MIC 1462 1/4 DIN SETPOINT PROGRAMMER

QUICK START USER MANUAL

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POWER UP PROCEDURE

Verify all electrical connections have been properly made before applying power to the instrument.

If the instrument is being powered for the first time, it may be desirable to disconnect the controller output connections. The instrument will be into control following the power up sequence and the output(s) may turn on. During Power up, a self-test procedure is initiated during which all LED segments in the two front panel displays appear and all LED indicators are on. When the self-test procedure is complete, the instrument reverts to normal operation.

Note: When power is first applied, a delay of approximately 3 seconds will be seen before the displays light up.

KEYPAD OPERATION

MODE Key
Cycles through modes available in the instrument.

SCROLL Key
Displays the next parameter in sequence (indicated by Message display).

UP Key
Increments displayed parameter value/cycles through options.
DOWN Key
Decrement displayed parameter value/cycles through options.

PROF Key
Cycles through Program (profile) numbers.

RUN/HOLD Key
Runs, holds or aborts current program (profile).

Jumps to next segment, when program is running.

Selects/de-selects Manual Control.

Sets a segment to Dwell when defining a program.
INDICATORS

Control Status Indicators

- **AT**: On when Self-Tune is active; flashes when PreTune is active.
- **ALM**: Flashes when any alarm is active.
- **OP1**: On when primary control output is active.
- **OP2**: On when secondary control output (if fitted) is active.
- **MAN**: On when Manual Control is selected.

Run Status Indicators

- **RUN**: On - Program running or (if HLD On also) held
  Flashing - Program in Delayed state
- **HLD**: On - Program held
  Flashing - Program in Auto-Hold
- **X60**: Off - timebase = hours/minutes
  On - timebase = minutes/seconds

Event Indicators

Each indicates the status (active or inactive) of a user-defined event
(Off = inactive, On = active)
**Mode Indicators**

**SET ●**
- On when Profile Set Mode is entered; flashes when viewing parameters in Configuration Mode after entry from Base Mode.

**PRG ●**
- On when Profile Set Mode is entered.

**DISPLAYS**

**UPPER DISPLAY**
- Process Variable value

**LOWER DISPLAY**
- Setpoint value or value/setting of parameter being viewed/edited.

**MESSAGE DISPLAY**

**CURRENT RAMP STATE**
- ▲ = UP Ramp
- ▼ = DOWN Ramp
- BOTH ON = Dwell
- Both flashing = In Manual Control while program is running

**PROGRAM NUMBER**
- Number of currently-selected program

**SEGMENT NUMBER**
- Number of current segment
**Single Setpoint/Base Mode Control**

With the Setpoint Programmer in Base Mode (i.e. with the RUN, HLD, SET, and PRG indicators off), the two main displays will show the process variable value (upper display) and the setpoint value (lower display - Read Only). To change the setpoint value:

1. Press the SCROLL key until the Message Area displays Setpoint.

2. If Setpoint has been enabled in the Enable Mode, the UP and DOWN keys may be used to change the setpoint value (in the lower display) as required.

3. When the setpoint value is set as desired, press the SCROLL key again to view the input units.

4. Press the SCROLL key until Outputs is displayed in the message display. Use the up and down arrow keys to turn output on or off.

**Selecting And Running A Program**

When no program is running, the instrument is in Base Mode and the RUN and HLD indicators are off. In this mode, select a program as follows:

1. Hold down the PROF key until the required program number is displayed.

2. Press the RUN/HOLD key once to start the program. The RUN indicator will then go ON, or flash if a delayed start has been programmed. The instrument is now in Program Run Mode. In Program Run Mode, the process setpoint and event outputs are controlled by the program selected.

**Holding A Program Manually**

The operator may hold or freeze a program by momentarily pressing the RUN/HOLD key. The HLD indicator will then go on (the RUN indicator staying on) and the program will stop execution. The program may subsequently be restarted by momentarily pressing the RUN/HOLD key again.

**HLD INDICATOR FLASHING:** Before the operator holds the program manually, the HLD indicator may start flashing. This indicates that the program is currently subject to a Deviation-Hold. If the RUN/HOLD key is pressed (for a manual Hold), the HLD
indicator will go on continuously. When the operator removes the manual Hold (by pressing the RUN/HOLD key again), the HLD indicator will either flash (indicating that the Deviation-Hold conditions still prevail) or go off (indicating that the Deviation-Hold conditions no longer prevail).

**RUN INDICATOR FLASHING:** This indicates that the program is in a Delay state (i.e. is timed to start after a user-defined delay has elapsed). When the delay period has elapsed, the program will run and the RUN indicator will come on continuously.

