

EASY TO USE
TOUCH SCREEN
INTERFACE

MCT - 1/4 DIN Controller

A 1/4 DIN multi-loop controller that operates like your favorite smartphone or tablet



EASY TO USE
TOUCH SCREEN
INTERFACE

Combines multiple control and monitor components into an easy to use, 1/4 DIN low cost solution.

BrainChild



Touch screen-programmable right out of the box!

- + PC software is NOT required
- + LAN/USB/Cloud import/export configuration
- + One button return to OEM configuration

- Up to 3 PID loops - 1 may be FM Limit
- Paperless recorder/data logger
- Trend viewer/data viewer
- File transfer/backup via LAN/WAN. Configure via USB memory stick or cloud.
- Email on alarm
- Remote access
- NEMA 4X / IP 65
- Math/Logic/Timers
- Up to 8 monitor points

Simplicity

- + Touch screen, Slide Nav, menu, touch list user interface with Help on every view
- + Enable only those features required for the application; i.e. Profile, Data Log, Security, Connectivity, etc.
- + 64 step profiler with 8GB storage. "One Touch" profile entry with touch scroll lists and dynamic icon menus to eliminate costly learning curves.
- + Multi-lingual interface supports 11 languages – selectable by the touch of a button.

MCT - 1/4 DIN Controller

All the functionality of multiple devices in an easy to use low cost controller

The MCT system combines multiple control and monitor components in a single device. The 4.3" color touch screen allows users to select PC type menu or smart device slide-nav icon navigation to match familiar personal preferences for operation. Secure email (SSL/TLS), SMS (text messaging), FTP, FileWeb and DataWeb protocols allow the MCT to interface and backup data to LAN/WAN based systems and data bases, eliminating the need for additional data acquisition equipment. Math/Logic/Timer functions included as standard to reduce additional system components.

The MCT is equipped with a Web server and remote control via VNC from any smart device (smartphone/tablet/PC, etc.). Single touch notification provides loop, alarm, profile and system information in a simple touch scroll list from any screen location. All software functions are standard, no options to pay extra for!

Flexibility

- + Up to 3 loops of control, 8 point monitor option, supports static, profile and cascade control modes. 1 loop may be FM limit.
- + Up to 19 programmable alarms (9 relays, 10 soft) for flexible control management.
- + 4 level security with digitally signed audit trails and data files.
- + User configurable datalogging and historical data viewer.
- + Meets data acquisition requirements:
 - CFR21 Part 11
 - AMS 2750F

Connectivity

- + Email (SSL/TLS), SMS, FTP, FileWeb, DataWeb (SQL compatible), VNC, NTS and Web page are all standard.
- + Remote View/Control using PC, Tablet or Smartphone via VNC.
- + Email/SMS on alarm, email files or send an email.
- + National Time Server (NTS) eliminates setting time/date manually.
- + Serial and TCP/IP Modbus RTU.
- + Math/Logic/Timers with direct IO control.

Loop Overview

The MCT allows up to 3 plug-in slots for static, program or cascade control. An FM approved hi-limit module can be installed in slots 2 or 3. The MCT's multi-processor design provides a "no wait" response for instantaneous screen and control operations.



MCT - Base Specifications

POWER

90-250VAC, 47-63 Hz, 36VA, 15W max
11-26VAC/VDC, 36VA, 15W max

DISPLAY

Display Type: TFT color touch display
Display Size: 4.3"

Display Colors: 65,536

Resolution: 480 X 272

Display lifetime hours (nominal): 30,000 Type:
Resistive Analog - IP65

DISPLAY PROCESSOR

Type: PV210 CPU/1GHZ

DIMENSIONS/PANEL CUTOUT

Dimensions: 122(W) x 100(H) x 122.85(D) mm
Panel Cutout: 92(W) x 92(H) mm

PLUG IN CONTROL/LIMIT MODULES

Process Control Module (PCM)

Hi-Limit Module (HLM)

*See Order Matrix for Details

DATA STORAGE

256MB Internal Flash
8GB SD (SLC) for file storage

CONNECTIVITY

Serial: Com1 (RS232/485), Com2 (RS485)

Ethernet: 10\100 baseT - USB: 1 host Modbus

Master and Slave Protocols

(Serial and Ethernet TCP/IP Modbus slave
protocols available simultaneously)

ENVIRONMENTAL AND PHYSICAL

Storage Temperature: -20 to 60 C

Operating Temperature: 0 to 50 C

Humidity: 10% to 90%, no condensation

Shock: 3 shocks per direction 11ms 10g

Vibration: 10 to 25.7 Hz: 0.75mm amplitude

25.7 to 150Hz: 1g 1oct/min. 10 sweeps

Insulation: 20M ohms minimum (500VDC)

