USER MANUAL

IN-BOWL DRYER
HMI USER GUIDE
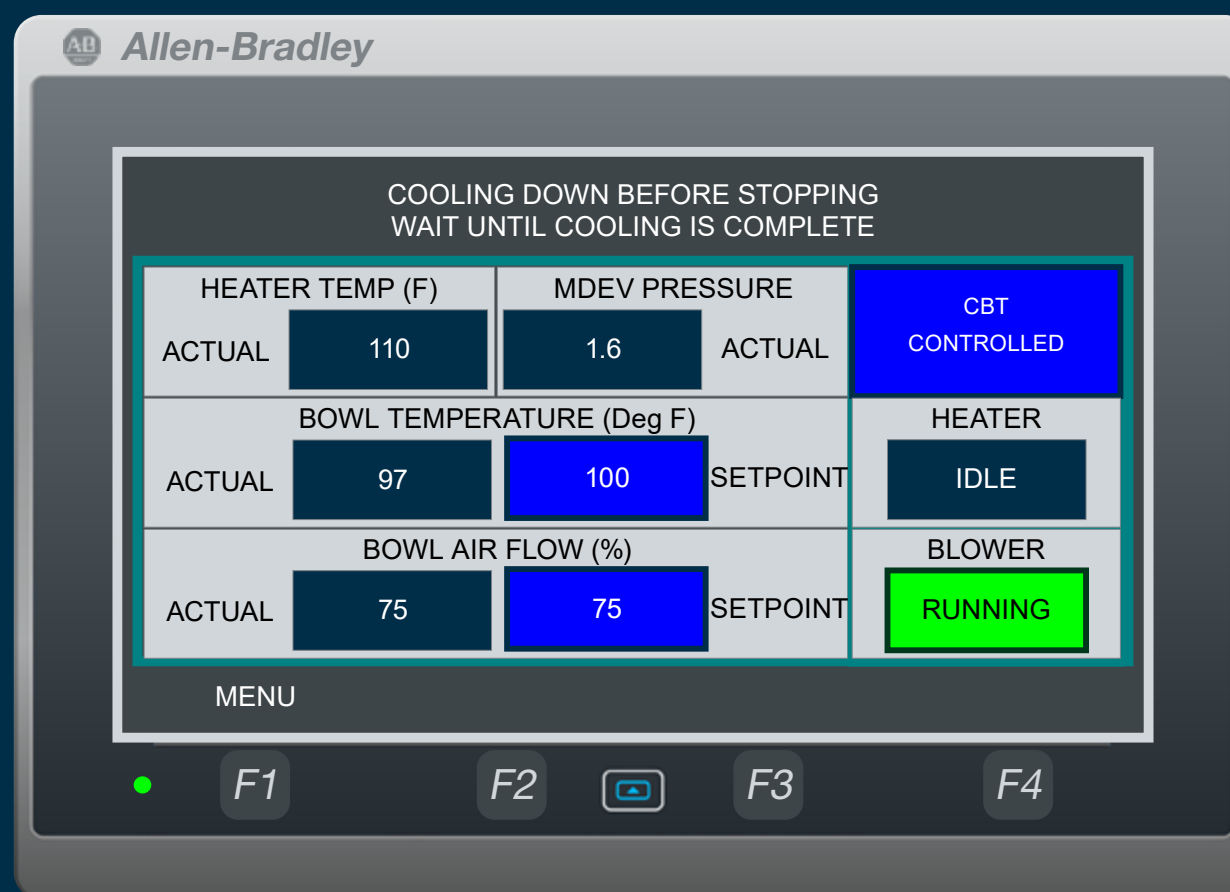
BAYER

Allen-Bradley

COOLING DOWN BEFORE STOPPING
WAIT UNTIL COOLING IS COMPLETE

HEATER TEMP (F)		MDEV PRESSURE		CBT CONTROLLED
ACTUAL	110	1.6	ACTUAL	

BOWL TEMPERATURE (Deg F)			HEATER
ACTUAL	97	100 SETPOINT	IDLE

BOWL AIR FLOW (%)			BLOWER
ACTUAL	75	75 SETPOINT	RUNNING

MENU

F1   F2   F3   F4

MENU

Legal & Safety

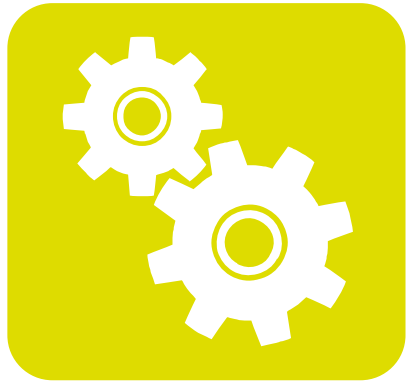**Main Menu**

Set Points

Maintenance

Alarms

Diagnostics

Configuration

Pictograms

Users can advance or go back single pages by using quick navigation links shown below, right.

Users can navigate to the Menu by clicking on the Menu icon shown below, left.

LEGAL & SAFETY

This manual contains technical information regarding Bayer SeedGrowth™ Equipment. Please read and understand these instructions completely before proceeding to install and operate the equipment. Bayer reserves the right to change specifications, models, components, or materials at any time without notice. For additional equipment information contact us at 1.800.634.6738. Please have this manual available when contacting Bayer.

Always use caution and common sense when working with any chemical. Read the product label and SDS carefully and follow their instructions exactly as described.

Optimal operating conditions for this piece of equipment requires an ambient temperature 32° F to +104° F (0° C to +40° C), relative humidity less than 90% (minimum condensation). Make necessary provisions to protect this piece of equipment against excessive dust, particles containing iron, moisture and against corrosive and explosive gases.

Our technical information is based on extensive testing and is, to the best of our current knowledge, true and accurate but given without warranty as the conditions of use and storage are beyond our control. Variables, such as humidity, temperature, change in seed size or variety and viscosity of chemical products can all affect the accuracy of the chemical application and seed coverage. To ensure the desired application rate and optimum seed coverage, check the calibration periodically throughout the day, and make adjustments as needed.

Any person who is involved in the installation or periodic maintenance of this equipment should be suitably skilled or instructed and supervised using a safe system of work. Isolate the treater before removing guards for maintenance.

⚠ EXPOSURE CONTROL

Always use caution and common sense when working with chemicals. Read the product label and SDS carefully and follow their instructions exactly as described. The following Personal Protective Equipment (PPE) recommendations and best practices help promote safe use in seed treatment.

Note: Exposure Control signs and labels conform to the requirements of ANSI Z535.4 or ISO 3864.

Wear protective clothing

Wear disposable or reusable coveralls with long sleeves.

Hand protection required

Wear chemical-resistant gloves.

Wear rubber boots

Wear chemical resistant rubber boots.

Labels

Label recommendations and directions for handling must be followed, including treatment procedure (use of sticker) as well as the safety requirements.

Treatment products

Keep products in a locked room that has been approved for crop protection products.

Wear a mask

Wear respiratory protection.

Eye protection required

Wear protective eyewear.

Calibration

Seed treatment equipment must be checked and calibrated regularly to ensure accurate and safe application.

Clean seed

Use well cleaned seed to avoid creation of polluted dust that will contaminate the machine, treating facility, workers, farmers and the environment during sowing.

Cleaning

Use a vacuum to clean machines. Avoid using compressed air for cleaning.

Laundry

Wash soiled reusable clothing separately. Workers must take a shower after each shift.

Empty containers

Non-returnable empty containers must be triple rinsed before they can be disposed. For others the recommendation of the producer must be followed.

Spillage

Spillage must be avoided; it must be thoroughly cleaned up to avoid contaminating the environment and waterways.

Maintenance

Keep machinery clean between treating sessions.

⚠ REFERENCE SYMBOLS

Symbols and signal words are used to identify the level of hazard and help avoid personal injury.

Note: Safety signs and labels conform to the requirements of ANSI Z535.4 or ISO 3864.

Shock Hazard

Alerts that dangerous voltage may be present.

Warning

Alerts that a hazard may cause serious injury or death.

Caution

Alerts that a hazard may cause minor or moderate injury.

Hand crush - moving parts

Alerts crushing is possible.

Pinch point

Keep hands away from pinch points.

Rotating shaft

Do not wear loose clothing around turning parts.

Disconnect

Disconnect to de-energize before opening.

Use guards

Keep guards in place. Do not remove during operation.

Lifting

Requires two people to safely lift an item.

Lift points

Requires the use of proper rigging and lifting techniques based on the lift plan.

Center of gravity

Indicates the center of gravity of the machine to help assist when rigging and lifting.

Tools

Required tools for installation and maintenance.

Parts

Required parts for installation and maintenance.

Tip

Calls attention to special information.

Note

Emphasizes general information worthy of attention.

Example

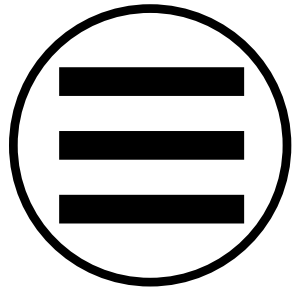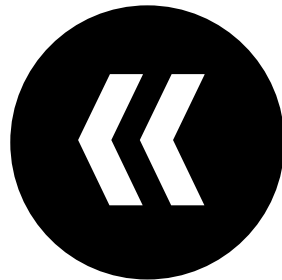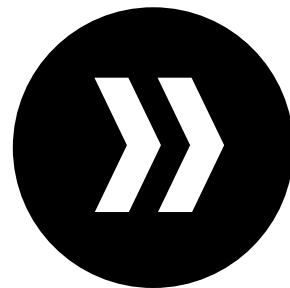Provides a problem or exercise that illustrates a method or principle.
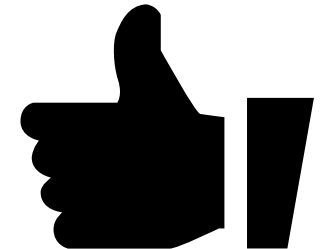
PICTOGRAMS

Menu
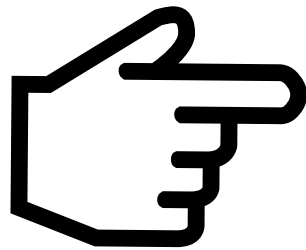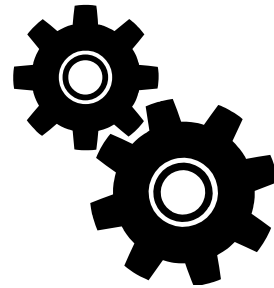
Previous

Advance

Legal & Safety

Main Menu

Like

Cursor Hand
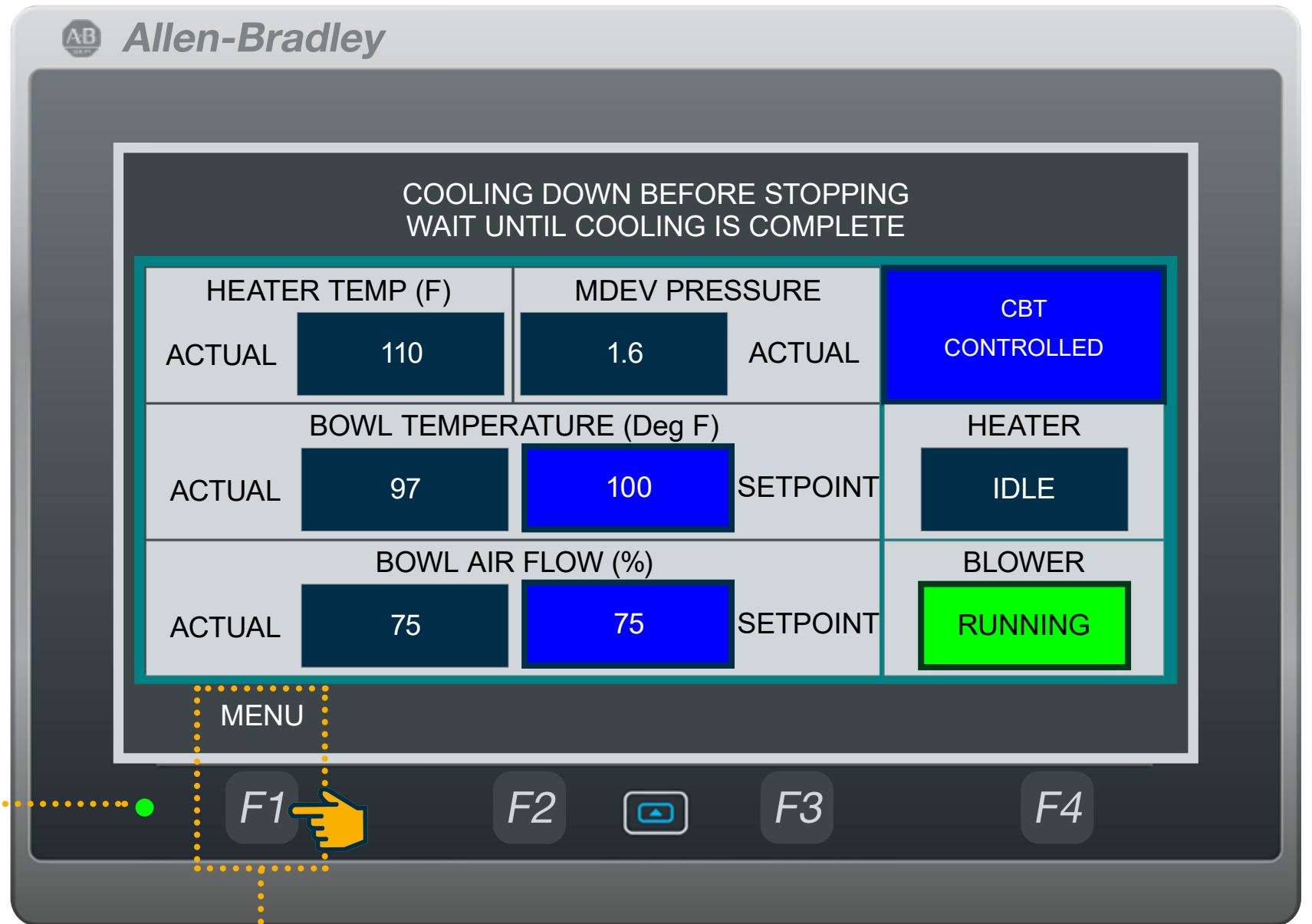
Diagnostics

Configuration

Alarms

Maintenance

Set Points

Main Screen

The interactive In Bowl Dryer Runtime Application displays on the **PanelView** 800 Human Machine Interface (HMI) touch panel, shown right. When the Runtime Application boots, the Main Screen, shown right, displays.

