Station Concepts

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The MYCRO 383 Multi-Point Display Station is a stand-alone data acquisition and display station, providing local indication and alarming along with digital communication capabilities to transmit these variables to the Local Instrument Link. The station consists of printed circuit boards mounted in a one-piece case with screw terminals at the rear for connection to field wiring. A faceplate attaches to the front of the casing providing local indication. The Model 383 is available in four Model types:

- 383B — Basic Station
- 383V — Voltage Input Station
- 383T — Thermocouple Input Station
- 383R — RTD Input Station

A Local Instrument Link Interface board may be added to any of these models to enable digital communications with the Local Instrument Link.

The Model 383’s operation is implemented by use of Function Blocks. Function Blocks are preprogrammed operations stored within memory of the Model 383. These Function Blocks transfer signals within the Model 383 each performing a specific function (i.e. engineering unit scaling, calculations, alarming etc.) on the field input. The process of selecting, defining, and positioning the blocks is referred to as configuring the MYCRO 383. Configuration is performed directly at the faceplate of the station. No special devices, techniques, or disassembly is required. However, a Model 383 connected to a LIL may be configured remotely from a Personal Computer. Each Function Block is presented in detail, in Section 2 of this manual. A summary of all available blocks for all models is contained on the Function Block Master Foldout page at the end of Section 2. A comprehensive listing of each block’s output(s) is provided in Section 5 for reference.
**DISPLAYS AND CONTROLS**

**MYCRO 383 Faceplate**

1. **4-1/2-Digit Display**
   Displays process variables, alarm settings, and configuration values. Both numeric and alphabetic selections can be displayed.

2. **C/L (Console/Local) Pushbutton**
   Used to select Console or Local operating mode of station. This is operational only when station has Local Instrument Link option board installed with an ESN assigned to Function Block 98. When in Console, configuration and alarm limit changes are not permitted from the faceplate. An LED indicator displays which mode is active (Red Local/Green Console).

3. **Display Identifier (PV, A1, A2, A3, A4)**
   Used to indicate nature of variable being displayed in 4-1/2-Digit Display. D (Display) Pushbutton used to sequentially step through PV (Process Variable) and A1-A4 (Alarm 1 through Alarm 4 type, status and trip-points). Active Display Identifier will be back-lit.

4. **Alarm LED’s**
   Can be configured to light or flash based on a variety of alarm conditions for each display point.

5. **ENG/% [Engineering Units/Percent of Scale] Pushbutton**
   Toggles variable readout between Engineering Units and Percent of Scale in both the 4-1/2-Digit Display and the 4-character alphanumeric display. An LED indicator displays which mode is active (Red %/Green ENG Units).

6. **D (Display) Pushbutton**
   Used to select Display Identifier.

7. **Display Points 1 through 15**
   The display point will be back-lit when selected by rotating the pulser knob.

8. **TAG/UNITS (Point Tag/Digital Display Units) Pushbutton**
   Toggles the 4-character alphanumeric display between the Point Tag and Digital Display Units. An LED indicator displays the active mode (Red UNITS/Green TAG).

9. **ACK (Acknowledge) Pushbutton**
   Configurable Pushbutton used to acknowledge flashing alarm LED’s.

10. **4-Character Alphanumeric Display**
    Displays point tags, digital display units, alarm types, error codes, and configuration data.

11. **Pulser Knob**
    Used to select display points and data variables for configuration and operation.

12. **S (Station Status) Display**
    Used to display station information. (Refer to FB30 for additional information.)

13. **AUTO SCAN Pushbutton**
    Provides automatic sequential scanning of all configured display points.

14. **ALARM Pushbutton**
    Used to change alarm trip-points in engineering units or percent of scale without entering configuration.

15. **Configuration Controls**
    Pushbuttons used to select and define Function blocks. NOTE: The EXIT pushbutton lights all LEDs to ensure their proper operation.

16. **Arrow Pushbuttons**
    Used during configuration to move between alphanumeric positions for entering of 4-character units and 12-character tag names.

17. **Station Identification**
    Removable label on front of flip-down access door allows individual stations to be identified.
CONFIGURATION CONTROLS

The Model 383 features a multi-mode, multi-level method of accessing Function Blocks to allow quick and easy configuration. Selecting and defining blocks is accomplished through a combination of the configuration pushbuttons and the faceplate displays. The Configuration Modes are:

S — Soft Configuration
When a leading S appears in the alphanumeric display, that value is a "soft configuration" selection. These values only apply to that block, and are not connected to other blocks. Soft values include alarm limits, gains, biases, tag names, etc.

