

# ENHANCED MODULAR CONTROLLER SERIES MASTER

TRODEKS®

CSMSTR



- Provides Enhanced Features for Data Acquisition Or Multi-Zone Pid Control Applications
- Webserver Provides Worldwide Access to Data Logs and Virtual HMI
- Virtual HMI Offers Built-In PC-Based SCADA Functionality
- Performs Hierarchical Control of Other Modules in the Modular Controller Series
- Stores Module Configuration Information, and Automatically Reprograms Replaced Modules
- Extensive Built-In Driver List Allows Easy Data Mapping to PLCs, PCs, and SCADA Systems
- Independent Serial Ports Provide Virtually Unlimited Integration Methods
- 10 Base-T/100 Base-Tx Ethernet Connection Provides Networking Capability
- Supports up to 16 Modular Controller Series Modules
- Compactflash® Slot Allows Process Data to be Logged Directly to CSV Files

The Model CSMSTR is a communications and control platform designed for use with Modular Controller Series slave modules. The CSMSTR uses a proprietary high speed serial protocol to communicate, via backplane connection, with up to 16 slave modules. Through the same connection, the Master also provides power to the modules.

When powered up, the CSMSTR automatically identifies and addresses connected slave modules. By storing the configuration information of all of the modules, the CSMSTR is able to automatically configure modules if they are replaced.

The Master provides high-speed RS232/422/485 communication ports and an Ethernet port for connection to PCs, PLCs, and SCADA systems. An extensive list of master and slave protocol drivers are available to allow the CSMSTR to share and exchange variable data with external devices. The 10 Base-T/100 Base-TX Ethernet port can also be used to connect and share data with other devices at high speeds. The virtual HMI feature allows you to create and control an HMI from any networked PC. An onboard CompactFlash slot provides storage for the Master's built-in data logger.

The design of the Modular Controller Series high density packaging and DIN rail mounting saves time and panel space. The controller snaps easily onto standard top hat (T) profile DIN rail.



CSMSTRSX shown smaller than actual size.

The CSMSTR is programmed with Crimson 2.0 software for Windows® 2000 or later platforms. The software is an easy to use, graphical interface which provides a means of communication configuration, as well as commissioning and calibration of new systems.

## SPECIFICATIONS

**Power:** 24 Vdc  $\pm$  10% 400 mA min. (1 module) 3.5 Amps maximum (16 modules + Expansion Card)  
Must use Class 2 or SELV rated power supply

### Communications:

**USB/PG Port:** Adheres to USB specification 1.1 (Device only using Type B connection)

**Serial Ports:** Format and Baud Rates for each port are individually software programmable up to 115,200 baud

**RS232/PG Port:** RS232 port via RJ12

**COMMS Ports:** RS422/485 port via RJ45, and RS232 port via RJ12

**DH485 TXEN:** Transmit enable; open collector, VOH=15 Vcd, VOL=0.5 V @ 25 mA maximum

**Ethernet Port:** 10 BASE-T / 100 BASE-TX RJ45 jack is wired as a NIC (Network Interface Card)

### LEDs:

**STS:** Status LED indicates condition of master

**TX/RX:** Transmit/Receive LEDs show serial activity

**Ethernet:** Link and activity LEDs

**CF:** CompactFlash LED indicates card status and read/write activity

### Memory:

**On-Board User Memory:** 4MB of non-volatile flash memory

**On-Board SDRAM:** CSMSTRSX=2MB; CSMSTRGT=8MB

**Memory Card:** Compactflash type II slot for type I and type II cards

**Real-Time Clock:** Typical accuracy is less than one minute per month drift. Crimson 2.0's SNTP facility allows synchronization with external servers

**Battery:** Lithium coin cell (included). Typical lifetime of 10 years at 25°C (77°F) A "battery low" system variable is available so that the programmer can choose specific action(s) to occur when the battery voltage drops below its nominal voltage.

**Environmental Conditions:**

**Operating Temperature Range:**  
0 to 50°C (32 to 122°F)

**Storage Temperature Range:**  
-30 to 70°C (-22 to 158°F)

**Operating and Storage Humidity:**  
80% max relative humidity,  
non-condensing, from 0 to 50°C  
(32 to 122°F)

**Vibration According to IEC 68-2-6:**  
5 to 150 Hz, in X, Y, Z direction for  
1.5 hours, 2 g's

**Shock According to IEC 68-2-27:**  
Operational 25 g, 11 msec in 3 directions

**Altitude:** Up to 2000 meters

**Construction:** Case body is burgundy  
high impact plastic and stainless steel.  
Installation category I, pollution degree 2