Power Indicator Light (ON/OFF)

F1-4 Navigation Buttons

When touched, navigates to the screen name displayed above it.

Main Screen

Can choose Control

- CBT (Remote)
- Local (HMI)
- Remote (pendulum)

Change Set Point

- Bowl Temperature
- Bowl Air Flow

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COOLING DOWN BEFORE STOPPING
WAIT UNTIL COOLING IS COMPLETE

HEATER TEMP (F)		MDEV PRESSURE		LOCAL OVERRIDE
ACTUAL	110	1.6	ACTUAL	

BOWL TEMPERATURE (Deg F)				HEATER
ACTUAL	97	100	SETPOINT	IDLE

BOWL AIR FLOW (%)				BLOWER
ACTUAL	75	75	SETPOINT	RUNNING

MENU

F1 F2 F3 F4

MAIN MENU

Main Menu Screen

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2:23:06 PM	MAIN MENU	MANAGER

MAIN	ALARMS
SET POINTS	DIAGNOSTICS
MAINTENANCE	CONFIGURATION

LOGIN   LOGOUT

F1   F2   F3   F4
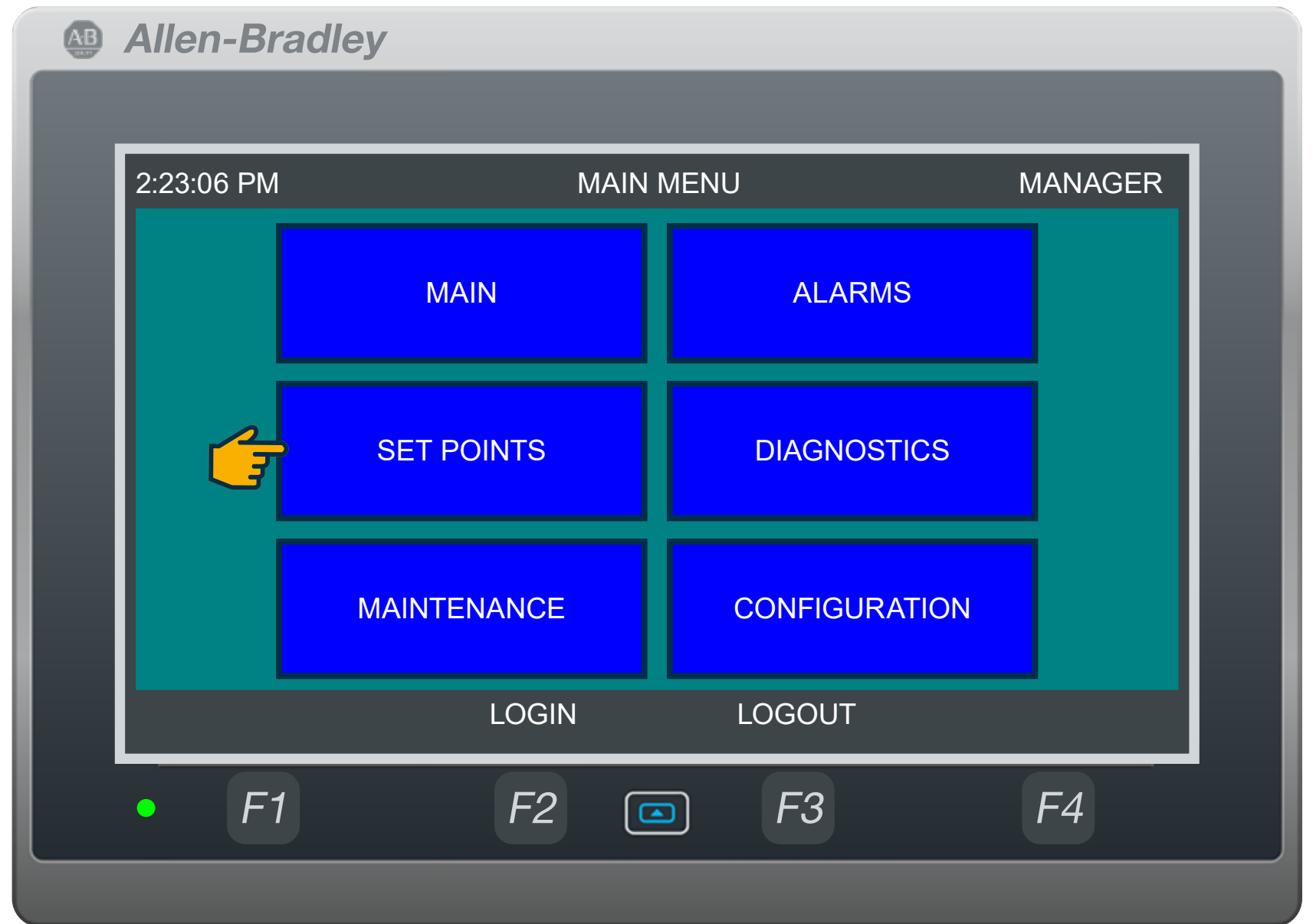
SET POINTS

Set Points Screen

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SET POINTS

BOWL TEMPERATURE

AIR FLOW

MDEV PRESSURE

MENU

F1   F2   F3   F4
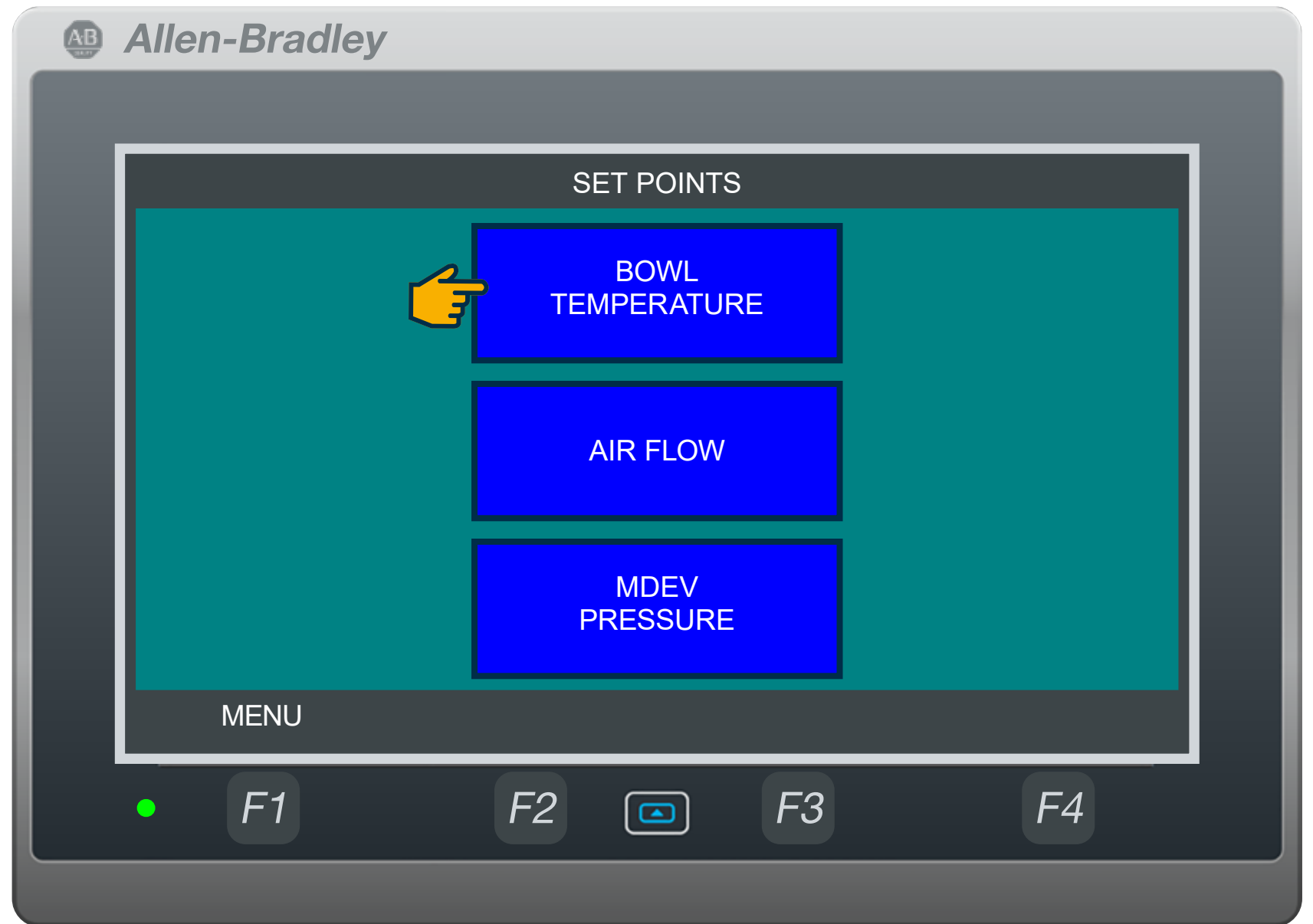
Bowl Temperature Dead bands Screen

- Set Alarm Dead band

- Set Delay before the alarm is triggered

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BOWL TEMPERATURE DEADBAND SET POINTS (Deg F)

