

# ALPHA

## Simple Application Controllers

### ALPHA 2

the controller with XL capabilities



Get your **FREE** demo version of the AL-PCS/WIN programming software from [www.mitsubishi-automation.com](http://www.mitsubishi-automation.com)

**MORE FLEXIBILITY** 

Up to 8 DC inputs can be configured to be digital or analog providing users with greater flexibility with no additional modules

**IMPROVED COMMUNICATION** 

Communication via GSM, SMS and email help you to remotely maintain your system

**INTELLIGENT DESIGN** 

Optional converters allow users to process Pt100 and K-type thermocouple data when required

# Small, easy to use and full of functionality



Alpha controllers can automate many tasks, for example greenhouse watering, heating and vent control

The Alpha simple application controller is a new class of automation. It replaces low-performance components, such as stand-alone relays and timers, with a single easy to use unit.

## Everything in one

The Alpha 2's design delivers everything a user needs in an easy, user friendly package, for example: power supply, real time calendar-clock, analog and digital signal processing as well as an HMI interface, communication options and AS-interface networking. In fact you can even program the unit directly from the front screen.

### ■ Flexible Input assignment

Up to eight inputs can be selected to have analog or digital input characteristics. This flexibility allows the Alpha 2 to be adapted to many applications mixing push button and proximity inputs with those from level meters and temperature devices.

### ■ Integrated HMI

Each Alpha controller comes with a clear backlit display which can be used for programming, monitoring and as a traditional text based HMI.

### ■ Direct programming

In addition to a user-friendly PC based programming software, users can also program the controllers directly without the need for any additional equipment. So you can still maintain and make changes to the Alpha's program even if you do not have your PC with you.



The clear, back lit, display is easy to read

## Flexible programming

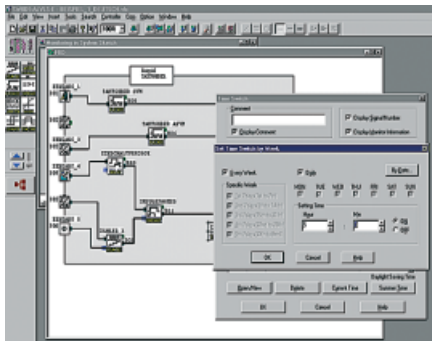
The entire Alpha 2 instruction set was designed specifically with the needs of the automation sector in mind. The programming is based on linking together function blocks to create an automation task. Up to 200 function blocks can be used in a single program with each repeated or used as many times as required.

Function blocks are available for:

- Simple or complex Boolean expressions
- Set/reset functions
- Timers
- Message output to screen
- Analogue configuration (offset/gain); PID
- Arithmetic functions

## Advanced software

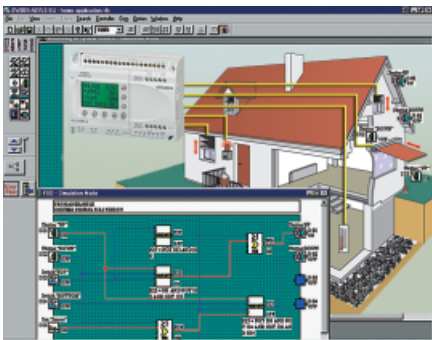
All Alpha controllers can be programmed with the powerful Windows based AL-PCS/WIN package. The program is very easy to use and requires no special skills on the user's part. In fact the programming task is reduced to "drawing" the graphical connection between the function blocks the user wishes to connect.



Programming is as simple as drawing a line

In addition, within the same package, the users program can be simulated in a run mode to ensure that the finished program functions as required.

Programs can also be monitored using a separate visualisation window called "system sketch".



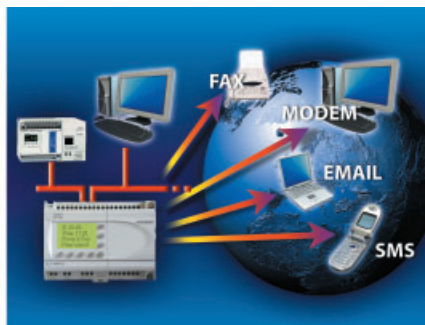
Simulation and using the System Sketch greatly help users get their programs working correctly

## Wide range of options

Standard Alpha controllers have a range of optional I/O expansions, analogue output cards as well as temperature converter modules to help users tailor their controller to their specific needs.