Dielectric Strength: 2300Vac 50/60 Hz for 1
minute between power terminal and earth

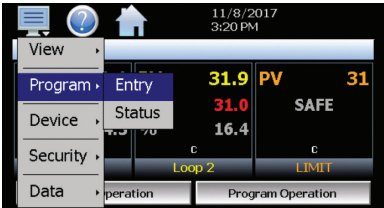
Approval Standards: NEMA 4X/IP65

UL, cUL, CE, RoHS, W.E.E.E, FM (high limit)

Touch Screen User Interface

4.3" touch screen operates like your favorite smart phone or tablet. Menu or slide-navigation allows the user to treat screens, options and functionality like "apps" on their PC or favorite smart device. Familiar gestures like touch scroll lists (text or text with buttons) and notifications provide instant access to all system data from any screen for quick entry and selection of control functions. Standard toolbar provides common access to menus, help, home, alarms and notifications from all screens.

Menu Navigation



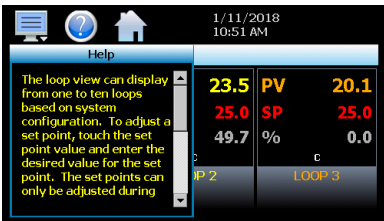
Icon/Page Navigation



Notification/Touch Lists



Content Sensitive Help on every view



Process Control Module

(LOOP CONTROL)

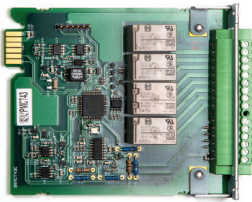
Up to 3 loops of control, with up to 4 outputs per process control module. Control logic includes static, profile and cascade control with adaptive fuzzy logic and PID control (5 sets) for each control loop module. Multi-processor design provides immediate response for control and touch screen operations.

High Limit Module

FM APPROVED LIMIT SAFETY

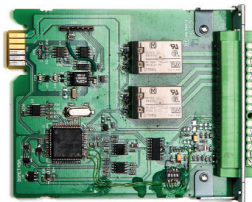
The HLM module provides an FM approved high, low or high/low limit safety in slots 2 or 3 of the MCT. The second alarm output available on each HLM module provides the flexibility of programmable alarm logic to meet specific needs. A loop control and FM limit in one solution eliminates extra hardware to reduce hardware costs and panel space requirements.

Process Control Module (PCM)



Up to 3 loops static, dual loop profile.

High-Limit Module (HLM)



Can be installed with single or dual loop system.

“ONE TOUCH” Profile Program Entry

PROGRAM ENTRY IS QUICK AND EASY

The MCT provides program entry operations on a single screen. Touch scroll lists and menu icons provide dynamic operations based on user selections. Simple on/off buttons within the scroll lists eliminates navigating through multiple screens to complete program entry tasks.

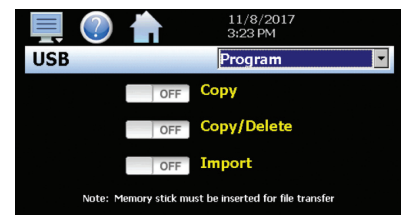
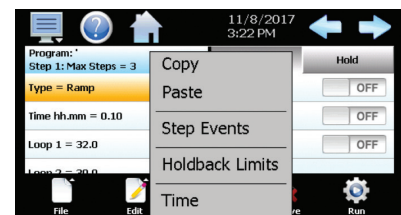
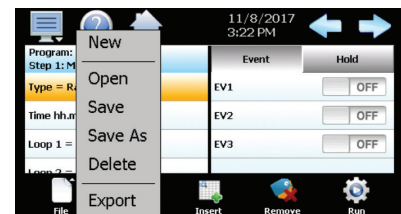
64 programmable steps include ramp, soak, jump and jump cycles. Loop setpoints, step events, step hold/wait for and repeat functions provide advanced program functionality with unlimited program storage (limited only by 8GB of memory).

Copy and paste functions allow quick entry of step data as well as copying step events to all remaining program steps to reduce complex program tasks.

Slide out numeric keypads and program control windows allow the user to maintain view of the background window to reduce screen clutter. Transparent dialogs and pop-up menus provide quick operations for all profile functions without leaving the main profile entry screen.

Profile run status is available in detail or from loop and overview screens as well as notification drop down touch lists which are available on all of the MCT runtime screens.

The help icon in the command bar provides context sensitive information for all views including Profile Program Entry.