ACTUAL BOWL TEMP	BOWL TEMP SET POINT	ALARM DEADBAND RANGE (Deg)	OUT OF DEADBAND TIME (sec)
78	100	10.0	10

MENU   BACK

F1   F2   F3   F4

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SET POINTS

BOWL
TEMPERATURE

AIR FLOW

MDEV
PRESSURE

MENU

F1 F2 F3 F4
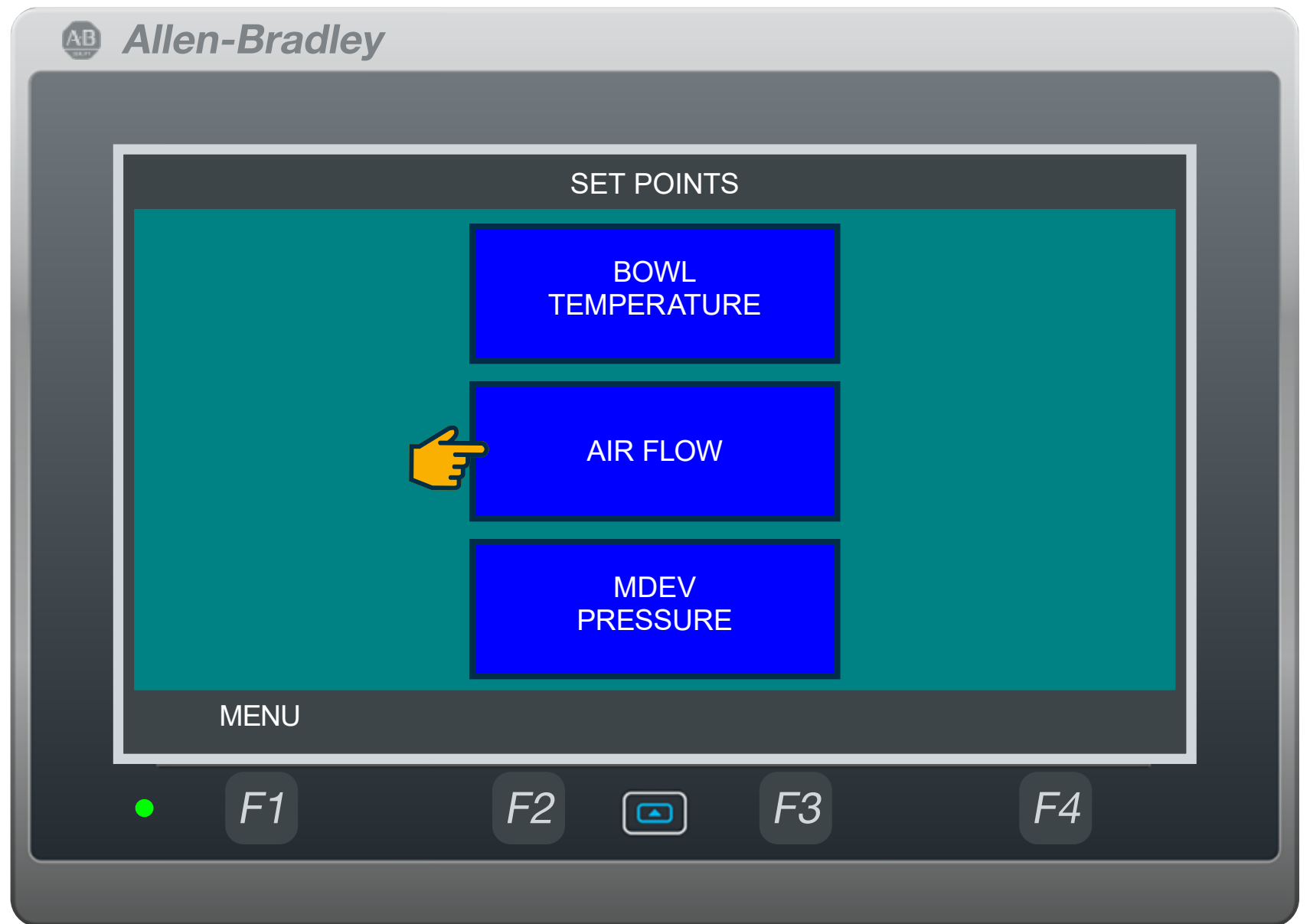
Air Flow Dead bands Screen

- Set Alarm Dead band

- Set Delay before the alarm is triggered

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AIR FLOW DEADBAND SET POINTS

ACTUAL AIR FLOW	AIR FLOW SET POINT	DEADBAND ALARM RANGE	OUT OF DEADBAND TIME (sec)
74.9	75.0	10.0	10

MENU   BACK

F1   F2   F3   F4

Allen-Bradley

SET POINTS

BOWL
TEMPERATURE

AIR FLOW

MDEV
PRESSURE

MENU

F1   F2   F3   F4
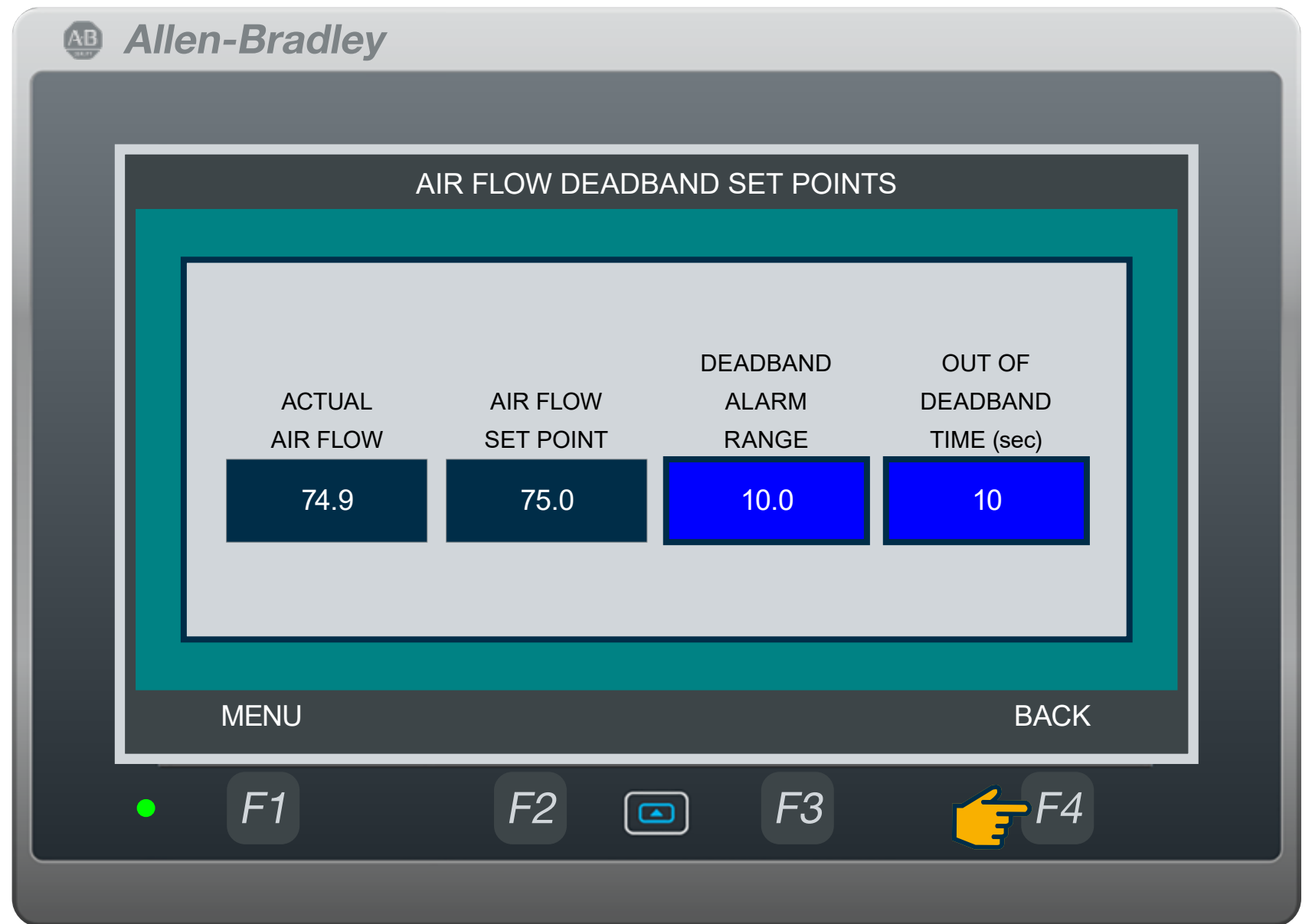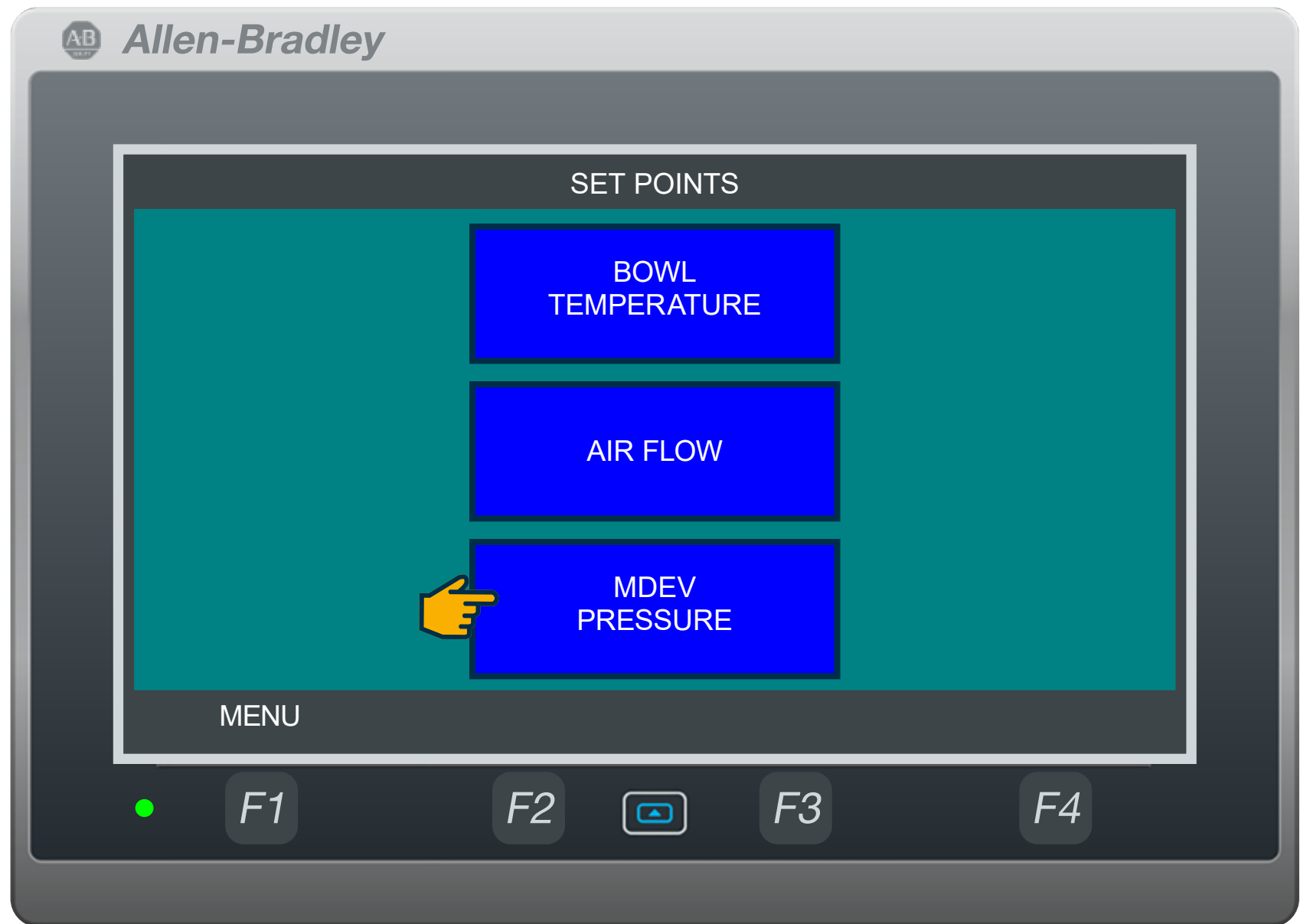
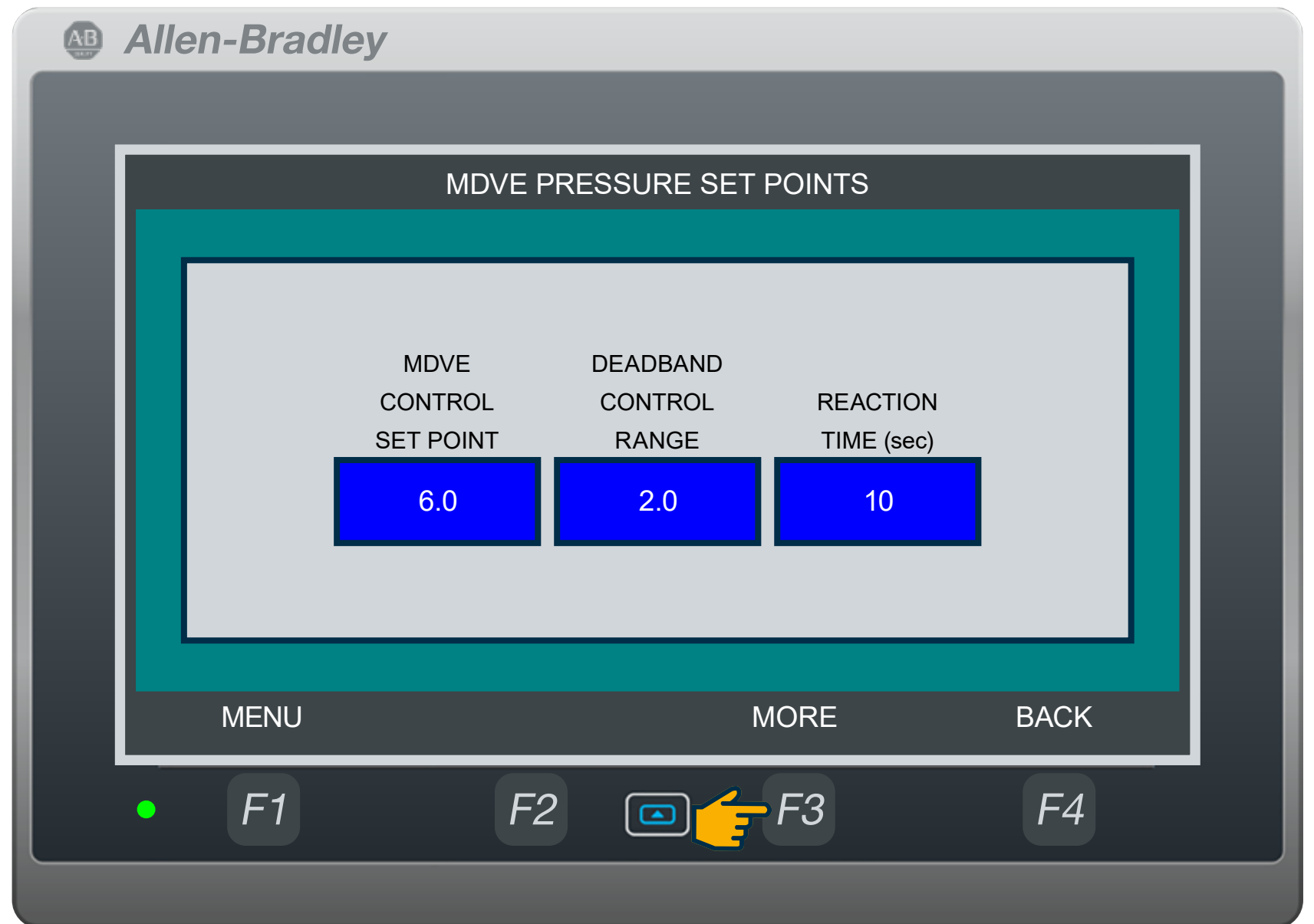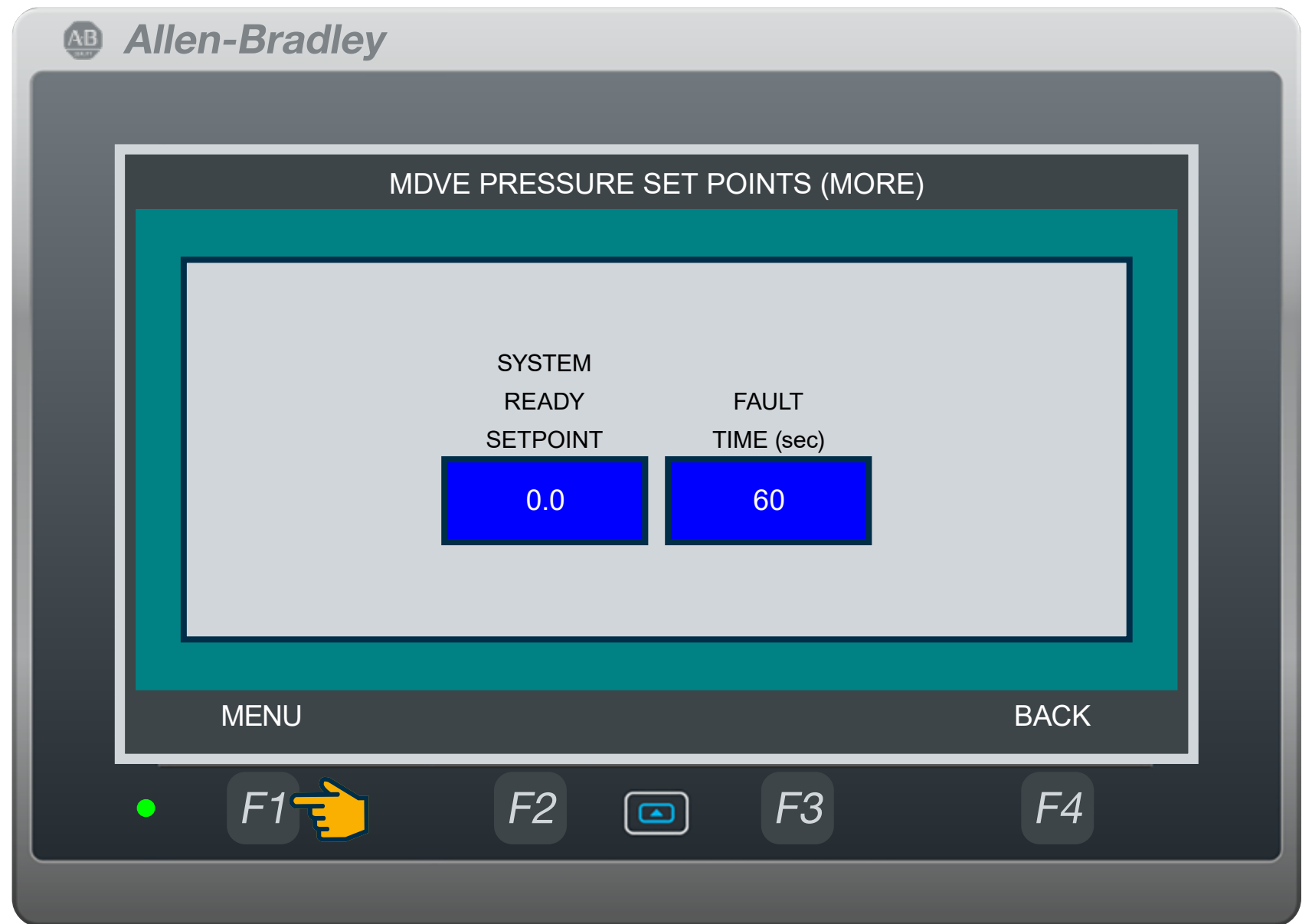## MDEV (Modulating Dust Exhaust Valve) Pressure Set Points Screen

