DTO TA 5300

Integrated Control Station

THEORY OF OPERATION AND CONSTRUCTION

The assembly contains two separate microprocessor systems (one called "PROCESS SYSTEMS" and the other called "FRONT PANEL SYSTEMS"), an Input/Output module system, a front panel and rear panel.

The front panel contains displays and controls that are familiar to an operator. An LED digital display shows the value in engineering units of any specified function with the process systems. The other controls and adjustments are simple toggle switches and push buttons that do not require any complicated programming effort or knowledge of access codes. Process status information is displayed either by indicator lights on a menu or a color graphic.

The rear panel contains polarized connectors for connecting to the I/O Terminal Panels. Use of these external panels provides simplified installation and maintenance. A computer generated wiring table is provided for wiring these panels.

The ICS assembly is designed to accept and transmit from one to eight analog signals, one to 32 input relay contacts, and one to 32 output relay-coil drives. The analog section is used for A/D, D/A, electronic scanning, special analog functions, buffers and transient protection. This section is always an AGM factory designed circuit and does not require any user adjustments.

Each system uses two each CMOS 8-bit, MC146805, microprocessors within a computer architecture so that a single assembly can cascade several computer systems. The UVPROM associated with the microprocessor is mounted in a zero-force socket. EEPROM technology is used for the non-volatile RAM. Conceptually, the ICS assembly has its own Distributive Computing and Local Area Network communication system.

Data handling and processing between the digital and analog modules, the Process System UVPROM and the Front Panel UVPROM is very effective. In many respects, ICS is a hybrid microcomputer system using the inherent advantages of analog and digital computers simultaneously. The module section contains the A/D and D/A converters, scanner, and other analog devices so that I/O can be efficiently handled by the multiple microprocessor system where each microprocessor has its own multitasking capability. Factory programming has been optimized for the intended application of the ICS. The programming has been developed so that a high level AGM language using object oriented programming techniques along with extensive AGM production software provides ample support to customized requirements. It should be noted the ICS users can do their own programming if they choose to do so. AGM will furnish the information required for programming the ICS.

The communication bus is very flexible. Provisions are made so that the assembly is furnished with RS232C.

Standard factory programming includes diagnostics to assure an operator that the assembly is functioning correctly. Upon power-up, the ICS automatically causes the front panel digital display to scroll "ICS UP". Error codes on the display alert the operator to a problem.

The external power supply furnished with the assembly operates from 117VAC 50 or 60 Hz. In the event of a power interruption, preferred data

is automatically stored in the non-volatile RAM. When power is restored, this data is restored to the operating system.

General Specifications

Analog Inputs – Up to 8, 1/5 VDC
Analog Outputs – Up to 8, 4/20 mADC
Digital Inputs – Up to 32 dry contacts
Digital Outputs – Up to 32 DPDT contacts rated @ 1 amp 120 VAC non-inductive
Displays – Up to 2
Indicator LEDs – Up to 32
Operator Switches Up to 16
Communications Port – RS232C, 9600 baud
Analog Accuracy – 12 bit
Operating Temperature Range, -20/80 deg C
Adjustments – Operator settable
Power - 12vdc +/- 10% regulation with a maximum of 12 watts.
Physical – 8.5 X 11 inches

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