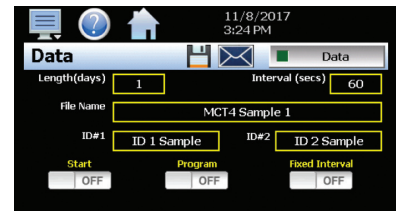


USB
import/export
of profiles

Data Logging

The MCT supports data logging of all process variables with 8GB of storage standard. Filename, lot number, batch number, log interval and days to log are all configurable from the front touch screen. Program log control allows the user to start/stop logging using the automated programmer with the program name used as the datalog name. "Always Logging" startup option provides the ability to enable the MCT to log at all times to maintain 24/7 logging operation. The "Days To Log" option allows the user set the time in days before a new file is started to sync data files to match product cycles as well as keeping data file size manageable.

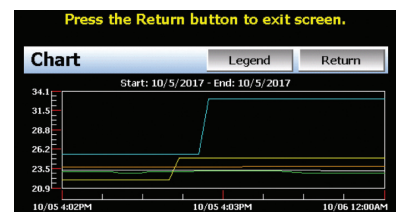
Configurable Datalog



Historical Data Viewer

MCT includes a historical data viewer that allows trend chart viewing of data files stored on the device (8GB max). Selection of data points, data start/end time along with drag and zoom trend options (with legends) provide a quick and easy view of any batch run for any date and time.

Historical Viewer



Digital Signatures

MCT data files and audit trails are digitally signed to maintain data integrity and meet regulatory requirements for digital (vs. paper) operation. This is different from data file encryption since the digital signature protects the file from being altered in any way. Additional signatures (unlimited) can be added by authorized users along with text to describe the signature (i.e. batch passed, setpoint change, etc.). Meets the requirements for data acquisition for CFR21 Part 11 and AMS 2750F

Digital Signatures

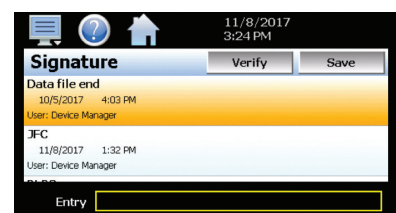
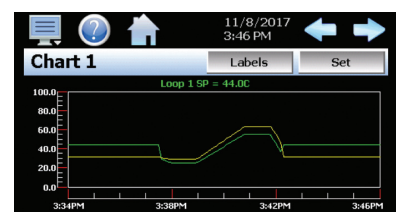


Chart Trend View

Four real time charts configurable to display any variable in the controller (up to 6 values per view) over a selectable time period of 4-minutes to 24 hours. With configurable left and right axis, automatic or defined chart scales and finger pinch on the fly zoom, the 4 configurable charts allow an operator a 1-button touch to view recent process history without opening a data log file.

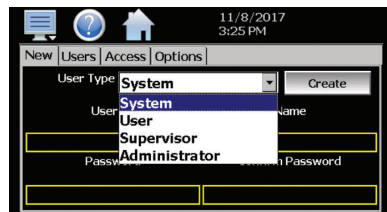
Chart Trend View



User-Based Security

MCT includes an easy to configure, full user based/ user rights security for system, user, supervisor and administrative levels. Up to 30 users supported with each user having the option of type assignment (user, supervisor, etc.). Each function in the MCT can be enabled or disabled for each user type. The user decides which options each user type has access to rather than a “number” based system which can include functions not desired for most “process secure” operations.

User-Based Security



Password Aging and Verification

Password aging, auto log off and user re-verification provides the flexibility and security required for regulated processes.

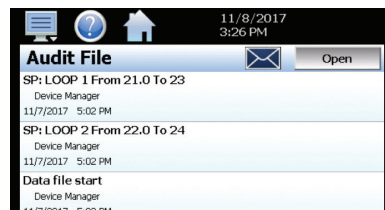
Password Aging and Verification



Audit Trail Entries

MCT includes full audit trail entries for all user activity. Any process change must pass the security check and is written to the audit trail. Audit trail includes date, time, user name and user action. (example: Loop1 setpoint change from 21.0 to 23).

Audit Trails



Mechanical and Soft Alarms

Each PCM supports up to 3 mechanical alarms with the HLM supporting up to one mechanical alarm. Alarm types include process high/low, deviation high/low, deviation band, end of program and digital input. An additional 10 software alarms can be assigned as PCM IO outputs or GUI alarms. Inhibit, Silent, Email and Ring Back standard for all software alarms with each soft alarm providing a programmable “delay time” setting.

Math/Logic/Timers

MCT includes up to 20 Math/Logic/Timer blocks. Free form math equation entry up to 200 characters per block. Logic/Timer blocks can be assigned directly to PCM IO for direct logic control operations.