- Set the Set Point

- Set Dead band before the valve will react

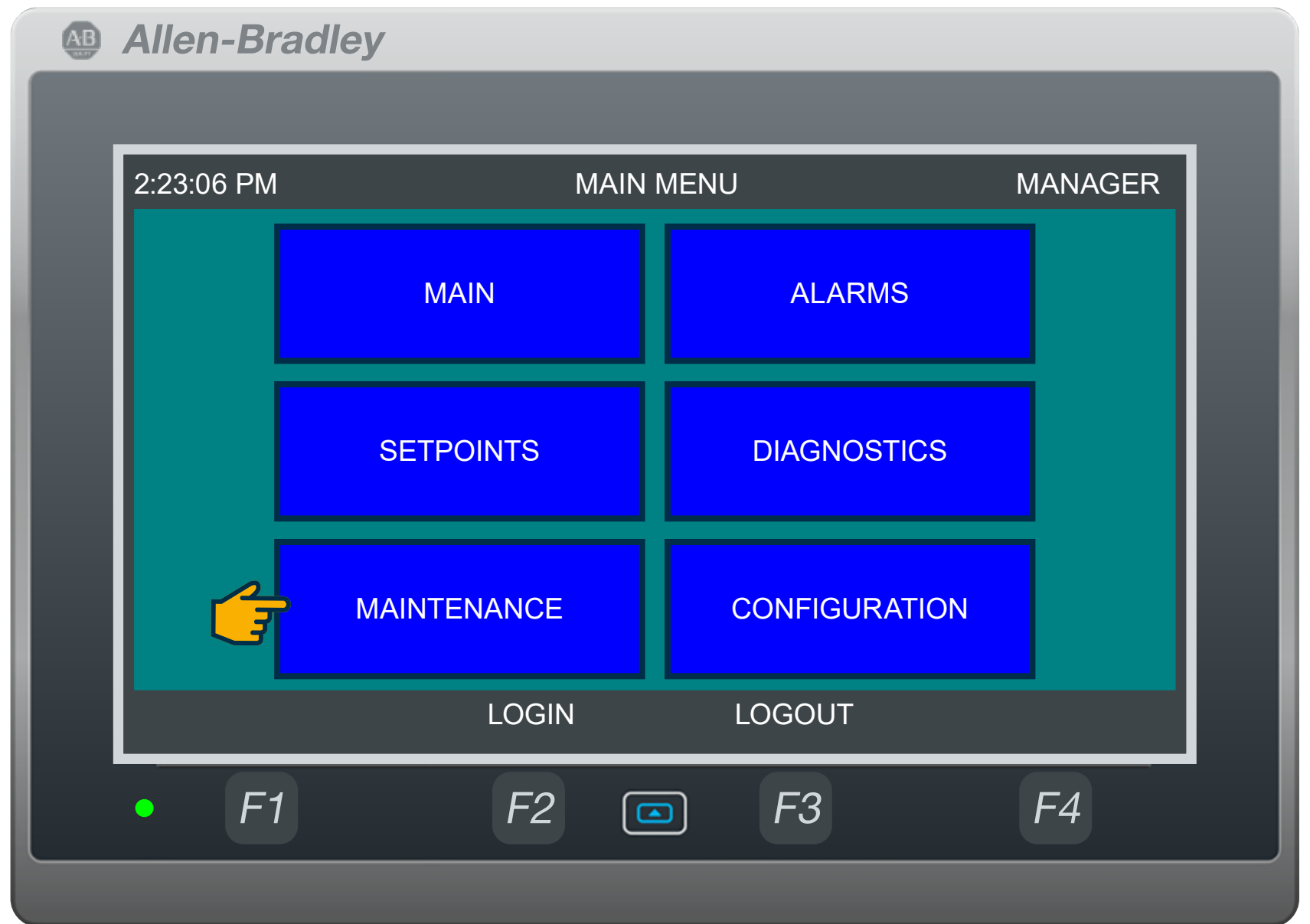- Delay after the reading falls outside of the dead band before the valve will react

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MDVE PRESSURE SET POINTS

MDVE CONTROL SET POINT	DEADBAND CONTROL RANGE	REACTION TIME (sec)
6.0	2.0	10

MENU   MORE   BACK

F1   F2   F3   F4

MDEV (Modulating Dust Exhaust Valve) Pressure Set Points More Screen

- Pressure Set point

- Set Delay before the alarm is triggered

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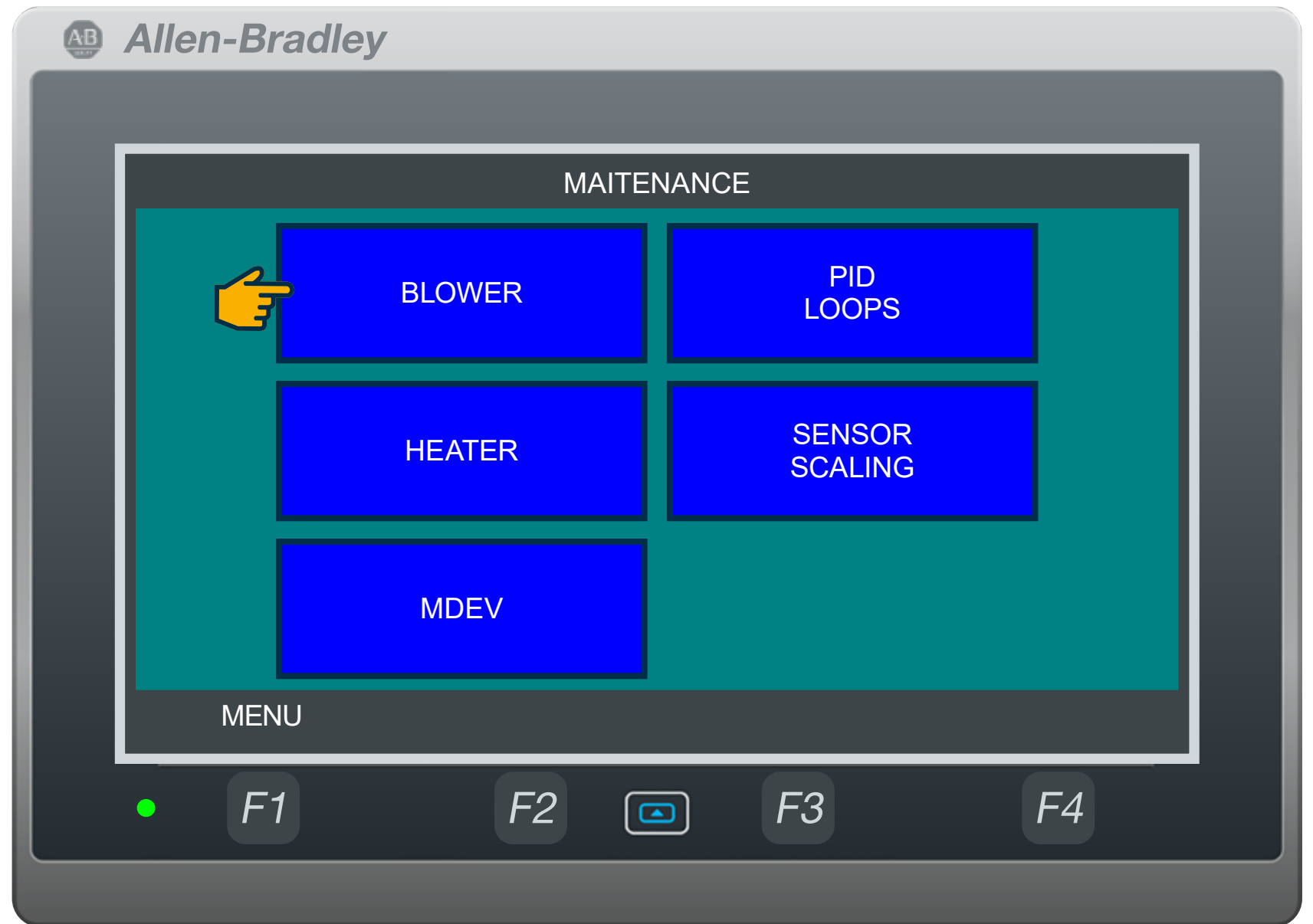
MDVE PRESSURE SET POINTS (MORE)