## Flexible communication

One important area for customisation is communication. The Alpha 2 can be connected to an AS-interface network as a slave station providing remote but intelligent control.



The Alpha controllers have multiple communication options

For applications that are inaccessible there is a 2nd interface to a GSM modem. This allows the Alpha 2 to be accessed and programmed remotely even if it is hundreds of kms away making maintenance simpler, easier and cost effective. In addition, the Alpha 2 can also use the same GSM solution to send email and SMS messages to predefined destinations. This provides an ideal way to report back live status information such as number of cycle processed or error status.

## Advanced design

The Alpha 2 has many ground breaking features that offer greater flexibility but with an ease and simplicity of use, for example:

### ■ Program security

Programs can be password protected to prevent unauthorised changes. This also helps to protect the intellectual property rights of the user who created the program, as the program cannot be copied when it is protected.

### ■ Fully featured calendar-clock

The Alpha controllers have an advanced calendar-clock feature allowing up to 1200 events to be programmed days, months and years in advance. This powerful control can be easily used for heating, security and lighting control allowing them to be customised to factory or school holidays as an example.



Closed schools and cold weather are no problems for Alpha controllers

Furthermore, the Alpha 2 also has automatic summer time/winter time compensation and has DCF77 radio clock synchronisation making the calendar-clock very easy to manage.

### ■ Safely in memory

Programs are permanently stored in the Alpha's EEPROM memory. Active data, such as date and time or current count values are backed up for 20 days after power down. This provides users with backup even in the event of an unplanned power loss.

### ■ Wide operational temperature

The units are designed to operate in a temperature range from -25 °C to +55 °C making the Alpha controllers ideal for applications both inside and outside.

# Specifications ///

Base units	AL2-10MR-D	AL2-10MR-A	AL2-14MR-D	AL2-14MR-A	AL2-24MR-D	AL2-24MR-A
I/Os	10		14, expandable to 18		24, expandable to 28	
Power supply	24 V DC	100 – 240 V AC	24 V DC	100 – 240 V AC	24 V DC	100 – 240 V AC
Digital inputs	6		8		15	
Digital inputs with analog capability (0–10V, 9bit)	6	Not applicable	8	Not applicable	8	Not applicable
Relay outputs	4		6		9	
Constant outputs	8 A		8 A		8 A (4x)/2 A (5x)	
Function blocks	Max. 200		Max. 200		Max. 200	
Dimensions (W x H x D) in mm	71.2 x 90 x 52		124.6 x 90 x 52		124.6 x 90 x 52	
Expansion modules for ALPHA 2						
AL2-4EX*	4 dig. inputs (24 V DC) with 2 selectable high-speed counters (1 kHz)					
AL2-4EX-A2*	4 dig. inputs (240 V AC)					
AL2-4EYT*	4 transistor outputs (1A)					
AL2-4EYR*	4 relay outputs (2 A)					
AL2-2DA*	2 analog outputs (0 – 10 V / 4 – 20 mA)					
AL2-2PT-ADP	2 Pt100 temperature converters					
AL2-2TC-ADP	2 K-type thermocouple converters					
Accessories for ALPHA 2						
AL-PCS/WIN-EU	Software CD for Windows, in 7 languages (D/GB/F/I/E/S/RUS), manuals, sample programs					
AL-PCS/WIN-EU-Demo	Demo software CD for Windows (without communication functions), in 7 languages (D/GB/F/I/E/S/RUS), manuals, sample programs					
AL-232CAB	Cable for connecting ALPHA 2 to PC, 2.5 m					
AL2-GSM-CAB	RS-232C for second communications port					
AL2-EEPROM-2	Memory cassette for 200 FBs					
AL2-ASI-BD*	Communications module for field bus, AS-interface, slave					
AL-FRAME 10-IP40	IP40 installation frame					
AL-FRAME 20-IP40	IP40 installation frame					
AL-FRAME 10-IP54	IP54 installation frame with transparent lid					
AL-FRAME 20-IP54	IP54 installation frame with transparent lid					
ALPHA POWER	100–240 V AC / 24 V DC power supply; 0.75 A, 1.5 A, 1.75 A, 2.5 A output					

\* Note: Not applicable to AL2-10MR units

Reference: ALPHA 2 products are sometimes referred to as Alpha XL

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