New Function released Version 1.3

- Cascade Control Mode additions: MIN / MAX / AVG & Feedforward
- Loop Event Input Function Added: Off Mode - Disable all Control & Event Outputs
- Runtime & Configurator Text Entry Updated to QWERTY Format
- Math & Logic Functions: Include Program Status Inputs for Logic Equations
- Drybulb / Wetbulb %RH Humidity Input Option
- Time of Day Profile Start
- Ramp Rate – Ramp Rate Hold / Ramp Rate Initialize SP & Dual Setpoints (SP2) via EI
- 2FA – Two-Factor Identification - Through Text Message or USB
- Event Timer

Loop Control and Monitor Only Operation

Any of the MCT input modules can be configured for loop control or monitor only. This provides the ability to easily add a monitor point while the MCT dynamically configures its setup for “monitor only” view and operation; setpoint & percent output are not shown. Monitor loops support process alarms.

Dynamic Screens/Options Configuration

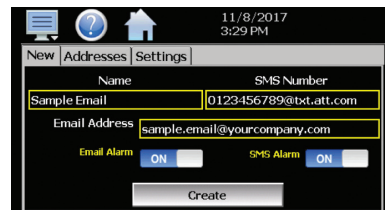
The MCT includes all software features as standard. No options to purchase. All functionality can be enabled or disabled right from the configurator application from the front touch screen. This allows users to configure the MCT to meet their specific requirements without external PC's, cables, routers or additional software to learn, minimizing service and support costs.

Profile Program Entry And Control

The MCT includes an advanced profiler with ramp, soak, jump, cycle, hold and event functions for each step. Up to 64 steps per profile with a virtually unlimited number of profiles included as standard (8GB max). “One Touch” program entry provides all functions on a single screen using familiar touch scroll lists for setpoint entry and option settings. Program slide out windows allow the user to select and operate programs without losing focus on the background window which reduces screen clutter and learning curves.

Email/SMS

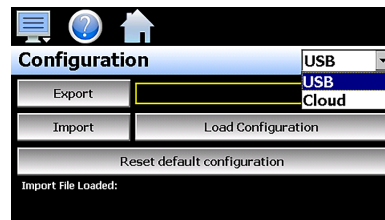
MCT supports secure email client functionality (Secure Socket Layer/Transport Layer Security/ None). Alarms can be automatically configured to be sent as an email or text notification as well as end of automated program notices. Send alarm, audit and data files as attachments.



Import/Export Configurations

MCT includes full import and export of complete controller configurations using a standard USB memory device or via LAN transfer. Saved configurations can be imported to any MCT for complete setup in minutes. This eliminates searching for manuals or long configuration setups for new installations or maintenance situations.

An OEM may set their configuration as the MCT “Default Configuration”. When so configured this provides an end user a 1-button touch to reset the unit to an OEM’s configuration saving both the user and OEM downtime and support costs.



File Management

LAN/WAN PROTOCOLS

MCT includes FTP (File Transfer Protocol) and FileWeb transfer (https:// encrypted communications) of all file data from the controller. DataWeb protocols allow the MCT to transfer real time/historical process informaton to secure data bases via LAN, WAN based manufacturing systems using standard SQL (Structured Query Language) data interfaces . This eliminates the need for additional data acquisition or network hardware.

USB/LAN BACKUP AND CONFIGURATION

File transfer utilities allow export of all data to a standard USB memory device, LAN storage. Internal memory can be cleared after export to provide "maintenance free" storage operation.

8 Monitor Points (optional IO card)

The MCT supports up to 8 additional monitor inputs (each input programmable for TC/Volts/mA). Monitor card is DIN rail mount with 2 wire RS485 connectivity. See monitor card brochure for details.

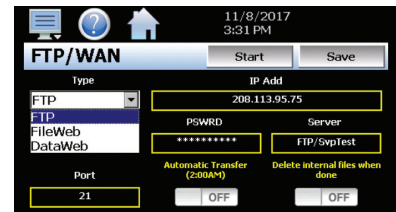
11 Languages Supported For Global Usage

MCT provides instant selection of 11 languages providing global usage for shipment anywhere in the world (no reboot or special order codes required). Chinese Simplified, Chinese Traditional, English, French, German, Italian, Japanese, Korean, Portuguese, Russian and Spanish supported with a single touch.

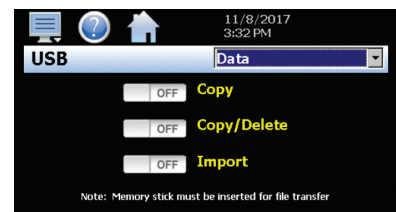
Remote Control/Monitor from PC/SmartPhone/Tablet

MCT includes a remote VNC server for remote monitor or control and a monitor only web server from any smart device anywhere, anytime.