SYSTEM READY SETPOINT	FAULT TIME (sec)
0.0	60

MENU

BACK

F1   F2   F3   F4

Menu Screen

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2:23:06 PM	MAIN MENU	MANAGER

MAIN

ALARMS

SETPOINTS

DIAGNOSTICS

MAINTENANCE

CONFIGURATION

LOGIN   LOGOUT

F1   F2   F3   F4

MAINENANCE

Maintenance Screen

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MAITENANCE

BLOWER

PID
LOOPS

HEATER

SENSOR
SCALING

MDEV

MENU

F1   F2   F3   F4

Blower Maintenance Screen

Controls different Blower features

Operating Mode

- AUTO
- MANUAL

Feedback Mask

- ENABLED
- DISABLED
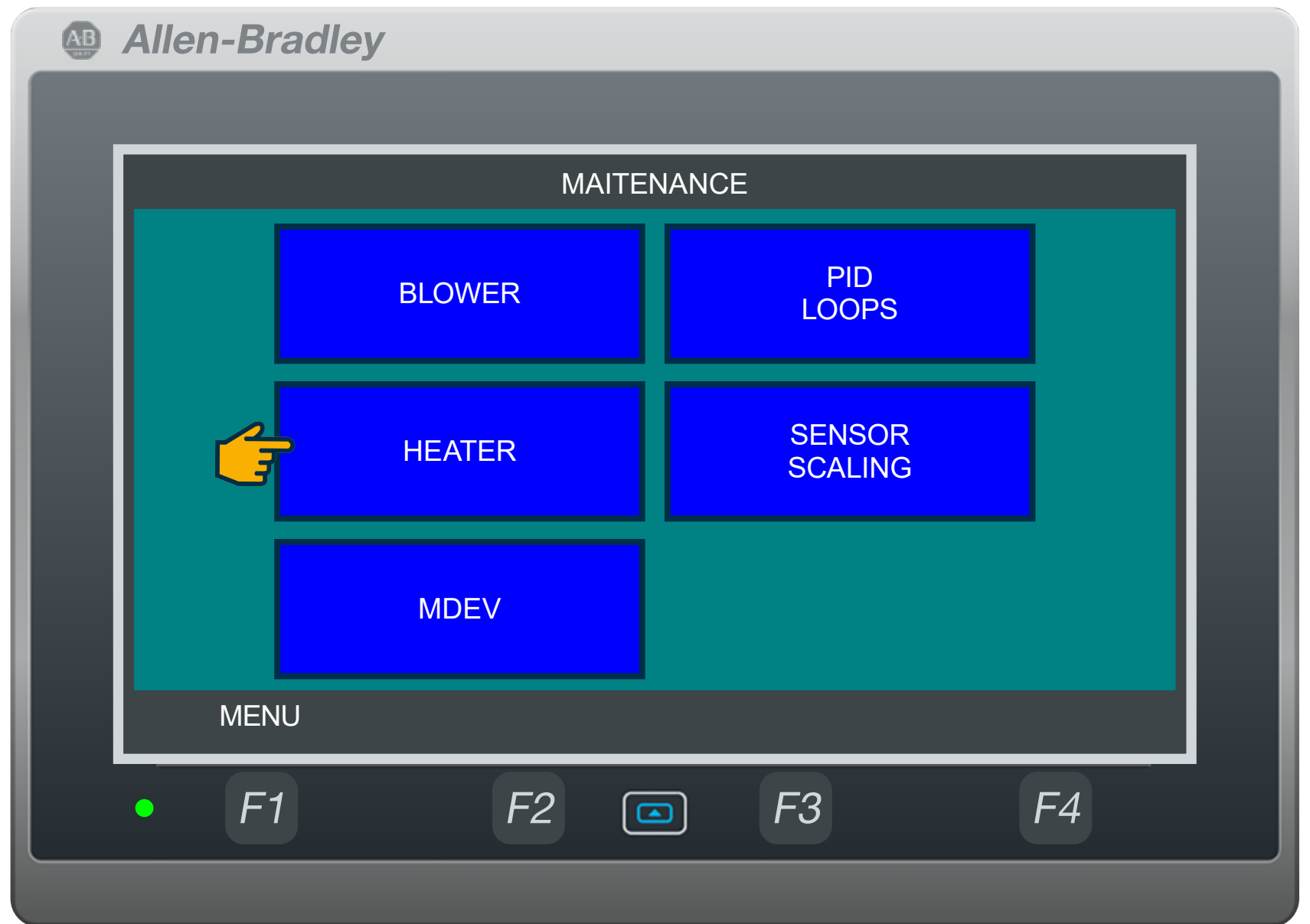- Set Delay before the alarm is triggered
- Set Max output for blower

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BLOWER MAINTENANCE

OPERATING MODE	FEEDBACK MASK	FAULT TIMER (sec)	MAX OUTPUT LIMIT (%)
AUTO	DISABLED	3	100

STATUS	OUTPUT
IDLE	OFF
SPEED	INPUT
.0 %	OFF

MENU   RUNTIME   BACK

F1   F2   F3   F4
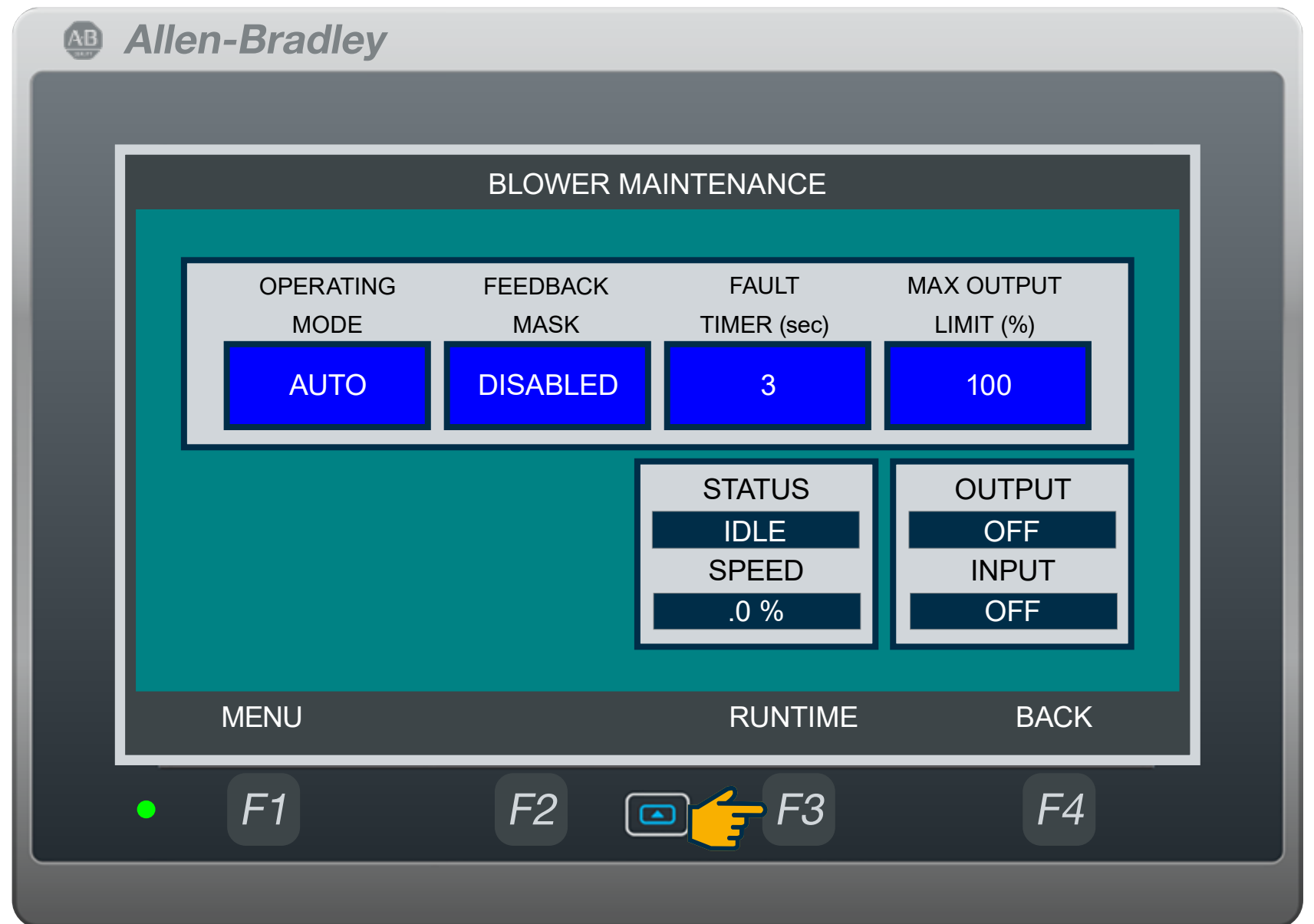
Blower Run-Time Hours Screen

Total Run time Hours of the machine

- Resettable Run Time Hours for the machine

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BLOWER RUN-TIME HOURS

NON-RESETTABLE
RUN-TIME HOURS

1

RESETTABLE
RUN-TIME HOURS

1

RESET

MENU   BACK

F1   F2   F3   F4

AB *Allen-Bradley*

MAITENANCE

BLOWER

PID
LOOPS

HEATER

SENSOR
SCALING

MDEV

MENU

F1   F2   ▢   F3   F4
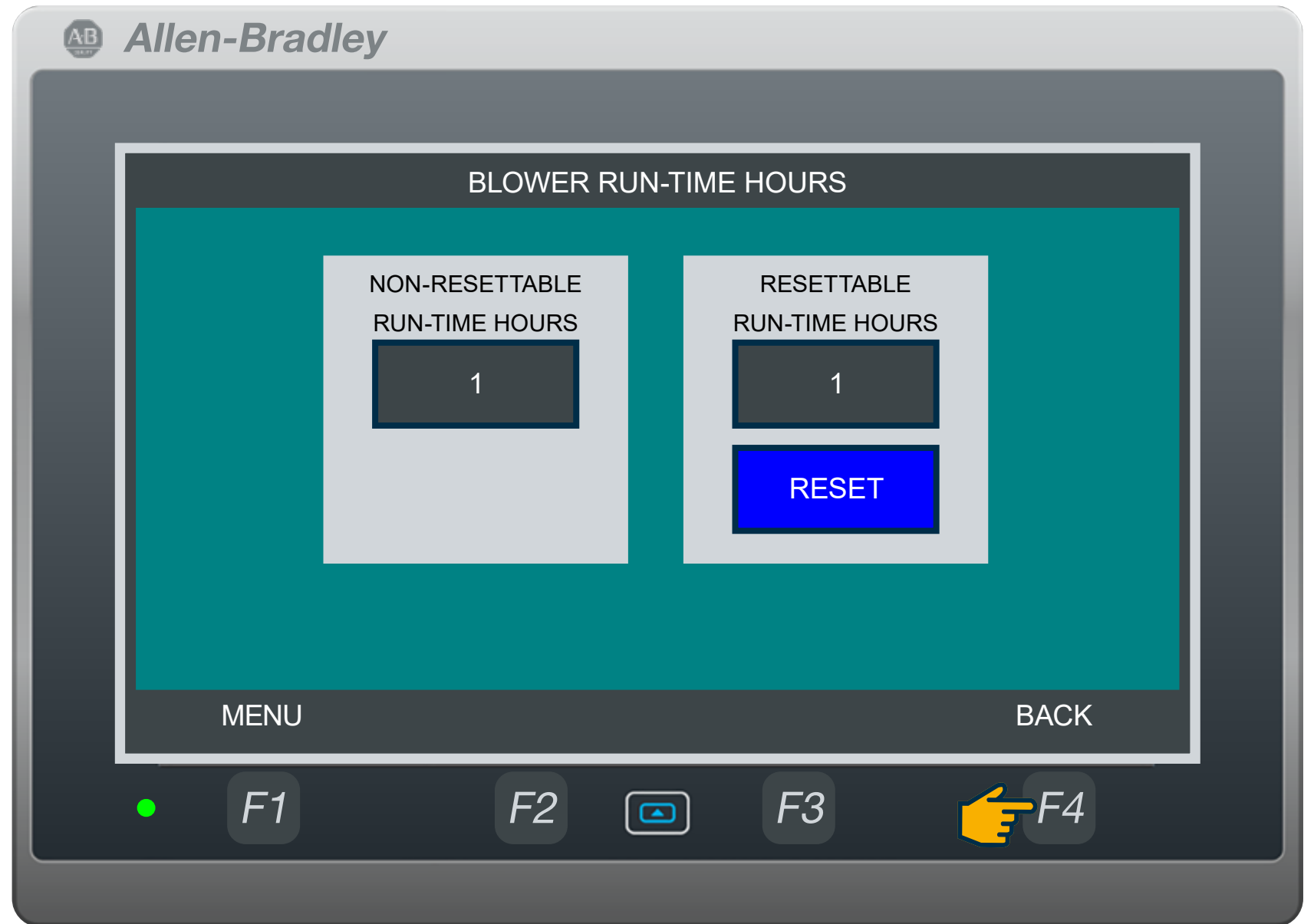
Heater Maintenance Screen

