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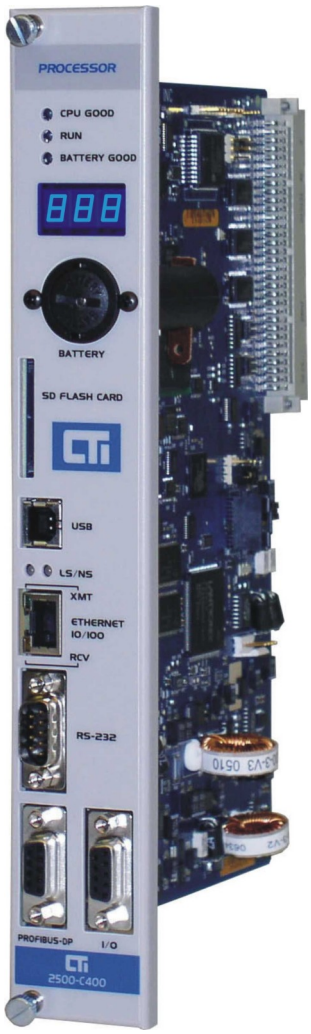
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2500 Series® PLC System
Product Bulletin

CTI 2500 Series®
Programmable Controllers

Classic



DESCRIPTION

The 2500 Series® Controllers bring exciting new features and a new level of process performance to Simatic® 505® Control Systems. The C100 and C200 models easily handle medium to large discrete control applications, as well as basic process applications. The C300 and C400 models are equipped to handle large process applications with many PID loops and alarms and special mathematical functions. The 2500 Series® Controllers are designed to seamlessly replace all Simatic® 545 and 555 controllers while providing much higher performance at lower cost. The controllers are supported by a complete range of digital, analog, and specialized I/O modules, power supplies, and I/O bases, all available from CTI.

FEATURES

- Replaces all Simatic® 545 and 555 models
- Built-in Ethernet and USB ports for programming
- Built-in SD Flash card for firmware update from flash
- Built-in Profibus and RS485 Remote I/O on C200, C300, and C400 models
- Up to 3Mbytes memory, 8192 I/O points, 512 PID loops & 512 alarms, depending on model
- Programmable using Workshop
- Integrity® Real Time Operating System for high-reliability and security

SPECIFICATIONS

Ports:
Ethernet, 100Mbit, RJ45
RS232C: DB9 male
Profibus: 12Mbit, DB9 female
Remote I/O: DB9 male
SD Flash card: up to 32G bytes (with Firmware V6.18 and higher)
Expansion port: future use

User Memory:
2500-C100: 128K
2500-C200: 256K
2500-C300: 512K
2500-C400: 3072K

Loops / Alarms:
2500-C100: 16 / 32
2500-C200: 64/ 128
2500-C300: 512 / 512
2500-C400: 512 / 512

Status Display: 3-Digit LED display for system status, error reporting and IP address
Backplane Power: 7 Watts (maximum)

Operating Temperature: 0° to 60°C
Storage Temperature: -40° to 85°C
Relative Humidity: 5% to 95%

Agency Approvals: CE, UL UL-C, Class 1 Div 2
Shipping Weight: 1.5 lb. (0.68 Kg)

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IMPORTANT NOTE: This product includes a lithium battery for backing up the user program, retentive variables, and system diagnostics. For safety in transportation, the battery is installed but disabled. Prior to putting this product into service, you MUST move dipswitch SW1 to the CLOSED position to enable the battery.

COMPATIBILITY OVERVIEW

The CTI 2500 Series® Processor is designed to be compatible with customer applications that use the Simatic® 545 and 555 controllers. While the CTI 2500 matches or exceeds the capabilities of these processors in most aspects, there are a few areas in which the CTI 2500 operates differently.

Relay Ladder Logic

The RLL used in the controller provides equivalent instructions for all Simatic® 555 instructions except the XSUB instruction. External subroutines are not supported. If you download a program containing the XSUB instruction, it will be ignored. In many cases XSUB is used for communications with Siemens® Profibus HMI panels. For these installations we have a CTI program free on our website which replaces the XSUB. For XSUB uses other than Siemens® HMI panels, CTI and our partners can develop XSUB replacement software using SF programming. Please contact us.

Special Function Programs

The controller compiles all SF programs and subroutines. They are compiled in the following situations:

- When a user program is downloaded to the PLC, if the SF Program or subroutine is enabled,
- When the SF program or subroutine is enabled, if the SF program has been modified,
- During a Power Up start (following the application of power).

Programs that contain errors will not be enabled. During a program download, Workshop will display a message indicating the error. Once you acknowledge the message, the download will continue, leaving the program disabled. You must correct the programming error before the program or subroutine can be enabled. User Programs originally written for the Simatic® 505 PLC may contain undetected errors, if the programs were not originally compiled. This can occur because the SF interpreter never attempts to execute the instruction due to the branching logic. A common problem is that additional ENDIF statements are included or the correct number of ENDIF statements is not present.