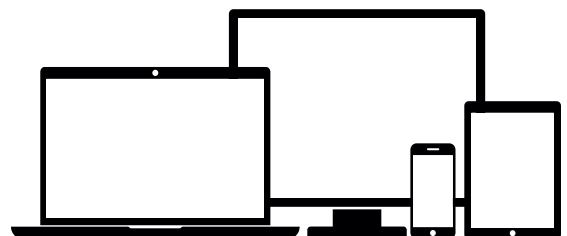
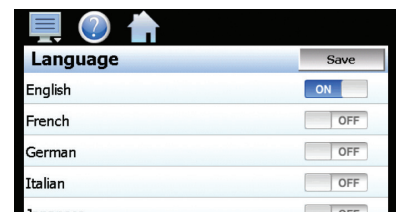
FTP | FileWeb | DataWeb



File Management



Languages



Process Control (PCM) and Hi-limit (HLM) Module Specification

INPUT SPECIFICATIONS*

Type	Range	Accuracy @ 24 C	Input Impedance
J	-120 C 1000 C (-184 F 1832 F)	+/-2 C	2.2 Mohms
K	-200 C 1370 C (-328 F 2498 F)	+/-2 C	2.2 Mohms
T	-250 C 400 C (-418 F 752 F)	+/-2 C	2.2 Mohms
E	-100 C 900 C (-148 F 1652 F)	+/-2 C	2.2 Mohms
B	0 C 1820 C (-32 F 3308 F)	+/-2 C (200-1820 c)	2.2 Mohms
R	0 C 1767.8 C (-32 F 3214 F)	+/-2 C	2.2 Mohms
S	0 C 1767.8 C (-32 F 3214 F)	+/-2 C	2.2 Mohms
N	-250 C 1300 C (-418 F 2372 F)	+/-2 C	2.2 Mohms
L	-200 C 900 C (-328 F 1652 F)	+/-2 C	2.2 Mohms
C	0 C 2315 C (32 F 4199 F)	+/-2 C	2.2 Mohms
P	0 C 1395 C (32 F 2543 F)	+/-2 C	2.2 Mohms
PT100 (DIN)	-210 C 700 C (-346 F 1292 F)	+/-0.4 C	1.3 Kohms
PT100 (JIS)	-200 C 600 C (-328 F 1112 F)	+/-0.4 C	1.3 Kohms
MV	-8mV 70mV	+/-0.05%	2.2 Mohms
MA	-3mV 27mA	+/-0.05%	70.5 Ohms
V	-1.3V 11.5V	+/-0.05%	302 Kohms

*When subject to the necessary field calibration, the MCT is suitable for use in Nadcap applications in all furnace classes as defined in AMS2750F clause 3.3.1.

Resolution:	18 bits
Sampling Rate:	5 times / second
Maximum Rating:	-2VDC minimum, 12VDC maximum (1 minute for mA input)
Temperature Effect:	A1.5uV/ C for all inputs except mA input A3.0uV/ C for mA input
Sensor Lead Resistance Effect:	T/C: 0.2uV/ohm 3-wire RTD: 2.6 C/ohm of resistance difference of two leads 2-wire RTD: 2.6 C/ohm of resistance sum of two leads
Sensor Break Responding Time:	Within 4 seconds for TC, RTD and mV inputs, 0.1 second for 4-20 mA and 1 - 5VDC inputs.
Burn-out Current:	200 nA
Common Mode Rejection Ratio (CMRR):	120dB
Normal Mode Rejection Ratio (NMRR):	55dB
Sensor Break Detection:	Sensor open for TC, RTD and mV inputs, Sensor short for RTD input below 1 mA for 4-20 mA input, below 0.25VDC for 1 - 5VDC input, unavailable for other inputs.
Electrical Isolation:	Optical isolation; 1500V~ (AC) minimum, between input signals and power supply circuit.