C — Calibration
The ranges of inputs and outputs of the Model 383 are selected in the Calibration mode of the block. All Model 383's are shipped factory calibrated as follows: Voltage Inputs, 1-5 Vdc; Thermocouple Inputs, each input calibrated for full temperature range of all thermocouple types (J, K, E, R, S, T, B, N); 100 ohm RTD Inputs, full temperature range; Analog Output, 4-20 mAdc.

T — Table of Function Blocks
The T mode lists all Function Blocks available in a Model 383. This mode also allows Execution Sequence Numbers (ESN's) to be assigned. The ESN of a block determines the order of block execution.

H — Hard Configuration
When a leading H appears in the alphanumeric display, a block's "hard configuration" parameters are displayed. This mode includes the parameters that are used to interconnect blocks and select among choices in a block (i.e. alarm type, logic element type, etc.).

F — Factory Configured Options (FCO)
This mode provides access to 5 configurations that are stored in the station at the time of manufacture. The five FCO's included in the Model 383 are:

FCO 00 — ESN Reset
FCO 01 — Indicator with HI/LO Alarms
FCO 10 — Default Configuration
FCO 11 — Indicator with HI/LO Alarms and Link interface
FCO 20 — Voltage Input Station Configuration Example

The selections in each mode are made at the different configuration levels. The following operations are used to access the different levels and set values.

**ENTER CONF**
Push this button to enter the Menu level of configuration.

**STEP UP**
The STEP UP/STEP DOWN buttons are used to move to different levels.

**Menu Level**

**H**
Alphanumeric Display
Turn Pulser Knob to select to S, C, T, H, or F configuration modes.

**Function Block Level**

**H 11**
Alphanumeric Display
Turn Pulser Knob until desired Function Block (FB) number appears in alphanumeric display.

**Parameter Level**

**HINA**
Alphanumeric Display
Turn Pulser Knob to select parameters of each block.

**Value Level**

**HINA**
Alphanumeric Display
Turn Pulser Knob to select different values of a specified parameter. New values are displayed on 4-1/2-Digit Display.

**31**
4-1/2-Digit Display

**STORE**
Enters the new value.

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Value Level — Tag Name and Engineering Units

- Alphanumeric Display

Blinking cursor shows alphanumeric character position to be changed. Turn Pulser Knob to select alphanumeric character for this position. The position number of the blinking cursor is displayed in the 4-1/2-Digit Display.

4-1/2-Digit Display

Moves the cursor to adjacent positions in the alphanumeric display enabling 4-character engineering units and 12-character tag names to be entered.

Alphanumeric Display

The STORE button need only be pushed once after all alphanumeric characters are entered.

STORE

Leaves the configuration mode.

EXIT

The STORE button is only active at the Value level. The EXIT button can be used at any time (any level).

Configuration Lockout

- Alphanumeric Display

Configuration modes and alarm trip-point adjustments can be restricted by lockout switches within the station. An X will appear at the menu level in the alphanumeric display to indicate "locked-out" modes.

CONFIGURATION PROCEDURE

Use the following procedure as a guide to develop a configuration for your Model 383 Multi-Point Display Station.

Step 1. Draw a block diagram illustrating the Function Blocks that will be used in your application. Group inputs at the top, outputs, if any, at the bottom, and calculator and logic blocks in the middle so that the drawing represents the logical flow of the configuration. Be sure to make note of transmitter ranges, engineering units, and alarm limits.

Step 2. Determine the order in which the blocks are to be executed. This sequence will be used to assign the ESN numbers during configuration. Use ESN numbers in multiples of 2 (e.g., 10, 12, 14, etc.) to allow future corrections, additions, or modifications to be easily entered. Record the ESN's in the T column of your Configuration Documentation Booklet (AD383-30).

Step 3. Identify the inputs and outputs for each Function Block in the diagram. Refer to the Function Block section of this manual to identify input/output designations. Again, enter this information into the Configuration Documentation Booklet.

Within the Model 383 Configuration there will probably be function blocks that will have unconfigured inputs due to the user's particular configuration. These inputs are shown with default values. The default values are values which are configured by the Model 383 software to ensure normal operation of these function blocks when the inputs are not used. When an input is not used (i.e., HINA = 00), a default value will be inserted into the function block algorithm to ensure normal operation.

Step 4. Select the hard (H) and soft (S) configuration parameters for each block. Refer to selections in this book for choices available for each. Record this information in the H & S columns in the Configuration Documentation Booklet.

Step 5. Determine the calibration values required for inputs and outputs of the Model 383. All Model 383's are shipped factory calibrated as follows: Voltage Inputs, 1-5 Vdc; Thermocouple inputs, each input calibrated for full temperature range of all thermocouple types; RTD Inputs, full temperature range. Analog Output, 4-20 mA dc. If your requirements differ, refer to SD383, Installation and Service Instructions, for recalibration procedures.

