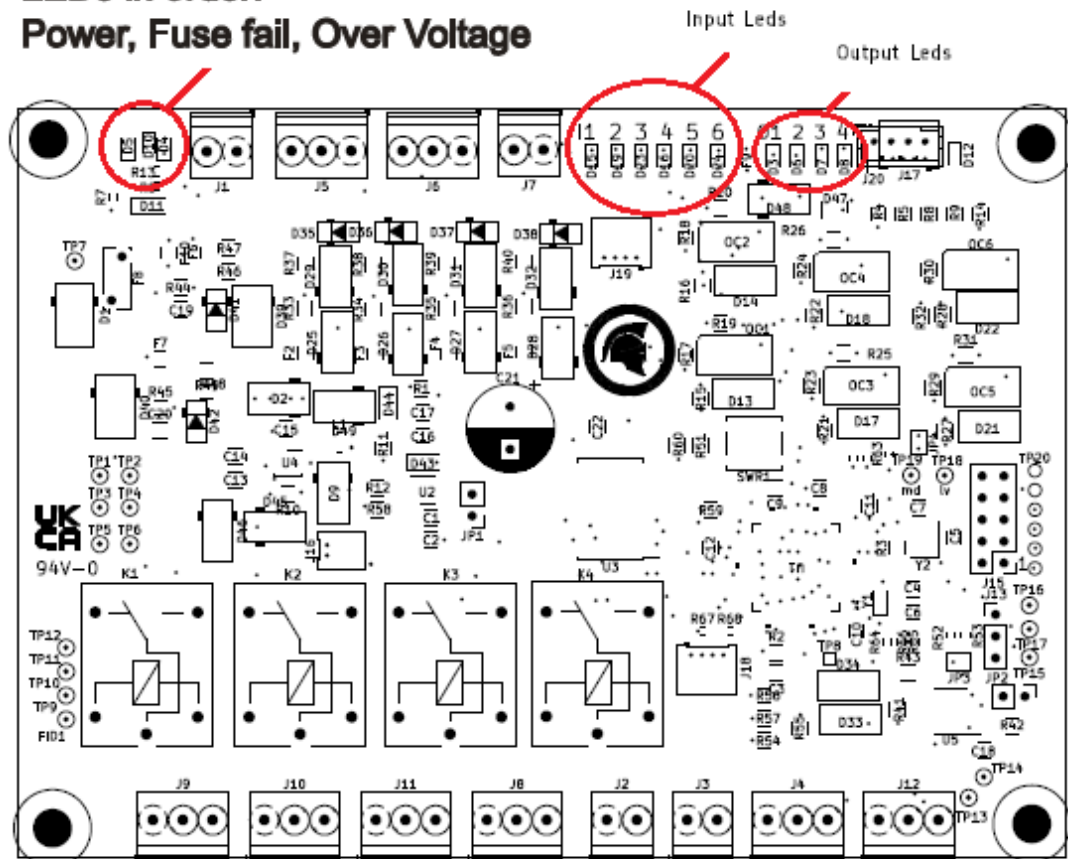
IN1, IN2, IN3, IN4, IN5 IN6 = Digital Isolated Input

RS485 GND A B = communication line



LED locations

LEDs in order: Power, Fuse fail, Over Voltage



Power = On mean the Device is Powered

Fuse fail = On mean the fuse has failed please restart the device.

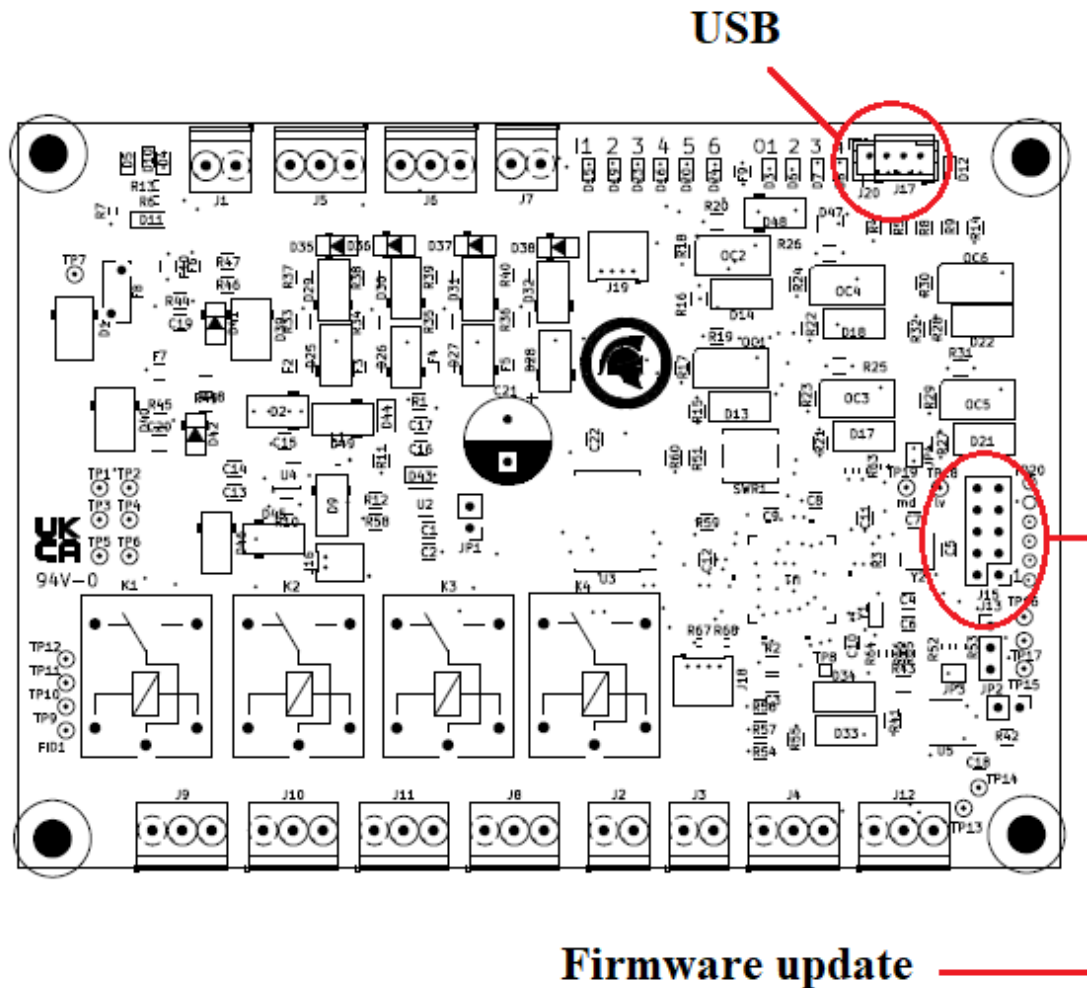
Over voltage = On mean please check any problem with the power supply.