Controls different Heater features

- Feedback Mask

    ENABLED
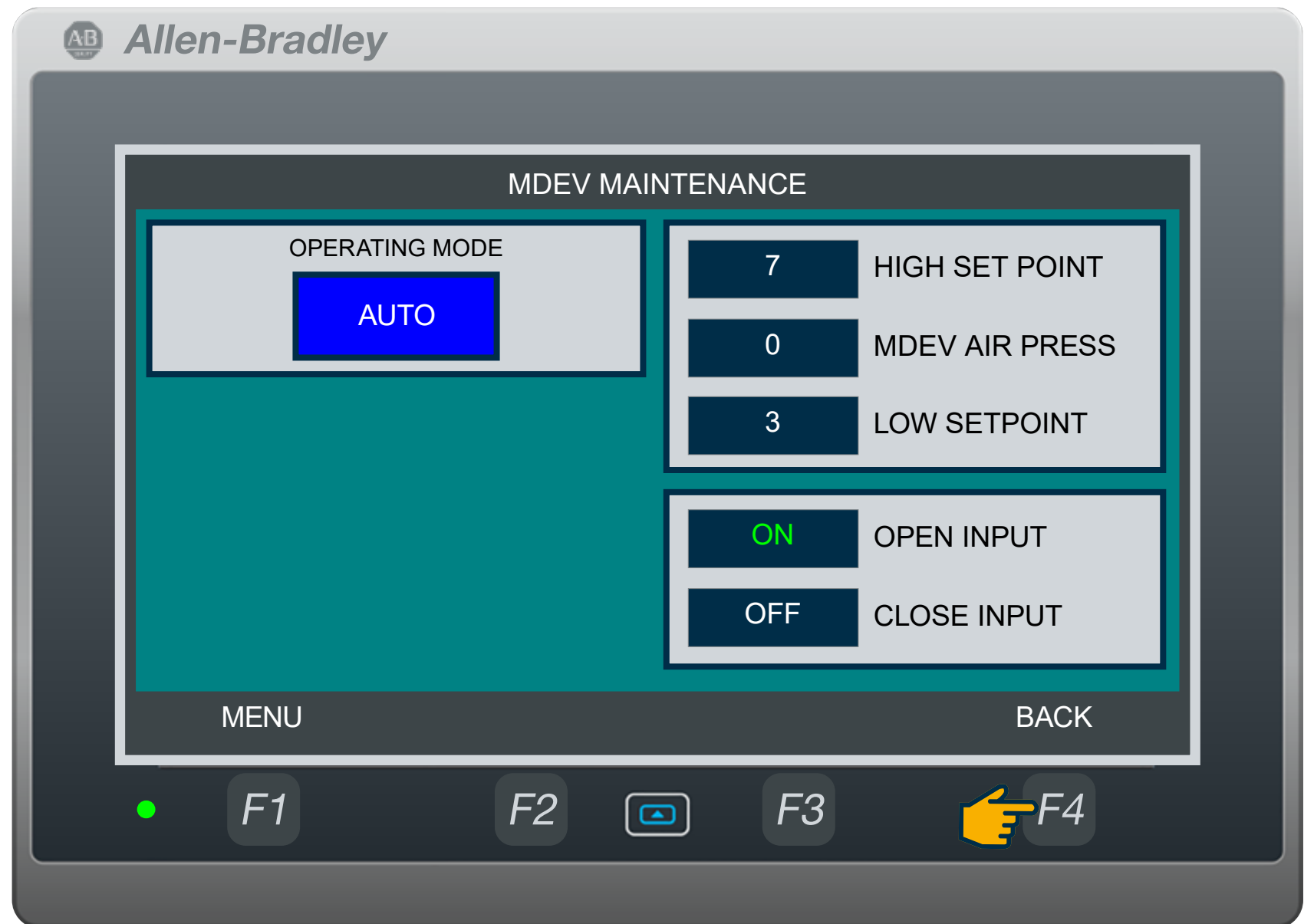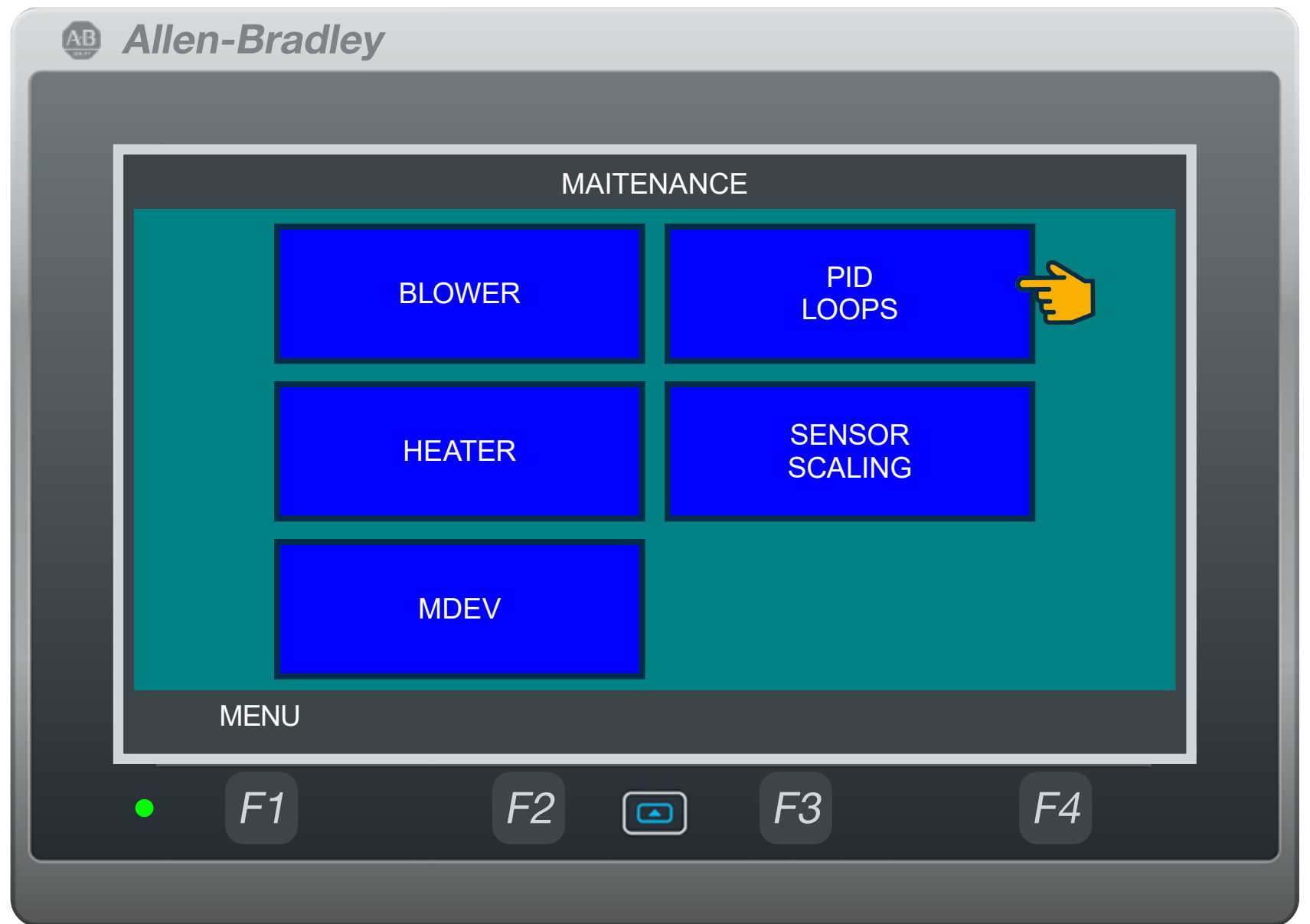
    DISABLED

