

Model 382 Logic & Sequence Controller

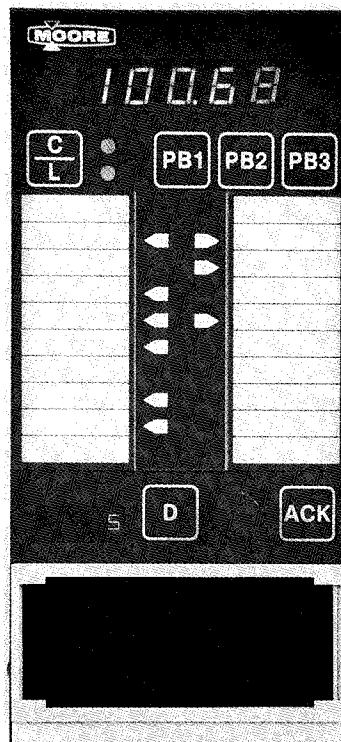
BATCH, SEQUENCING,
ON/OFF, & PROFILING
PLUS PID FUNCTIONS

DATA COMMUNICATIONS
capability for plantwide control

TWENTY-STEP SEQUENCER
with multiple input/output
conditions and timers

TWENTY-SEGMENT
PROGRAMMER for
setpoint profiling

EXTENSIVE LOGIC FUNCTIONS
for complex on/off and step
requirements



LARGE 5-DIGIT INDICATION
of a user-selected variable

USER-SELECTABLE
pushbuttons and displays

REMOVABLE
LEGEND CARDS

FUNCTION
BLOCK
CONFIGURATION

LOCAL CONFIGURATION
from faceplate using
concealed pushbuttons

DIRECT INPUT OPTIONS FOR
thermocouple, millivolt, RTD,
frequency, or computer pulse

DESCRIPTION

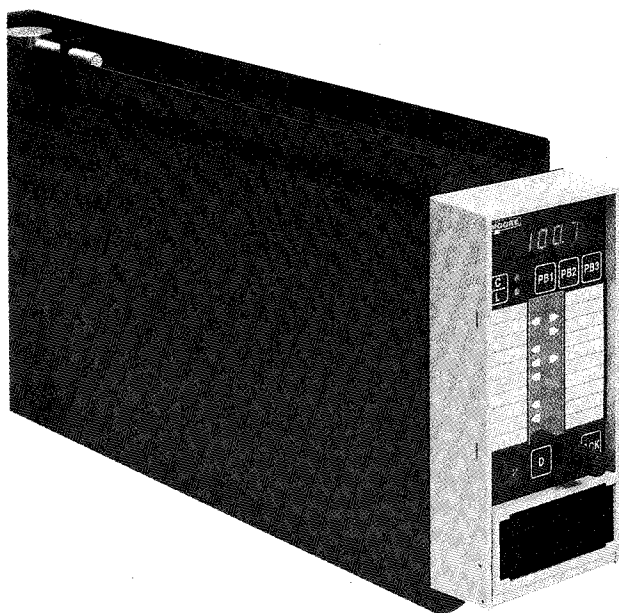
The Model 382 Logic & Sequence Controller is a versatile, general-purpose controller. It incorporates both logical on/off and sequential control with standard three-mode PID functions for applications where both continuous, regulatory and batch-type, event-driven control is desired. The modular function block design of the 382, field-proven with the Model 352 single-loop controller, provides the flexibility to use the 382 for a variety of control situations.

The input, output, logic, sequencing, and other control functions have been preprogrammed and stored in the 382's memory as separate function blocks. The user enters the appropriate parameter information into each desired function block and connects, or configures, the blocks for the required control action.

Step-oriented batch operations can be controlled using a step sequencer function block. Up to 20 separate steps can be defined. A profile programmer function block allows setpoint profiling operations to be defined. A PID controller function block provides proportional, integral, and derivative algorithms for regulatory control. Logic function blocks allow complicated on/off applications to be used. The LED status indicators can be individually selected and configured to display specific steps, segments, or logic execution.

Two 382 models are available. The Basic Model 382 (382B) includes the multiple control and logic function blocks, 2 analog inputs, 2 digital outputs, an analog output, and a digital input. The Expanded Model 382 (382E) provides additional I/O, including 16 individually selectable discrete points that can be separately configured as either input or output and an additional analog output. Also included with the Model 382E is a real-time, 24-hour, battery backed-up clock for time-based control and a recipe storage function that allows 6 separate configurations to be stored in the 382's memory. The real-time clock function includes the capability to select specific functions to resume operation after a power-off period. 382B controllers can be easily upgraded to expanded versions through the addition of an expander board and additional screw terminals.