I1,2,3,4,5,6 = on means the input is activated

O1,2,3,4 = on means the Relay is activated



Programming ports

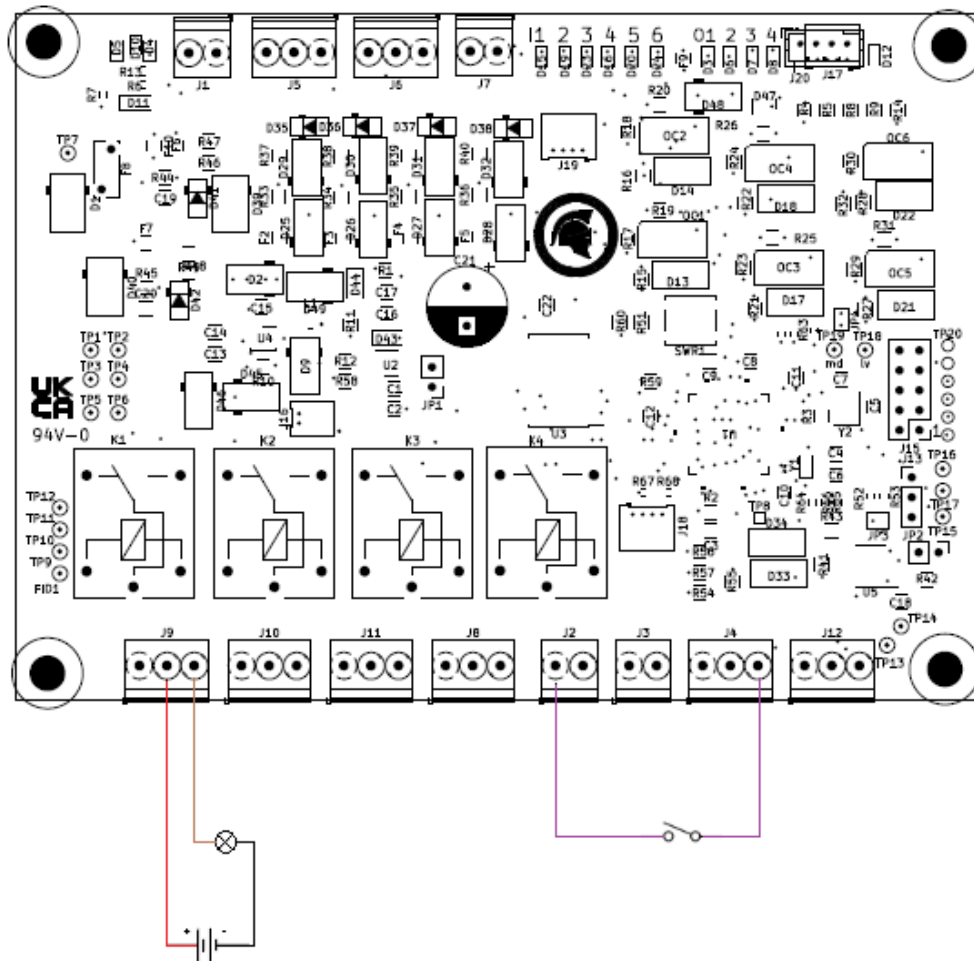


USB = used to download the required programming

Firmware update= this port is reserved to the manufacturer so can debug and update firmware.



Example: one switch controlling the light



In this example we are using a switch to control an external light by using the input IN1 and the output on the relay 1 this drawing is only for guide reference is intended to be basic. Only after the program uploaded on the PLC that circuit will work



ARES PLC

The Ares PLC is compatible with standard analog as well as digital commands or inputs.

The controller is equipped with dedicated inputs for each type of signal to handle a variety of sensors and commands.

Analog inputs

Analog inputs read a continuous range of values from devices like temperature, pressure, or level sensors. The ARES PLC supports common industry standards for these signals.

- 4 x 0-20mA inputs: Reads current-based signals, often used for long-distance transmission in noisy industrial environments.
- 2 x 0-10V inputs: Reads voltage-based signals, another common analog standard.

Digital inputs

Digital inputs receive binary signals (ON/OFF) from devices such as switches and push buttons. The ARES PLC provides multiple digital inputs for reading these signals.

- 6 x Optically isolated digital shielded inputs: These inputs are isolated to protect the sensitive internal circuitry from high-voltage spikes and electrical noise that can occur on the plant floor

Soon there will be two types of training available, one will be called as ARES PLC Hardware, and the second will call ARES PLC Software.

The ARES PLC Hardware training is intended to cover all types of connections and sensors

The ARES PLC Software training is intended to cover how to upload a program and testing.