Step 6. Review the completed Configuration Documentation Booklet before proceeding with data entry. Make any changes. Use the station's configuration controls to enter the data. You can enter all configuration data required, or edit one of the FCD's to develop the configuration, depending on your application. An example of the specific steps required for data entry is provided below.

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Configuration Example

1. Press to enter Menu Level of configuration.

   ENTER    CONF

2. Turn Pulser Knob so that T (Table of Function Blocks) appears on alphanumeric display.

   T       01

3. Press to select FB01. Analog input #1 from the Table of Function Blocks.

   STEP    DOWN

4. Press again to select the Execution Sequence Number [ESN] for the block.

   T      ESN

5. Press again to select the value level.

   STEP    DOWN

   01       Turn Pulser to select appropriate ESN number. Values are shown in 4-1/2- Digit Display as you turn pulser.

   STORE

6. Press to enter that value into configuration.

   EXIT

7. Press to leave configuration.

   ENTER    CONF

8. Press and repeat for other [S, C or H] modes for each desired Function block to be included in configuration.

OPERATING CONTROLS

The PULSER KNOB serves two functions. 1) It is used to select the display point to be viewed. Turning the Pulser Knob will light a display number 1 through 15 provided that display Function Block has been configured. 2) It is used to adjust alarm trip-points after the alarm quick access button has been pushed.

The DISPLAY Pushbutton is used to select the Display Identifier (PV, A1, A2, A3 or A4) for the current display point being viewed. PV represents process variable, and A1 through A4 represent alarm trip-points 1 through 4. The value in the 4-1/2- Digit Display will be either direct engineering units or percent of scale, depending on the status of the EN% Pushbutton. When alarms 1 through 4 are displayed additional information will be displayed in the alphanumeric display in the following format. The first 2 spaces will reflect the alarm type: LO, HI; or OR (Out of Range, above 100% or below 0%). The next space will be left blank. The last space will show an asterisk if the alarm has been tripped, or will be blank. Should an OR alarm be tripped, the 4-1/2-Digit Display will show either a HI (PV > 100%) or LO (PV < 100%) to further define the alarm. Alarms that have not been utilized in configuration will not be accessible.

ACK

The ACKNOWLEDGE Pushbutton is used to terminate the flashing of alarm LED's. Any display point that has been configured for "common acknowledge" may be acknowledged while any other point is being viewed. However, if this option is not being utilized, the point in alarm must first be selected as the current display point before it’s alarm can be acknowledged. Any alarm condition occurring under the Station Status display must be acknowledged in this manner. Also, if multiple error codes are present under the Station Status display, the ACK pushbutton will step through them.

C
L

When in the "C" (Console) position, adjusting alarm trip-points, and entering configuration are locked out from the faceplate. The pushbutton must be toggled to the "L" (Local) mode to allow these faceplate operations.

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This pushbutton toggles the variable readout between Engineering Units and Percent of Scale in the 4-1/2-Digit Display continuously and the 4-character alphanumeric display when the TAG/UNIT button is in the UNIT position. The alphanumeric display will show either a "%" sign or a configurable 4-character engineering units identifier.

Toggles the 4-character alphanumeric display between the point tag and Digital Display Units. Each time this pushbutton makes a transition from UNITS to TAG, the 12-character point tag will scroll through the alphanumeric display. When UNITS is active, the alphanumeric display will show either a "%" sign or a configurable 4-character engineering units identifier (i.e. SCFM) depending on the status of the ENG/% Pushbutton.

When this Pushbutton is activated, the Model 383 will automatically and sequentially step through all configured displays beginning with the current display. The current display number will flash signifying the Model 383 is in the AUTO SCAN mode. AUTO SCAN may be terminated at any time by pushing the EXIT button. After all points have been scanned once, the Model 383 will automatically terminate the AUTO SCAN mode. The delay time between stepping through displays is configurable, and during the delay, all display oriented pushbuttons are active.

The quick access ALARM pushbutton is used to adjust alarm trip-points in either Engineering Units or Percent of Scale, depending on the status of the ENG/% Pushbutton. To use this feature, first select with the PULSER KNOB the display point at which you wish to change the alarm(s). Each time the alarm pushbutton is pushed, the alarm trip-point will be displayed on the 4-1/2-Digit Display. The corresponding configuration mnemonic will appear in the 4-character alphanumeric display. To change the alarm trip-point, simply rotate the PULSER KNOB to the new desired value and push the STORE button. Unconfigured alarms will be skipped over as will Out of Range Alarms. By definition, an Out of Range Alarm's trip-points are set at 0 and 100%.