- Set Delay before the alarm is triggered

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HEATER MAINTENANCE

FEEDBACK MASK	FAULT TIMER (sec)
DISABLED	3

STATUS	OUTPUT
IDLE	OFF
SPEED	INPUT
.0 %	OFF

MENU   RUNTIME   BACK

F1   F2   F3   F4

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MAITENANCE

BLOWER

PID
LOOPS

HEATER

SENSOR
SCALING

MDEV

MENU

F1   F2   F3   F4

23
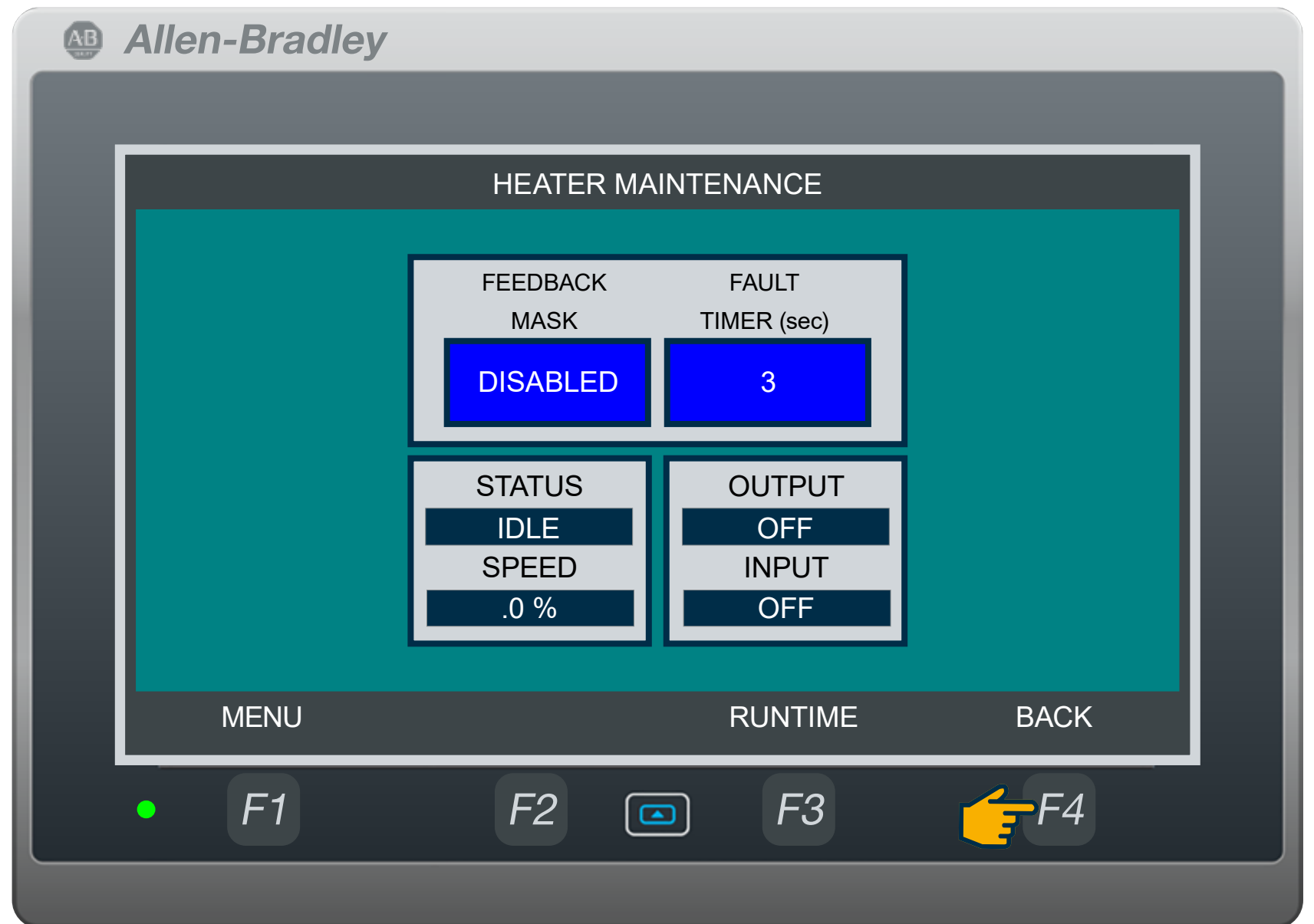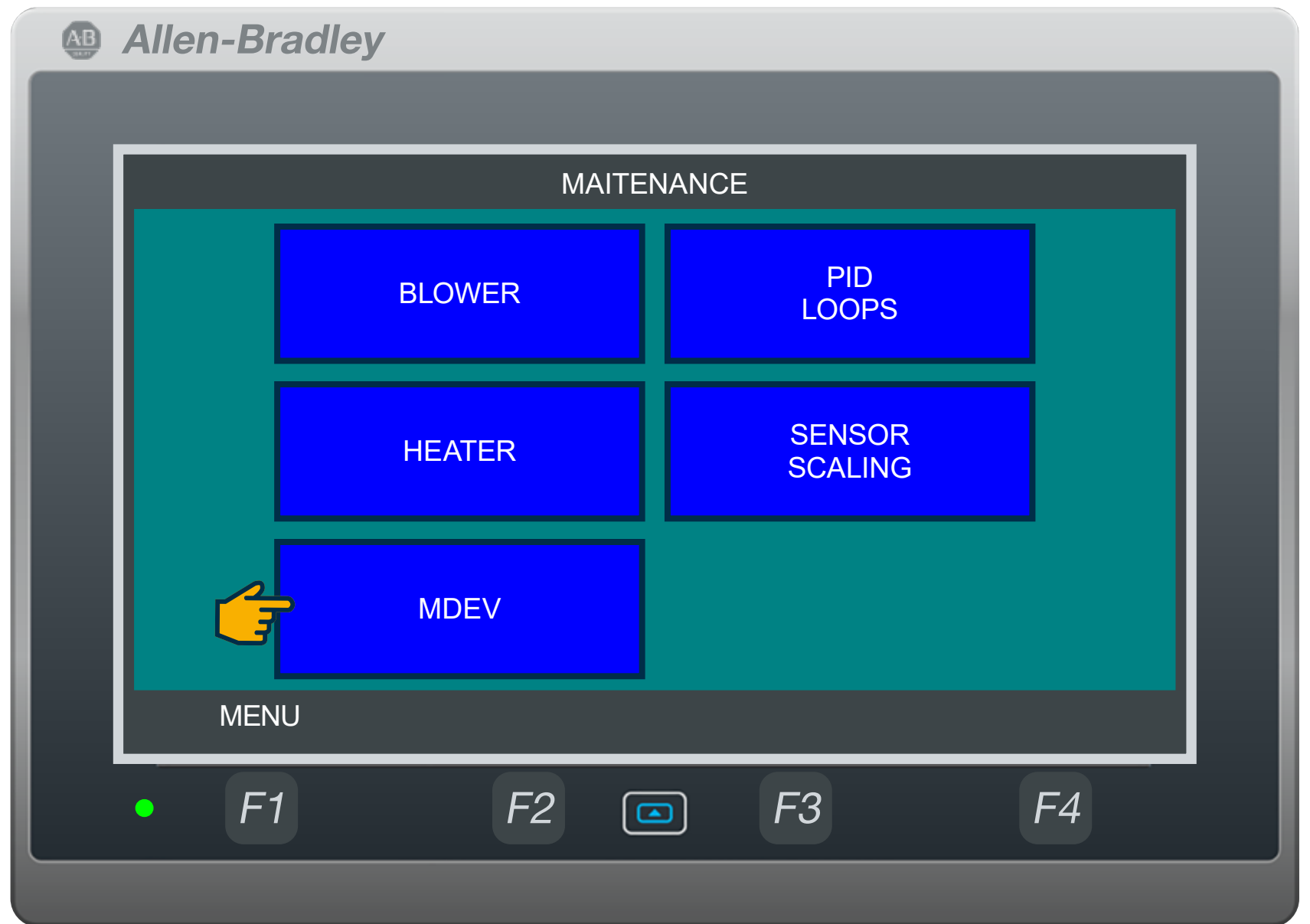
MDEV (Modulating Dust Exhaust Valve) Maintenance Screen

Operating Mode

- Auto

- Manual
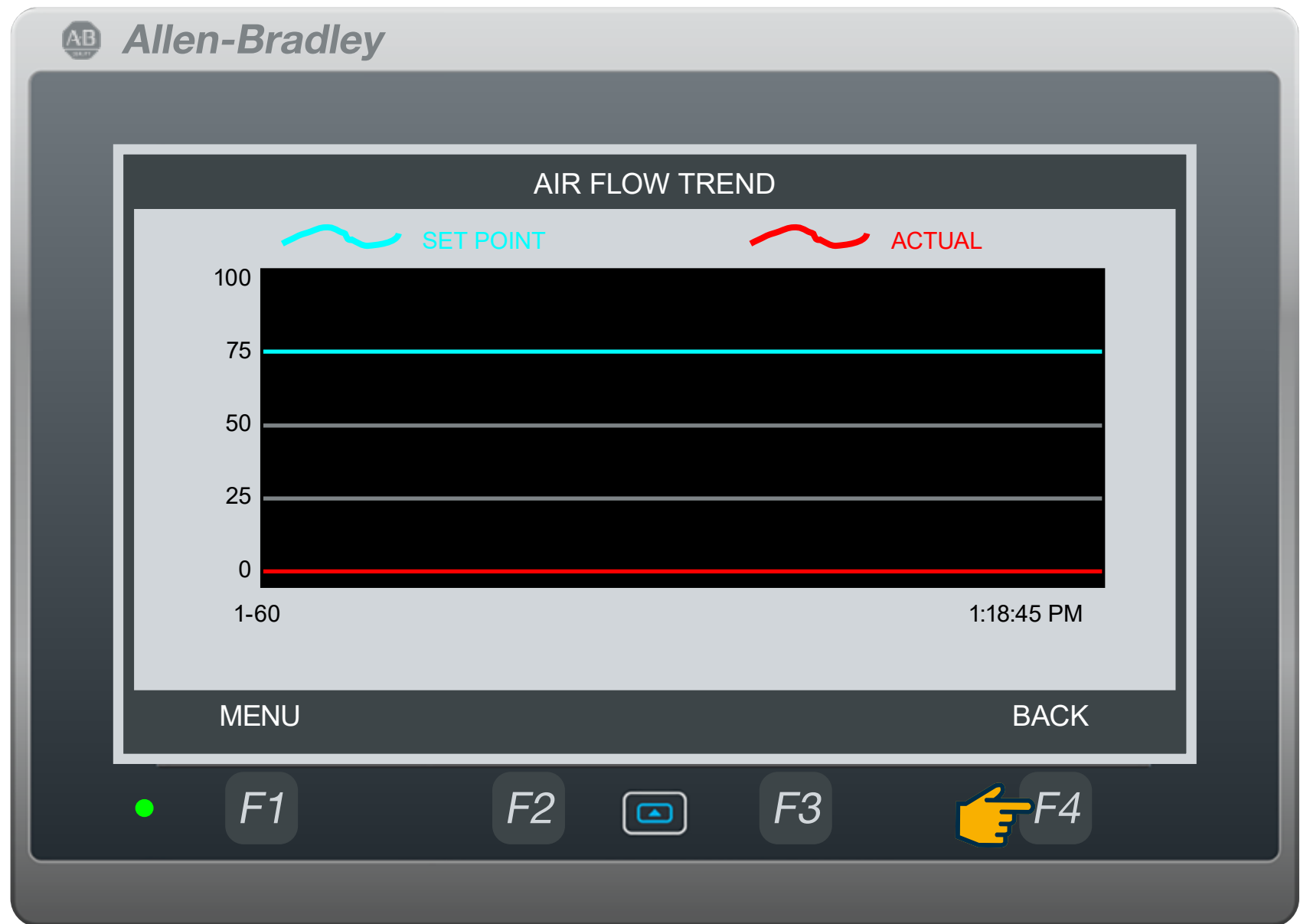
    Can manually open and close the MDEV valve

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MDEV MAINTENANCE

OPERATING MODE		
AUTO		

7	HIGH SET POINT
0	MDEV AIR PRESS
3	LOW SETPOINT

ON	OPEN INPUT
OFF	CLOSE INPUT

MENU   BACK

F1   F2   F3   F4

AB *Allen-Bradley*

MAITENANCE

BLOWER

PID LOOPS

HEATER

SENSOR SCALING

MDEV

MENU

F1   F2   F3   F4

25

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PID LOOPS

AIR FLOW

BOWL
TEMPERATURE

MENU

BACK

F1   F2   F3   F4
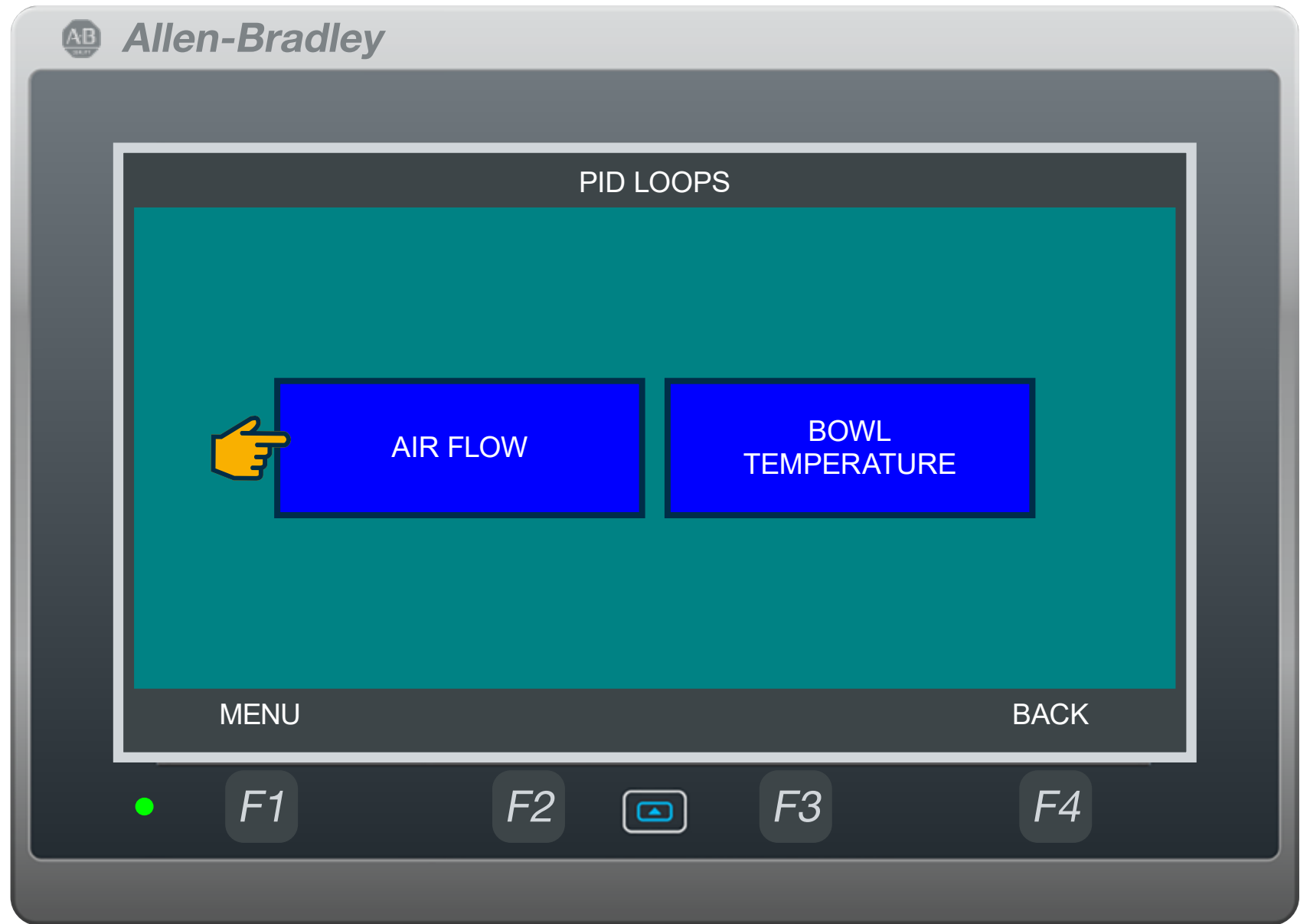
PID Airflow Screen

- Set PID parameters
- Change Set point

Allen-Bradley

AIR FLOW PID LOOP

PARAMETERS	
P	0.10
I	0.50
D	0.00

AIR FLOW

ACTUAL	SETPOINT
0	40

BLOWER

SPEED	STATUS
.0 %	IDLE

MENU   TREND   BACK

F1   F2   F3   F4

PID Airflow Trend

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AIR FLOW TREND

SET POINT   ACTUAL

100

75

50

25

0

1-60   1:18:45 PM

MENU   BACK

F1   F2   F3   F4

Allen-Bradley

PID LOOPS

AIR FLOW

BOWL TEMPERATURE

MENU

BACK

F1   F2   F3   F4

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PID Bowl Temperature Screen

- Set PID parameters
- Change Set point

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BOWL TEMPERATURE PID LOOP

PARAMETERS	
P	5.00
I	100.00
D	0.00

BOWL TEMPERATURE (Deg F)

