Flex

MODULAR CUSTOM CONTROLLERS

Project Engineering
CONTROLLI & SISTEMI

Flex

FLEX is the new Project Engineering custom modular controller line with personalized SW.
FLEX controller are built in compact standardized DIN rail enclosure. They are composed by a CPU module and by a variable number of Digital and Analog I/O modules, that might be also installed in remote control panels, with only a serial communication line connection. This architecture allows to easily adapt the I/O number to the application requirements in a flexible way, minimizing the cabling in the unit.
When needed, Project Engineering is available to customize application specific I/Os modules, to optimize cost efficiency of final solution.

The FLEX controllers family gives more flexibility than an integrated controller, with still the advantages of competitive cost and customization possibility.

FLEX family main features are:

- modular architecture in standard compact plastic enclosure;
- DIN rail mounting with integrated power and data bus connections;
- LED indicator (power, controller status, alarms, etc.);
- possibility to distribute the I/Os in remote electrical panels;
- modules communication through CAN bus, faster and rougher than other classical industrial interfaces (e.g. RS485);
- SD card for controller SW upgrade;
- DIP switches addressing.

CPU module

The CPU module is the heart of the system and it has the following features and functions:

- a second CAN port, available for example for the connection with CANopen protocol to the latest contactors and components;
- 4 RS485 serial lines for connection to external devices (like microprocessor controlled fans, sensors, electronic expansion valve drivers, etc .) and supervision systems; one of the serial lines is optoisolated for EMI critical devices connections (e.g. inverters);
- Ethernet port for supervision systems connection and / or advanced fieldbus interface;
- possibility to use either economic monochrome graphic display user interfaces, or advanced 7” or 10” touch LCD (Opera line);
- USB port available, along with the SD card, as memory transfer for trends or alarm log;
- Real Time Clock with backup battery;
- conformal coating for enhanced environmental protection;
- full REACH compatibility (Project Engineering web based monitoring system, for real time connection and off line data analysis);
- latest generation microprocessor technology.

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Flex - C1

CPU and COMMUNICATION module

POWER	5Vdc (400 mA max) 24Vdc (for user interface)
COMMUNICATIONS	
4-RS485	COM0..COM3 (COM 3 is optocoupled)
2-CAN	CAN0, CAN1 (CAN0 field bus)
USB	max load 100mA
Ethernet	10/100 Mbit/s

Flex - D1

Digital Module 10-inputs, 9-outputs

POWER	5Vdc (50 mA max) 24Vdc (90 mA max)
INPUTS	
10-ch	20÷130 VacDI1..DI10 (with common terminal)
OUTPUTS	
3-relays NO	5A, 230VacK1..K3 (with common terminal)
5-relays NO	5A, 230VacK4..K8
1-relay NO/NC	5A, 230Vac (NO)K9 3A, 230Vac (NC)

Flex - A1

Analog Module 10-inputs, 2-outputs

POWER	5Vdc (50 mA max) 24Vdc (200 mA max)	
INPUTS		
5-ch[1]	4÷20mA	P1..P5
5-ch[2]	PTC/PT1000	T1..T5
1-ch	current 0÷5Aac	CURR
1-ch[3]	0÷10Vdc	S1
OUTPUTS		
2-ch[4]	0÷10Vdc	AO1..AO2

[1] 24 Vdc supplied by module
[2] may be used as digital input with free contact
[3] common reference with T5
[4] load > 1 kΩ

Flex - P1

Power Supply module

POWER INPUT	24Vac ±10% 50/60 Hz
POWER OUTPUT	5Vdc - 2 A 24Vdc - 2,5 A

Output voltages are fully isolated from input voltages

Flex - E1

EEV driver

POWER SUPPLY:	24 V AC ±15% (50/60Hz) and P2 battery backup module as option	
STEP MOTOR OUTPUT		
2-ch	for bipolar step motor control per 800 mA max EEV1, EEV2	
ANALOG INPUTS		
2-ch[1]	4÷20mA	P1, P2
2-ch	0...10Vdc	S1, S2
2-ch	PTC/PT1000	T1, T2
DIGITAL INPUTS		
2-ch	Free Contacts	D1, D2

[1] 24 Vdc supplied by module

Note: technical data subject to change, please refer to the latest specification version.

APPLICATION SOFTWARE

While the FLEX hardware architecture allows to distribute I/O modules giving maximum hardware flexibility, with the same goal FLEX software is designed to easily configure and reroute all I/Os channels and their logic functions.
Moreover, Project Engineering is available to its customers for the application software implementation, providing the best Software design solutions, leveraging on its long-term experience in order to provide application's optimal maintainability and future expandability.
Project Engineering added value relies on becoming the "electronics department" of its customers, being the first actor in the implementation of the machine application software.
To do this, Project Engineering provides its own team of engineers with specific expertise on applications, that creates a work-group with the technical department of our customer for a side-by-side team work on the customer's machine development.

This collaboration creates a strong partnership that is the most efficient solution to optimize the time to market and the success of our customers' product .

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