**Power Connection:** Removable wire  
clamp screw terminal block

**Wire Gage Capacity:** 24 AWG to 12 AWG

**Torque:** 4.45 to 5.34 in/lb (0.5 to 0.6 N-m)

**Mounting:** Snaps onto standard DIN style  
top hat (T) profile mounting rails according  
to EN50022 -35 x 7.5 and -35 x 15

**Certifications and Compliances:**

**Safety:** UL Listed, File #E302106,  
UL508, CSA 22.2 No. 14-M05 Listed  
by Und. Lab. Inc. to U.S. and Canadian  
safety standards

**IEC 61010-1, EN 61010-1:** Safety  
requirements for electrical equipment  
for measurement, control, and  
laboratory use, part 1

**Electromagnetic Compatibility:**

**Emissions and Immunity to EN 61326:**  
Electrical equipment for measurement,  
control and laboratory use

**Immunity to Industrial Locations\*:**  
Electrostatic discharge EN 61000-4-2  
Criterion A2; 4 kV contact discharge;  
8 kV air discharge; Electromagnetic RF  
fields EN 61000-4-3 criterion A 10 V/m;  
Fast transients (burst) EN 61000-4-4  
Criterion A; 2 kV power; 2 kV signal;  
Surge EN 61000-4-5 Criterion A; 1kV  
L-L, 2 kV L-N-E power; RF conducted  
interference EN 61000-4-6 Criterion A;  
3 V/rms

**Emissions:** Emissions EN 55011 class A

**Weight:** 456.4 g (15.1 oz)

**\*Notes:**

1. Criterion A: Normal operation within specified limits.

2. This device was designed for installation in an enclosure. To avoid electrostatic discharge to the unit in environments with static levels above 4 kV, precautions should be taken when the device is mounted outside an enclosure. When working in an enclosure (ex. making adjustments, setting jumpers etc.), typical anti-static precautions should be observed before touching the unit.

**To Order**

MODEL NO.	MASTER MODULE DESCRIPTION
CSMSTRSX	Modular controller master with multiple protocol converter, data logger, web server, virtual HMI up to QVGA (320X240) size and expansion slot.
CSMSTRGT	Modular controller master with multiple protocol conversion, data logger, web server, full VGA virtual HMI (640X480) size and expansion slot with increased DRAM
ACCESSORIES	
MODEL NO.	DESCRIPTION
G3CF002G	2 GB compact flash card (industrial grade 2 million write cycles)
CBLPROG0	Programming cable for CS, G3, and paradigm
CBLUSB00	USB programming cable for G3, DSP and modular controller, type A-B
PSDR0100	Mini power supply 1A
PSDR0200	Mini power supply 2A
PSDR0400	Mini power supply 4A
RSRSTP00	Rail stops (qty 2)
CSTERM00	Replacement termination plug
CSBASE00	Replacement base
MODULES	
MODEL NO.	MODULE DESCRIPTION
CSDIO14R	8-inputs 6 relay outputs
CSDIO14S	8-inputs 6 solid state outputs
CSINV800	8-channel $\pm 10$ V input module
CSINI800	8-channel 0(4) to 20 mA input module
CSOUT400	4-channel analog output
CSPID1R0	Single loop module, relay outputs
CSPID1RA	Single loop module, relay outputs, analog output
CSPID1RM	Single loop module, relay outputs, heater current input
CSPID1S0	Single loop module, solid state outputs
CSPID1SA	Single loop module, solid state out. Analog output
CSPID1SM	Single loop module, solid state, heater current input
CSPID1TA	Single loop module, triac outputs, analog output
CSPID2R0	Dual loop module, relay outputs
CSPID2RM	Dual loop module, relay outputs, heater current input
CSPID2S0	Dual loop module, solid state outputs
CSPID2SM	Dual loop module, solid state outputs, heater current input
CSPID2T0	Dual loop module, triac outputs
CSPID2TM	Dual loop module, triac outputs, heater current input
CSRTD600	6-channel input, RTD
CSSG10RA	Single loop, 1 strain gage input, relay outputs, analog out
CSSG10SA	Single loop, 1 strain gage input, solid state out, analog out
CSSG11RA	Single loop, 2 strain gage input, relay outputs, analog out
CSSG11SA	Single loop, 2 strain gage input, solid state out, analog out
CSTC8000	8-channel thermocouple module

*Comes complete with termination plug, terminal power block, lithium cell battery, and operator's manual.*

**Ordering Example:** CSMSTRSX, controller, G3CF002G, 2 GB flash card, PSDR0100, power supply, and CSDIO14R, module.