OUTPUT SPECIFICATIONS:

Relay Rating: 2A/240 VAC, life cycles 200,000 for resistive load
Pulsed Voltage: Source Voltage 5V @30mA, current limiting resistance 66 ohms
 Source Voltage 14V@40mA, current limited at 70mA

Linear Output (PCM):

Resolution: 15 bits
 Output Regulation: 0.02% for full load change
 Output Settling Time: 0.1 sec. (stable to 99.9%) Isolation
 Breakdown Voltage: 1000 VAC
 Temperature Effect: +/- 0.01% of span per degree C

Analog Retransmission (PCM):

Output Signal: 4-20 mA, 0-20 mA,
0 - 5VDC, 1 - 5VDC, 0 - 10VDC
 Resolution: 15 bits
 Accuracy: +/-0.05% of span +/-0.0025%/ C Load
 Resistance: 0 - 500 ohms (for current output)
10K ohms minimum (for voltage output)
 Output Regulation: 0.01% for full load change
 Output Settling Time: 0.1 sec. (stable to 99.9%)
 Isolation Breakdown Voltage: 1000 VAC min. Integral
 Linearity Error: +/-0.005% of span
 Temperature Effect: +/-0.0025% of span per degree C
 Saturation Low: 0 mA (or 0 VDC)
 Saturation High: 22.2 mA (or 5.55VDC, 11.1VDC min)
 Linear Output Range: 0-22.2mA (0-20mA or 4-20mA)
 Volts DC: 0 - 5.55VDC (0 - 5VDC, 1 - 5VDC)
0 - 11.1VDC (0 - 10VDC)

CONTROL FUNCTION (PCM):

Control Action: Direct and reverse

Proportional Band:

Temperature: 0.1 to 500C (0.1 to 900F)
 Linear Input: 0.1 to 900.0

Reset (Auto): 0 to 3600 seconds

Rate (Derivative): 0 to 900.0 seconds

PB Offset: 0 to 100%

Dual PID Heat/Cool (bimodal):

Cool Proportional Band 50 to 300% of heat PB
 Proportional Deadband -36.0% to +36.0% of heat PB

Time Proportioning Cycle Time:

0.1 to 90 seconds

On-Off / Alarm Hysteresis (PCM/HLM):

0.1 to 50C (0.1 to 90.0F)

EVENT INPUT SPECIFICATIONS:

Logic Low: -10V minimum, 0.8V maximum
 Logic High: 2V minimum, 10V maximum

APPROVAL STANDARDS:

UL / cUL: UL 61010C-1
 EN: EN 61010-1 (IRC-1010-1)
 EMC: EMC 61326
 RoHS: RoHS 2.0 Compliant, W.E.E.E.
 FM (HLM): FM temperature limit switch - indicating

SPECIFICATION AND FEATURE REVIEW

COMMAND BAR ICONS NAVIGATION, HELP & HOME

The Main Command Bar located on the top of the display provides easy & intuitive 1-touch access from anywhere in the system to System Navigation, Help and configured Home view

Home brings the user back to the system "Home View". The Home icon can be configured for the following standard views;

- Loop view: includes PV & SP digital display, PV min/max, PID % Output, Auto-Manual, event & profile access and more.
- Overview: all loops, profile and event status
- Chart View (trend up to the last 24 hours from system RAM) supporting 4 Trend View charts with up to 6 values per chart
- Alarm View or Alarm File.

Help offers content sensitive text for every view / page in the user configured language.

Navigation provides access to the configured menu system, traditional drop down or icon.

SECURITY AND AUDIT TRAIL:

- Supports up to 30 users over four user groups with access to 40+ functions restricted by user group.
- Supports password aging, auto log out and verification.
- Operator Audit Trail provides history for all user activity that includes date, time, user name and action; i.e. Loop SP change from 55.2 to 103.5.

PROFILE RAMP/SOAK:

- Loop selectable for program/static/cascade
- Program Operation: Via touch screen or event input
- Profile Name: Free form 16 character naming convention.
- Global Profile Configuration:
 - Start from PV or static SP
 - Guaranteed Soak & Ramp band
 - Power Fail / Recovery: Continue from last SP value, PV or static mode.
- Profile Segments: (maximum of 64)
- Guaranteed Soak & Ramp per step
- Events: 3, 6 or 9 events per step (up to 3 events per PCM card).
- Jump-To Step: configurable per step
- Profile End Alarm
- Configurable Profile End Logic:
 - Current (Static) Control SP: the Set Point & Event status prior to Profile Start is loaded at end of the Profile.
 - Final SP of Profile with all Events off

ALARMS

- Up to 19 alarms, 10 soft configurable to PCM & HLM, up to 3 alarm outputs per PCM and HLM up to 2 alarm outputs.

- Loop* Alarm Types: Process High & Low, Deviation High & Low, Deviation Band, Event Input and End of Profile.

* PCM configured as Monitor Input (no PID control configurable only with Process alarms.

Alarm Mode:

Normal or Hold (on start-up Hold mode will not activate if in alarm condition and arm once out of alarm condition).

Silent Alarm, activation does not indicate alarm or write to alarm log file.