**Aborting A Program**

The operator may abort (i.e. terminate) the current program by holding down the RUN/HOLD key for more than five seconds. When the program is aborted, a return is made to the Base Mode and the Message area will read Aborted.

This message will be removed by the next key press.

"**End Of Program**" **Indication**

When the program has completed its End Segment (i.e. the last segment to be performed), the message display will read At End, and a return is made to the Base Mode. Press any key to clear the Message Display.
MIC 1462 PROFILE PROGRAMMING

Programming a profile into the MIC1462 control is broken into three categories:

GLOBAL - Those parameters common to all programs.
PROGRAM - Those which apply to a specific program as a whole.
SEGMENT - Those relevant to a specific segment in a specific program.

Global Parameters (common to all programs)
(Program Number = A, Segment Number = Blank)

1. Press the mode key until the message display reads “Prof Par”.
2. Press the scroll key once.
3. Press the Prof key until the program number display reads “A”.
4. The global parameters will now be displayed in the message display and the setting will be displayed in the lower display.
5. Press the scroll key to go from one parameter to the next.
6. Press the up or down arrow to change the displayed setting.

The parameters common to all programs (global parameters) are presented for editing/viewing in the following sequence:

Global Profile Parameters Table

<table>
<thead>
<tr>
<th>STEP</th>
<th>DESCRIPTION</th>
<th>MESSAGE DISPLAY</th>
<th>FUNCTION</th>
<th>AVAILABLE SETTING</th>
</tr>
</thead>
</table>
| 1    | Start On    | Start On        | Defines setpoint value at start of each program | SELP - Current Controller setpoint value  
Proc - Current Process variable value |
| 2    | Go To       | Go To           | Defines Base Mode Status and end of each program | On - Outputs are active  
Off - Outputs are inactive |
| 3    | End On      | End on          | Defines setpoint value at end of each program | F_SP-End on Final SP value  
SELP-End on Controller SP value |
<p>| 4    | Delay Time  | Delay           | Defines delay (in hours/min) between initiating the program and actually starting | Numerical value, with the decimal point separating the hours and minutes. |</p>
<table>
<thead>
<tr>
<th>STEP</th>
<th>DESCRIPTION</th>
<th>MESSAGE DISPLAY</th>
<th>FUNCTION</th>
<th>AVAILABLE SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Program Lock</td>
<td>LockProg</td>
<td>Defines whether the operator is permitted to change program definitions while a program is running/held</td>
<td>On - No changes permitted&lt;br&gt;Off - changes permitted</td>
</tr>
<tr>
<td>6</td>
<td>Power Fail Recovery Period</td>
<td>Recovery</td>
<td>Defines length of power loss before automatic return to Base Mode after restoration of power, regardless of Recovery Type.</td>
<td>1:00 - 24:59&lt;br&gt;NOTE: If the real time clock option has not been provided, changing this value to 0.01 will allow selection of Recovery Type. Setting this to 00:00 will force a return to Base Mode.</td>
</tr>
<tr>
<td>7</td>
<td>Power Fail Recovery Type</td>
<td>Rec Type</td>
<td>Defines response to restoration of power after a power loss. This parameter does not appear if Recovery is set to 0.00. These settings can be overridden by the Recovery parameter.</td>
<td>cont - Continue with mode of operation at time of power failure.&lt;br&gt;rEst - Restart program running at time of power failure. If one was not running, return to Base Mode.&lt;br&gt;PfH - Setpoint and event outputs are held at values at time of power loss. P.F. Hold is displayed until a key other than RUN/HOLD is pressed. Pressing the RUN/HOLD key will continue the profile if one was running. Holding this key for more than five seconds will abort the profile.</td>
</tr>
<tr>
<td>8</td>
<td>Time of day</td>
<td>RTC Time **</td>
<td>Sets clock time of real-time clock option</td>
<td>1:00 - 24:59</td>
</tr>
<tr>
<td>9</td>
<td>Day of week</td>
<td>RTC Day **</td>
<td>Sets day of real-time clock option</td>
<td>Sun through Sat</td>
</tr>
<tr>
<td>10</td>
<td>External Selection</td>
<td>Ext. Sel ***</td>
<td>Defines functions which may be controlled externally</td>
<td>nonE = No external selection&lt;br&gt;SEL = Program selection only&lt;br&gt;run = Only Run, Hold, Abort and x60 functions&lt;br&gt;both = All program selection and run control functions</td>
</tr>
</tbody>
</table>

* The Final Setpoint value for the End Segment of each program.
** Only if real-time clock is fitted.
*** Only if external options are fitted.
Program Parameters (apply as a whole to a specific program)
(Program Number = 1 to 8, Segment = Blank)

1. Press the mode key until the message display reads “Prof Par”

2. Press the scroll key once.

3. Press the Prof key until the desired program # is shown in the program number display.

4. The program parameters will now be displayed in the message display and the setting will be displayed in the lower display.