Unlike the Simatic® 555, there are no restrictions regarding the instructions that can be used in a compiled program.

User Configuration

The following differences in the user configuration should be noted:

1. Allocation of CS memory is not supported. The CTI 2500 controller uses high speed DRAM to store and execute compiled SF programs and subroutines. Consequently, CS memory is not required.
2. User allocation of User Subroutine memory is not supported. The CTI 2500 controller does not support user subroutines (XSUB). See XSUB description above.
3. A time slice for Report by Exception (RBE) is not supported. Some alternative solutions exist. Please consult us with your exact configuration.
4. A new time slice, Network Communications, has been added to support the local Ethernet port.

I/O Support

The following are not presently supported. This is subject to change.

- Interrupt I/O

Support of Special Function Modules

Most CTI and Siemens special function modules are supported. A complete list showing the

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compatibility status by module part number is maintained in the Technical Advisory which can be found here:

ftp://ftp.controltechnology.com/public/Pubs/PRODUCTS/ADVISORY/2500-Cxxx%20technical%20advisory1.pdf

Ethernet Support

All 2500 Series® Processor models include a built-in Ethernet port which is compatible with the ports on the CTI 2572 and 2572-A Ethernet Adapters. The capabilities of the Ethernet port on the processor differs slightly from those of the ports on the Ethernet Adapters. The table below summarizes the features included on each product.

Feature	2500-Cxxx Processor	2500P-ECC1	2572 Ether-net Module	2572-A Ether-net Module
100Mbit ethernet	yes	yes	no	yes
TCP communications	yes	yes	yes	yes
UDP communications	no	yes	yes	yes
DHCP for IP address as-signment	no	no	no	yes
Modbus-TCP	no	yes	no	yes
Ethernet-IP (communicate to ControlLogix®)	no	no	no	yes
Send/Receive (communicate to S7®)	no	no	yes	no
Multicast	no	yes	no	yes
Datashare	no	no	yes	no
Peer-Peer communications	server only	client/server	client/server	client/server
Communicates with CTI OPC/DDE servers	yes	yes	yes	yes
Port configuration using PLC logic	no	no	yes	yes
Email	no	no	yes	no
Webserver for diagnostics	yes	yes	no	yes
Number of TCP connec-tions	Programming: 1 HMI: 3	see note 1 below	16	see note 2 below
Compatible with Siemens® CPUs	N/A	no	yes	yes

Note 1—2500P-ECC1 Maximum Ethernet Connections
CAMP Server—16 TCP + UDP
CAMP Client—16 (total of TCP and UDP)
Modbus Server—16 TCP only
Modbus Client/Master—64 (total of TCP and UDP)
Network Data Exchange Publisher—20 TCP
Network Data Exchange Subscriber—20 TCP

Note 2—2572A Maximum Ethernet Connections
CAMP Server—24 TCP + UDP
CAMP Client—8 (total of TCP and UDP)
Ethernet/IP Server—8 connections
Modbus Server—8 connections

Ethernet Access
Port 4452: One TCP connection for programming software. This port receives priority in communications.
Ports 1505 or 4450: Three TCP connections for data access.

2500-Cxxx Programmable Controllers Model Comparison

Feature	2500-C100	2500-C200	2500-C300	2500-C400
User Program RAM	128K	256K	512K	3072K
Discrete I/O Points	1024	2048	8192	8192
Word I/O Points	1024	1024	8192	8192
Control Relays	4096	32,768	32,768	32,768
Retentive Control Relays	1024	4096	4096	4096
Timers/Counters	1024	20,480	20,480	20,480
Compiled SF	Yes	Yes	Yes	Yes
Cyclic PID Loops	16	64	128	128
RLL Initiated PID Loops (Fast Loops)	0	0	384	384
Analog Alarms	32	128	512	512
Special Function Programs	64	1023	1023	1023
Special Function Subroutines	64	1023	1023	1023
Remote IO	None	15 bases	15 bases	15 bases
Profibus I/O	None	Up to 112 devices	Up to 112 devices	Up to 112 devices
Maximum Serial Port Data Rate	115,200 baud	115,200 baud	115,200 baud	115,200 baud
Flash O/S	Yes	Yes	Yes	Yes
Removable User Storage	SD Card – Up to 1GB	SD Card – Up to 1GB	SD Card – Up to 1GB	SD Card – Up to 1GB
On Board User Flash	Yes	Yes	Yes	Yes
Local Ethernet Port	Yes	Yes	Yes	Yes
USB Port	Yes	Yes	Yes	Yes
Remote I/O	No	Yes	Yes	Yes
Profibus I/O	No	Yes	Yes	Yes
Battery	5yr storage (0-60° C) , 3 yr continuous @ 25° C, 6 mos. @ 60° C			

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