Alarm outputs configurable as latching or nonlatching.

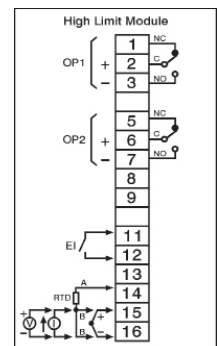
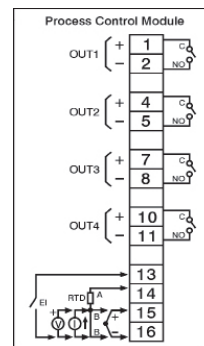
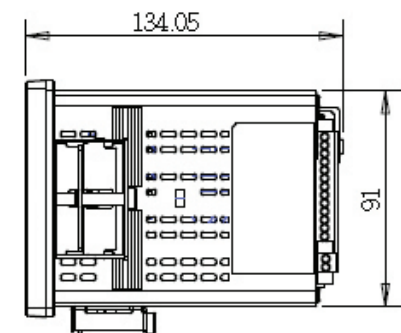
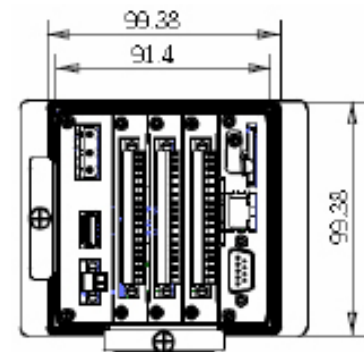
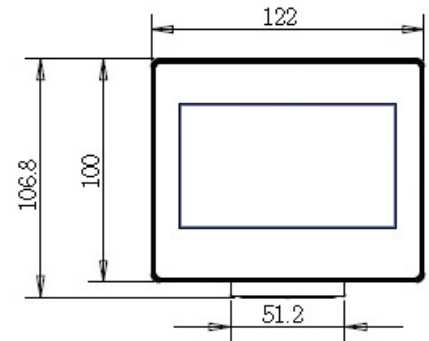
DATA ACQUISITION:

- All controller variables.
- File name: Free form 16 character appended by time/date or the profile name if started with a profile.
- File Start/Stop: user on-demand, on system boot or profile ramp-soak start/end.
- Data Log interval: configurable 2-second to 31-minutes.
- File Interval: configurable to set time in days (1 to 31) to end and start a new file. This allows syncing files to match product cycles as well as keeping file size manageable.
- ID#1 and ID#2 fields allow user to enter specific information such as a Batch/Lot/Cloud ID information that is associated with the data file.
- Operator Comments/Events: Unlimited operator comments/events linked to each file
- File Type: Data Log files are saved in .csv format.
- Digital Signatures: Automatic system as well as user entered signatures.
- Historical Data Viewer: View data log files on the display. Chart is auto-scaled on an X & Y axis for time and units.
- Meets the requirements for:
 - CFR21 Part 11
 - AMS2750F

EVENT INPUTS

- PCM / HLM each have 1 event input that can be assigned to profile operations, screen update operations, soft alarm, math, logic and HLM reset operations

DIMENSIONAL DRAWINGS AND PCM/HLM WIRING DIAGRAMS



Enter a number in each box which corresponds to the specifications you want when ordering the MCT with PCM or HLM modules.



POWER INPUT ○

- 4: 90-250VAC 50/60Hz
- 5: 11-26VAC/DC

MODULE TYPE SLOT 1 ○

- 0: None
- Pxxxx: Process Control Module (PCM Matrix)

MODULE TYPE SLOT 2 ○

- 0: None
- Pxxxx: Process Control Module (PCM Matrix)
- Hxxx: High Limit Module (HLM Matrix)

MODULE TYPE SLOT 3 ○

- 0: None
- Pxxxx: Process Control Module (PCM Matrix)
- Hxxx: High Limit Module (HLM Matrix)

SPECIAL ORDER CODE ○

- 000: None
- XXX: Special Order Code

-PCM Modules can be installed in slots 1, 2 or 3

Note:

-Select PCM and HLM Ordering code for slot 1 to 3

Part number examples:

MCT-01-4-P1111-P1111-H111-000

MCT with 2 process control modules and a high limit module. Standard software. 90-250VAC 50/60 HZ. Each process control module (slot #1 and #2) is equipped with 4 relay outputs. Slot 3 has a high-limit module installed equipped with 2 relay outputs. No special order code.

MCT-AB-5-P3311-H111-0-000

MCT with 1 process control module and a high limit module. Special software code "AB". 11-26VAC/VDC. PCM#1 module equipped with 4-20mA in outputs 1 and 2 and relays in outputs 3 and 4. Slot 2 has a high-limit module installed with 2 relay outputs. Slot3 is empty and not used. No special order code.