Available options for the 382 include an alternative third input and a serial data interface for communication on a Local Instrument Link (LIL). LIL connections enable use of the 382 with other controllers, personal computers, or distributed control systems.

SPECIFICATIONS**ELECTRICAL & ENVIRONMENTAL****Power Supply**

Standard: 120/240 Vac, (85 to 264 Vac)

Optional: 24 Vac, 24 Vdc

2-Wire Transmitter & Digital Logic Power

Voltage: 26 Vdc, $\pm 7.5\%$

Current: 80 mA at 26 Vdc (max.)

Power Requirements

25 W, 45 VA (max.)

15 Watts, 25 VA (typ.)

Hazardous Area Classification

FM and CSA approved as non-incendive for Class I, Division 2 service in Groups A, B, C & D

Ambient Temperature Range

0 to 50°C (32 to 122°F)

Humidity

5 to 95% relative humidity with 0.028 lbs. of water per lb. of dry air

RFI Protection

Less than 0.5% full scale signal change at RFI field strength of 10V per meter with frequency range from 20 Hz to 1 GHz

Net Weight

Model 382E: 9 lbs.

Model 382B: 7 lbs.

Heat Dissipation

80 BTU/Hr.

Scan Time

100 msec.

CONTROL**PID Control**

PD, PID, ID, PID with adaptive gain

Logic

AND, NAND, OR, NOR, Exclusive OR, Flip/Flop, and Quad Comparator

Profiles

Profile programmer available to execute 20-segment profile operations with two available outputs

Sequences

Step sequencer available to perform 20 steps with 16 outputs, 16 input conditions, and timed steps

Math

Multiplier/Divider, Adder/Subtractor, and Additional Square Root Extractor Function Blocks

Timers

On/Off Delay, One-Shot, and Repeat Cycle Timer Function Blocks

INPUTS/OUTPUTS**Analog Inputs**

Range: 0 to 5 Vdc

Standard Calibration: 1 to 5 Vdc

Zero and Span: 0 to 1.0 Vdc and 4 to 5 Vdc

A/D Converter Resolution: 12 bits

Calibration Accuracy: $\pm 0.05\%$ of span

Analog Outputs

Range: 4 to 20 mAdc

Standard Calibration: 4 to 20 mAdc

Zero and Span: 4.0 mAdc and 16 mAdc; \pm trim

Accuracy: $\pm 0.1\%$ of span

Digital (Discrete) Input

Type: Isolated diode

Maximum Continuous Input: ± 30 Vdc

Isolation: 100 Vdc

On/Off Time: 500 msec. (min.)

Digital (Discrete) Output

Type: Open collector transistor

Load Voltage: 30 Vdc (max.)

Load Current: 100 mA (max.)

Off State Leakage: 200 μ A at 30 Vdc

Configurable I/O

Configured as Input:

Type: Non-isolated contact, 24 Vdc

Maximum Continuous Input: ± 30 Vdc

On/Off Time: 200 msec. (min.)

Configured as Output:

Type: Open collector transistor

Load Voltage: 30 Vdc (max.)

Load Current: 100 mA

Off State Leakage: 200 μ A at 30 Vdc

FUNCTION BLOCKS

TYPE	NUMBER	
	382B	382E
Inputs/Outputs		
Analog Input	2	2
Analog Output	1	2
Digital (Discrete) Input	1	1
Digital (Discrete) Output	2	2
Discrete I/O	—	16
Optional Third Input*	1	1
Control		
Hi/Lo Limit	1	1
Batch Totalizer	2	2
Profile Programmer	1	1
Repeat Cycle Timer	2	2
Alarm	1	1
Step Sequencer	1	1
PID Controller	1	1
Auto/Manual Transfer Switch	1	1
Setpoint Track & Hold	1	1
General Purpose Track & Hold	1	1
Deviation Amplifier	2	2
Dual Transfer Switch	2	2
Logic		
Quad Logic	12	12
Quad Comparator	1	1
Quad Delay Timer	2	2
Quad Divider Counter	2	2
Quad One Shot Timer	2	2
Quad Flip/Flop Logic	3	3
Multiplier/Divider	2	2
Adder/Subtractor	2	2
Square Root Extractor	1	1
General Purpose		
Operator's Display	1	1
LIL Communications**	1	1
Clock/Recipe Storage	—	1
TOTAL	52	70