5. Press the scroll key to go from one program parameter to the next.

6. Use the up and down arrows to change the setting.

Only the parameters relevant to the displayed program number (which can be changed using the PROG key) are presented. The parameter sequence is as follows:

Program Profile Parameters Table

<table>
<thead>
<tr>
<th>STEP</th>
<th>DESCRIPTION</th>
<th>MESSAGE DISPLAY</th>
<th>FUNCTION</th>
<th>AVAILABLE SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cycle Count</td>
<td>Cycles</td>
<td>Defines the number of times the program will be repeated</td>
<td>1-9999 Program will repeat the set number of times</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>inF = Program will repeat indefinitely</td>
</tr>
<tr>
<td>2</td>
<td>Deviation Hold</td>
<td>Dev.Hold</td>
<td>Selects operation of Deviation Hold facility (relative to setpoint)</td>
<td>OFF = No Deviation Hold</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>H_SP = Deviation Hold above setpoint only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L_SP = Deviation Hold below setpoint only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>both = Deviation Hold above and below setpoint</td>
</tr>
<tr>
<td>3 *</td>
<td>Hold Band</td>
<td>HoldBand</td>
<td>Defines the width of the Hold Band</td>
<td>Numerical value (0.0 to span)</td>
</tr>
<tr>
<td>4 *</td>
<td>Hold On</td>
<td>Hold on</td>
<td>Defines whether the Deviation Hold facility is used on ramps only,</td>
<td>d_r = Deviation Hold on ramps and dwells</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>dwells only or both</td>
<td>d = Deviation Hold on dwells only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>r = Deviation Hold on ramps only</td>
</tr>
<tr>
<td>5</td>
<td>Pre-x60</td>
<td>Pre-x60</td>
<td>Determines whether the timebase for the program is pre-selected to be</td>
<td>nonE = No pre-selection</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>hours/minutes or minutes/seconds</td>
<td>On = Operates MINS/SECS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OFF = Operates HRS/MINS</td>
</tr>
<tr>
<td>6</td>
<td>Autostart time</td>
<td>Timer</td>
<td>Selects whether autostart is active for this profile</td>
<td>On</td>
</tr>
<tr>
<td></td>
<td>Enable</td>
<td></td>
<td></td>
<td>OFF</td>
</tr>
</tbody>
</table>
### Segment Programming

1. After all the program parameters are set for a particular program number, be sure the desired program # is still displayed and then press the Run/Hold key. A one should now be displayed in the segment # display.

2. The segment programming parameters will now be displayed in the message display and the setting will be displayed in the lower display.

3. Press the up or down arrow to change the values in the lower display, press the scroll key to go to the next parameter in the message display. Notethe program number and segment number displayes will remind you which program and step you are currently programming.

4. To get 4 dashes “----“ on the display for the final SP, press the up and down arrow at the same time.

5. To enter “End” into the time for the final segment, press down arrow to go below 0.
<table>
<thead>
<tr>
<th>STEP</th>
<th>DESCRIPTION</th>
<th>MESSAGE DISPLAY</th>
<th>FUNCTION</th>
<th>AVAILABLE SETTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Final Setpoint Value</td>
<td>Final SP</td>
<td>Defines the final value of the setpoint for this segment, selects a dwell segment or indicates a Join, Repeat, or End Program segment</td>
<td>Numeric value (limited by SPHi and SPLo) or (by pressing the UP/DOWN keys simultaneously) indicates a dwell with: “___ ___” or, if the segment is already a Join, Repeat, or End Program segment, as shown below</td>
</tr>
<tr>
<td></td>
<td>Segment Time or Ramp Rate as selected by Segment Mode parameter in Configuration Mode</td>
<td>Time or RampRate</td>
<td>Defines the duration/ramp rate of the segment or whether this is a Join, Repeat or End Program segment *</td>
<td>Four-digit number in the form nn.nn (hours-minutes or minutes-seconds) or negative values as follows (press DOWN key): JO1 - Join to Program 1 JO2 - Join to Program 2 JO3 - Join to Program 3 JO4 - Join to Program 4 JO5 - Join to Program 5 JO6 - Join to Program 6 JO7 - Join to Program 7 JO8 - Join to Program 8 rEP - Repeat Segment End - End Program</td>
</tr>
<tr>
<td>3</td>
<td>Event †</td>
<td>Event</td>
<td>Defines the states of the four event outputs for this segment</td>
<td>Four-bit binary number (0=inactive, 1=active) (0010 = only event 2 active)</td>
</tr>
</tbody>
</table>

* If a segment is set to be a Join segment, a repeat segment or an End Program segment, the next depression of the SCROLL key will set the Segment Number to 1. Otherwise, the next depression of the SCROLL key will display the next segment final SP, or Event for the current segment if the Event Output hardware is fitted.