MCT-01-4-P1111-0-0-000

MCT with 1 process control module. Standard software. 90-250VAC 50/60 HZ. Process control module (slot #1) is equipped with 4 relay outputs. Slot 2 and 3 are empty and not used.

ORDERING INFORMATION

PCM MATRIX

Enter a number in each box which corresponds to the hardware required when ordering the Process Control (PCM) Module.

P

PCM modules can be installed in slots 1, 2 or 3

OUTPUT 1

- 0: None
- 1: Relay 2A/240VAC (Form A)
- 2: Pulsed voltage to drive SSR, 5V/30mA
- 3: 0-20mA/4-20mA isolated output (OM99-3)
- 4: 0-10V isolated output (OM99-5)
- C: Pulse voltage to drive SSR, 14V/40mA (OM99-7)

OUTPUT 2

- 0: None
- 1: Relay 2A/240VAC (Form A)
- 2: Pulsed voltage to drive SSR, 5V/30mA
- 3: 0-20mA/4-20mA isolated output (OM99-3)
- 4: 0-10V isolated output (OM99-5)
- 7: Transmitter power supply 20VDC/25mA (DC99-1)
- 8: Transmitter power supply 12VDC/40mA (DC99-2)
- A: Transmitter power supply 5VDC/80mA (DC99-3)
- C: Pulse voltage to drive SSR, 14V/40mA (OM99-7)

OUTPUT 3

- 0: None
- 1: Relay 2A/240VAC (Form A)
- 2: Pulsed voltage to drive SSR, 5V/30mA
- 7: Transmitter power supply 20VDC/25mA (DC99-1)
- 8: Transmitter power supply 12VDC/40mA (DC99-2)
- A: Transmitter power supply 5VDC/80mA (DC99-3)
- C: Pulse voltage to drive SSR, 14V/40mA (OM99-7)

OUTPUT 4

- 0: None
- 1: Relay 2A/240VAC (Form A)
- 2: Pulsed voltage to drive SSR, 5V/30mA
- 3: Retransmit 0-20mA/4-20mA (OM99-3)
- 4: Retransmit 0-10VDC (OM99-5)
- 7: Transmitter power supply 20VDC/25mA (DC99-1)
- 8: Transmitter power supply 12VDC/40mA (DC99-2)
- A: Transmitter power supply 5VDC/80mA (DC99-3)
- C: Pulse voltage to drive SSR, 14V/40mA (OM99-7)

Note:

- 1) PCM Modules can be installed in slots 1, 2 or 3
- 2) PCM Modules support Universal Analog Signal Inputs T/C-RTD, mA and VDC
- 3) Hardware configuration is via board DIP switch
- 4) Default hardware configuration is T/C-RTD

HLM MATRIX Enter a number in each box which corresponds to the hardware required when ordering the High-Limit (HLM) Module.

H

HLM modules can be installed in:
- slot 2 with 2-loop system
- slot 3 with 3-loop system

SIGNAL INPUT* ○

- 1: Thermocouple: J, K, T, E, B, R, S, N, L, C, P, PT100 DIN, PT100 JIS, 0-60mV
- 2: Voltage 0-1VDC
- 3: Voltage 0-10VDC
- 4: Current 0-20mA (4-20mA)
- 5: Voltage 0-5VDC (1-5VDC)

OUTPUT 1 ○

- 0: None
- 1: Relay 2A/240VAC (Form C)
- 2: Pulsed voltage to drive SSR, 5V/30mA
- C: Pulse voltage to drive SSR, 14V/40mA (OM99-7)

OUTPUT 2 ○

- 0: None
- 1: Relay 2A/240VAC (Form C)
- 2: Pulsed voltage to drive SSR, 5V/30mA
- 7: Transmitter power supply 20VDC/25mA (DC99-1)
- 8: Transmitter power supply 12VDC/40mA (DC99-2)
- A: Transmitter power supply 5VDC/80mA (DC99-3)
- C: Pulse voltage to drive SSR, 14V/40mA (OM99-7)

Note:

- 1) HLM Modules can be installed in slots 2 with loop system or 3 with loop system.
- 2) Hardware configuration for each input type is via board Dip switch.
- 3) HLM signal input ordering code #1 Support Universal Analog Inputs Thermocouple, RTD, 0-10VDC, 4-20mA / 0-20mA
- 4) HLM configured with Signal inputs 0-60mV,0-1VDC, 0-5VDC,0-10VDC ,0-20mA and 4-20mA are not FM approved

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