* Requires optional third input board

** Requires serial interface board

MODEL NUMBER

Sample Model Number	382B	A	1	1	N	N	F
Basic Model Number							
Basic	382B						
Expanded	382E						
Power Supply							
120/240 Vac (85-264 Vac); 47-63 Hz	A						
24 Vac, +10%, -15%; 47-63 Hz	B						
24 Vdc, +10%, -15%	C						
Mounting Case							
Standard 20 Screw Terminals	1						
Standard 40 Screw Terminals (req'd for 382E)	2						
Not Required	N						
Operator's Panel							
Digital Display (Standard)	1						
Not Required (Includes Blank Panel)	N						
Delete - Panel Not Included (Can only be furnished with Mounting Case option N)	D						
Input No. 3 Option							
Frequency	F						
Computer (Dual Pulse/Pulse Direction)	C						
Additional 1-5 Vdc Voltage	V						
Millivolt or Thermocouple (J,K,T,E,S,R,B)	T						
RTD (DIN and US curves)	D						
Thermocouple (Hi-Isolation and Common Mode Rejection)	H						
Not Required	N						
Local Instrument Link Interface Option							
RS-422 Half Duplex	1						
Not Required	N						
Hazardous Area Classification							
FM/CSA approved, Class I, Division 2, Groups A, B, C & D	F						
Not Required	N						

ACCESSORIES

- **Model 382 Configuration Software (P/N 15939-17)** – PC-based software package that allows configuration of a 382, when equipped with the Local Instrument Link option, through either a Model 320 Independent Computer Interface or a MYCRO™ 3932 Independent Computer Interface (ICI-2.5).
- **Adapter Bezel (P/N 15738-123)** – A 3" x 6" adapter to utilize existing panel cutouts for 382 use.
- **Blank Filler Panel (P/N 15738-168)** – Provides uniform control room appearance when panel provides space for additional 382s prior to installation.
- **Rear Terminal Enclosure Kit (P/N 15738-179)** – Allows conduit wiring to be run to 382 for enclosed protection of rear-mounted screw terminals. Includes necessary mounting hardware, bracket, and cover.
- **Loop Identification Card** – Custom printed identification for flip-down access door. Up to 5 lines with 24 characters per line can be specified.

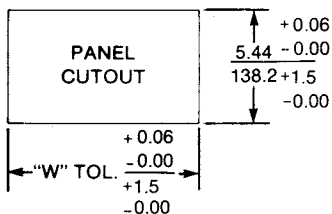
- **Permanent Instrument Tag** – Stainless steel instrument tag permanently attached to 382 casing. One line with up to 26 characters can be specified.

ORDERING INFORMATION

- Specify model number, selecting:
 - Basic Model Number
 - Power Supply
 - Mounting Case
 - Operator's Panel
 - Input No. 3 Option
 - Local Instrument Link Interface Option
 - Hazardous Area Classification
- Select 382 accessories, as required

DIMENSIONS

PANEL CUTOUT



$$\text{SINGLE UNIT } W = \frac{2.68}{68.0}$$

$$\text{MULTIPLE UNIT "W"}$$

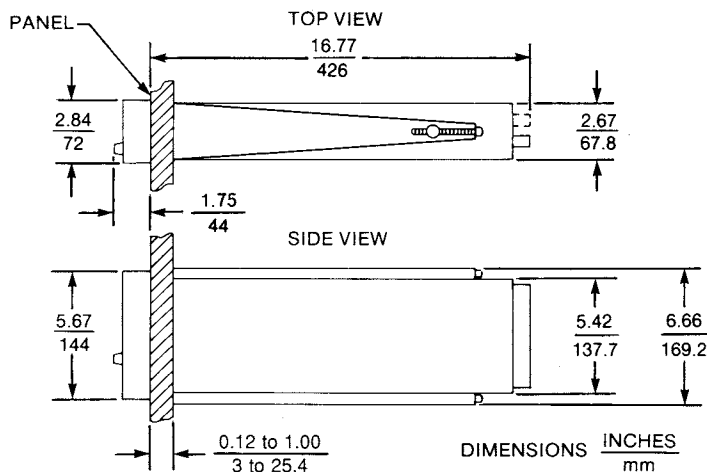
$$\text{"W" INCH} = (2.84 \times N) - 0.16$$

$$\text{"W" mm} = (72.1 \times N) - 4.1$$

N = NO. OF STATIONS

Alternate Single Unit DIN
Standard Cutout: 138 mm high x 68 mm wide.

CASE DIMENSIONS



REFERENCE LITERATURE

Bulletin 382, Model 382 Logic & Sequence Controller
Bulletin 35-1, MYCRO Local Instrument Link System
GC39S-17, Model 382 Configuration Software
GC352A, Optional Inputs for the Models 352, 351, & 382