† This parameter appears in the sequence only if the Event Output hardware is fitted, in which case this parameter will be followed by the Final Setpoint Value parameter for the next segment. If this hardware is not fitted, this parameter will be omitted from the sequence and the segment number will be advanced, causing the Final Setpoint Value parameter for the next segment to appear immediately.
Exiting Profile Set Mode

The operator may exit from Profile Set Mode by pressing the MODE key. To return to Base Mode, press the MODE key until the Base Mode prompt appears in the Message Display, then press the SCROLL key.

SAMPLE PROFILE

The Control is capable of storing eight (8) profiles with up to sixteen (16) segments depending on memory. Each segment consists of a final setpoint, time, and event(s) status. The sample profile below is set up to use Profile number 1.
**Entering Global Parameters For The Profile**

Press the mode key until Prof Par is displayed in the Message Display.

Press the SCROLL key and Cycles will be displayed with 1 displayed in the Program display. Make changes with the UP and Down arrow keys. Press the SCROLL key to move to the next display.

Note: the segment display must be blank. If not, press RUN/HOLD key until the segment display is blank.

<table>
<thead>
<tr>
<th>Description</th>
<th>Message Display</th>
<th>Setting In Lower Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle Count</td>
<td>Cycles</td>
<td>1</td>
</tr>
<tr>
<td>Deviation Hold</td>
<td>Dev. Hold</td>
<td>OFF</td>
</tr>
<tr>
<td>Time Base</td>
<td>Pre-x60</td>
<td>ON</td>
</tr>
<tr>
<td>Autostart Time Enable</td>
<td>Timer</td>
<td>OFF</td>
</tr>
</tbody>
</table>

**Entering Parameters Common To All Profiles**

With Cycles displayed in the Message Display, Press the PROF key until A is displayed in the Program Display. Make changes with the UP and Down arrow keys. Press the SCROLL key to move to the next display.

<table>
<thead>
<tr>
<th>Description</th>
<th>Message Display</th>
<th>Setting In Lower Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start On</td>
<td>Start On</td>
<td>Proc</td>
</tr>
<tr>
<td>Go To</td>
<td>Go To</td>
<td>OFF</td>
</tr>
<tr>
<td>Delay Time</td>
<td>Delay</td>
<td>0.00</td>
</tr>
<tr>
<td>Program Lock</td>
<td>Lock Prog</td>
<td>ON</td>
</tr>
<tr>
<td>Power Fail Recovery Period</td>
<td>Recovery</td>
<td>0.01</td>
</tr>
<tr>
<td>Power Fail Recovery Type</td>
<td>Rec Type</td>
<td>Cont</td>
</tr>
<tr>
<td>Time of Day *</td>
<td>RTC Time</td>
<td>Enter time</td>
</tr>
<tr>
<td>Day of Week *</td>
<td>RTC Day</td>
<td>Enter Day</td>
</tr>
</tbody>
</table>

* Only used if Real Time Clock is installed in the Control.
Running The Profile

Press the PROF key until 1 is displayed in the Program Display. Press the Run/HOLd key until 1 is displayed in the Segment Display and Final SP is displayed in the message display. Make changes with the UP and Down arrow keys. Press the SCROLL key to move to the next display.

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
<th>Message Display</th>
<th>Setting In Lower Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Ramp Time</td>
<td>Time</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>Setpoint</td>
<td>Final SP</td>
<td>250</td>
</tr>
<tr>
<td>#2</td>
<td>Soak Time</td>
<td>Time</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Event Status</td>
<td>Event</td>
<td>0001</td>
</tr>
<tr>
<td></td>
<td>Setpoint</td>
<td>Final SP</td>
<td>250 (or “- - - -“)</td>
</tr>
<tr>
<td>#3</td>
<td>Ramp Time</td>
<td>Time</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td>Event Status</td>
<td>Event</td>
<td>0000</td>
</tr>
<tr>
<td></td>
<td>Setpoint</td>
<td>Final SP</td>
<td>70</td>
</tr>
<tr>
<td>#4</td>
<td>Time</td>
<td>Time</td>
<td>End *</td>
</tr>
<tr>
<td></td>
<td>Event Status</td>
<td>Event</td>
<td>0000</td>
</tr>
</tbody>
</table>

* Press and hold the Down arrow key until “End” is displayed.

Press the mode key to return to the base mode. Press the PROF key until 1 is displayed in the segment display. Press the Run/HOLd key to start the profile.