ACTUAL	SETPOINT
75	100

HEATER

HEAT	STATUS
.0 %	IDLE

MENU   TREND   BACK

F1   F2   F3   F4

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BOWL TEMPERATURE TREND (Deg F)

SET POINT   ACTUAL

140

120

100

80

60

1-300   1:20:19 PM

MENU   BACK

F1   F2   F3   F4

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PID LOOPS

AIR FLOW

BOWL
TEMPERATURE

MENU   BACK

F1   F2   F3   F4

Allen-Bradley

MAITENANCE

BLOWER

PID
LOOPS

HEATER

SENSOR
SCALING

MDEV

MENU

F1   F2   F3   F4

Allen-Bradley

SENSOR SCALING

BOWL
TEMPERATURE

AIR FLOW

MDEV
PRESSURE
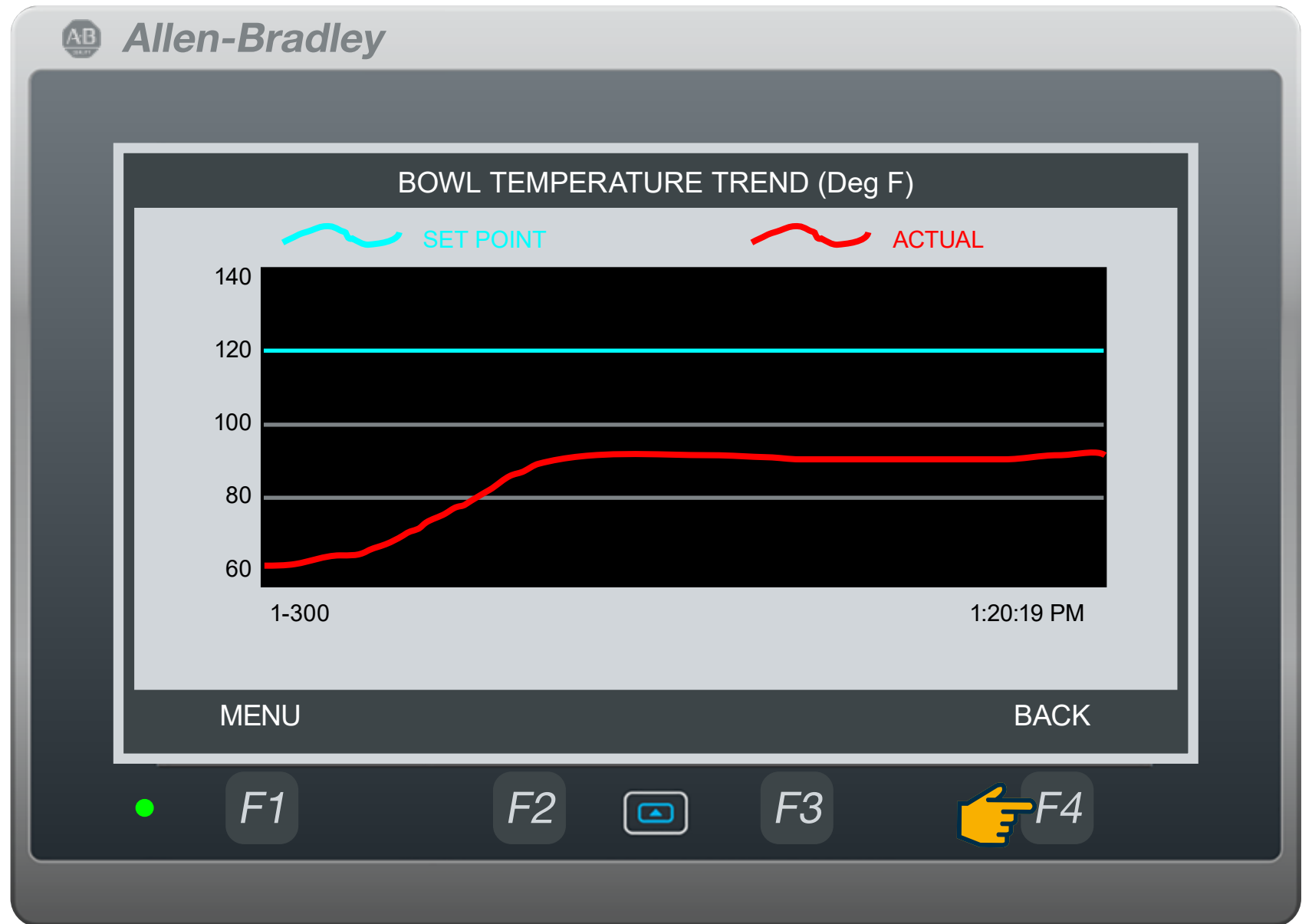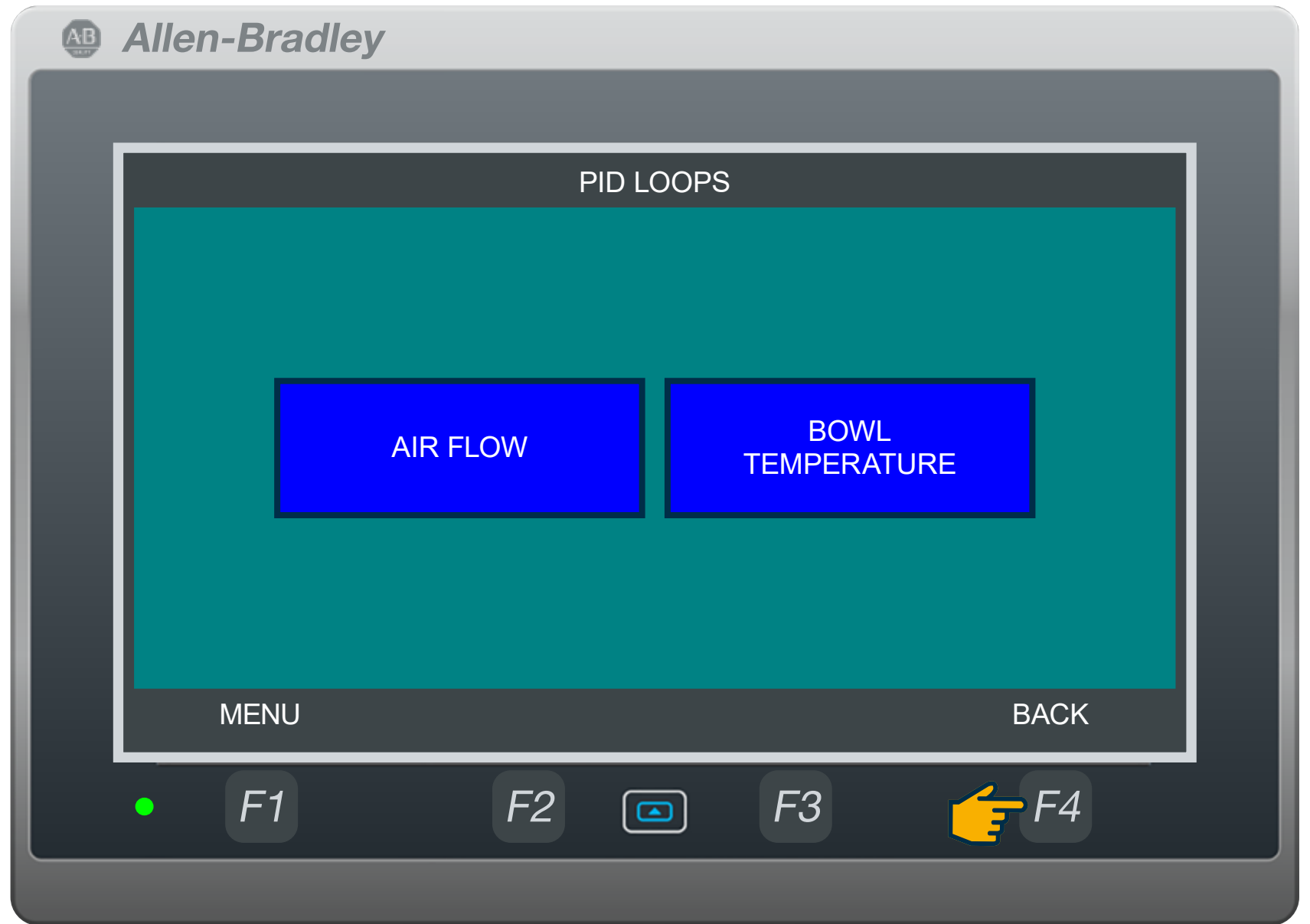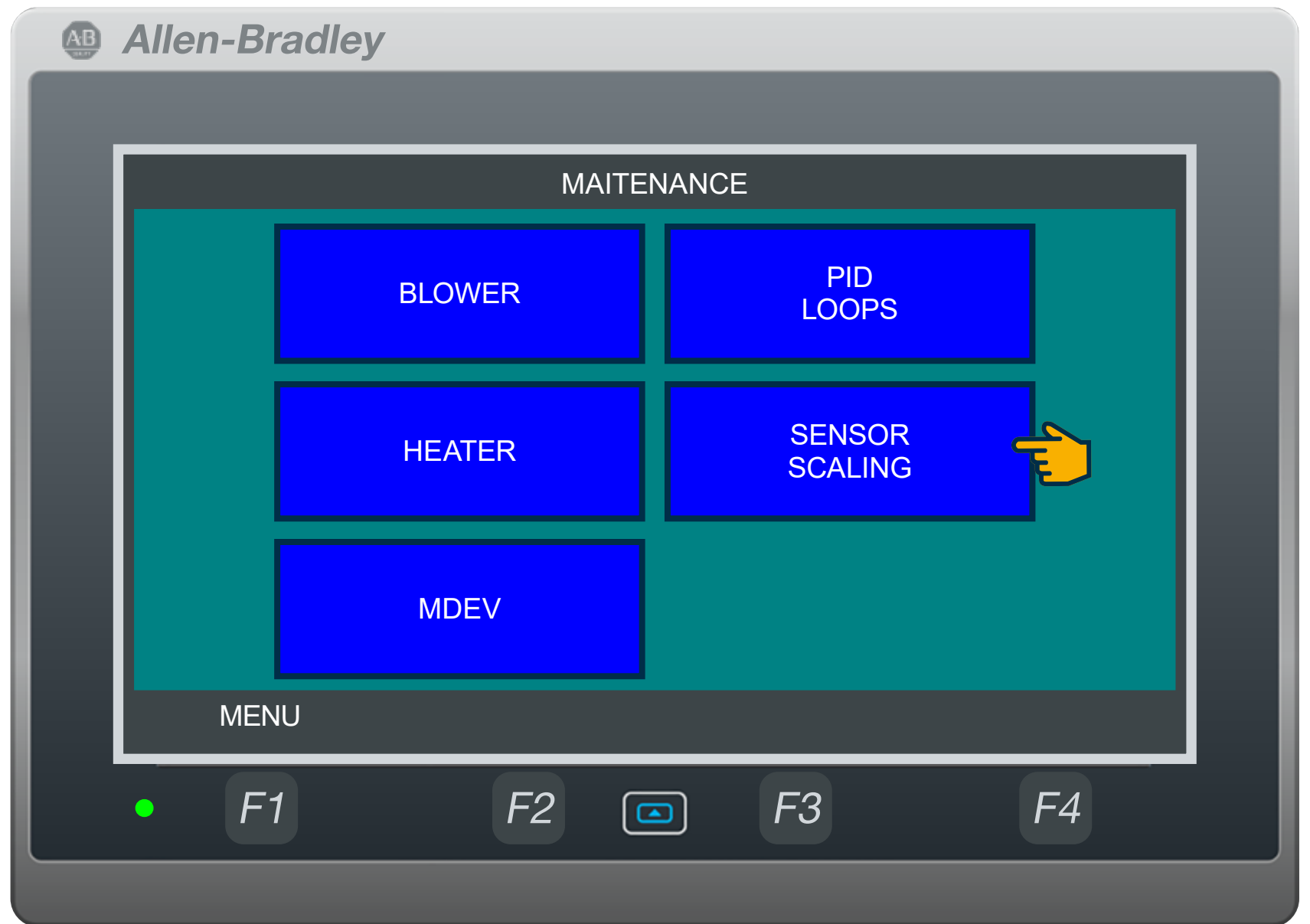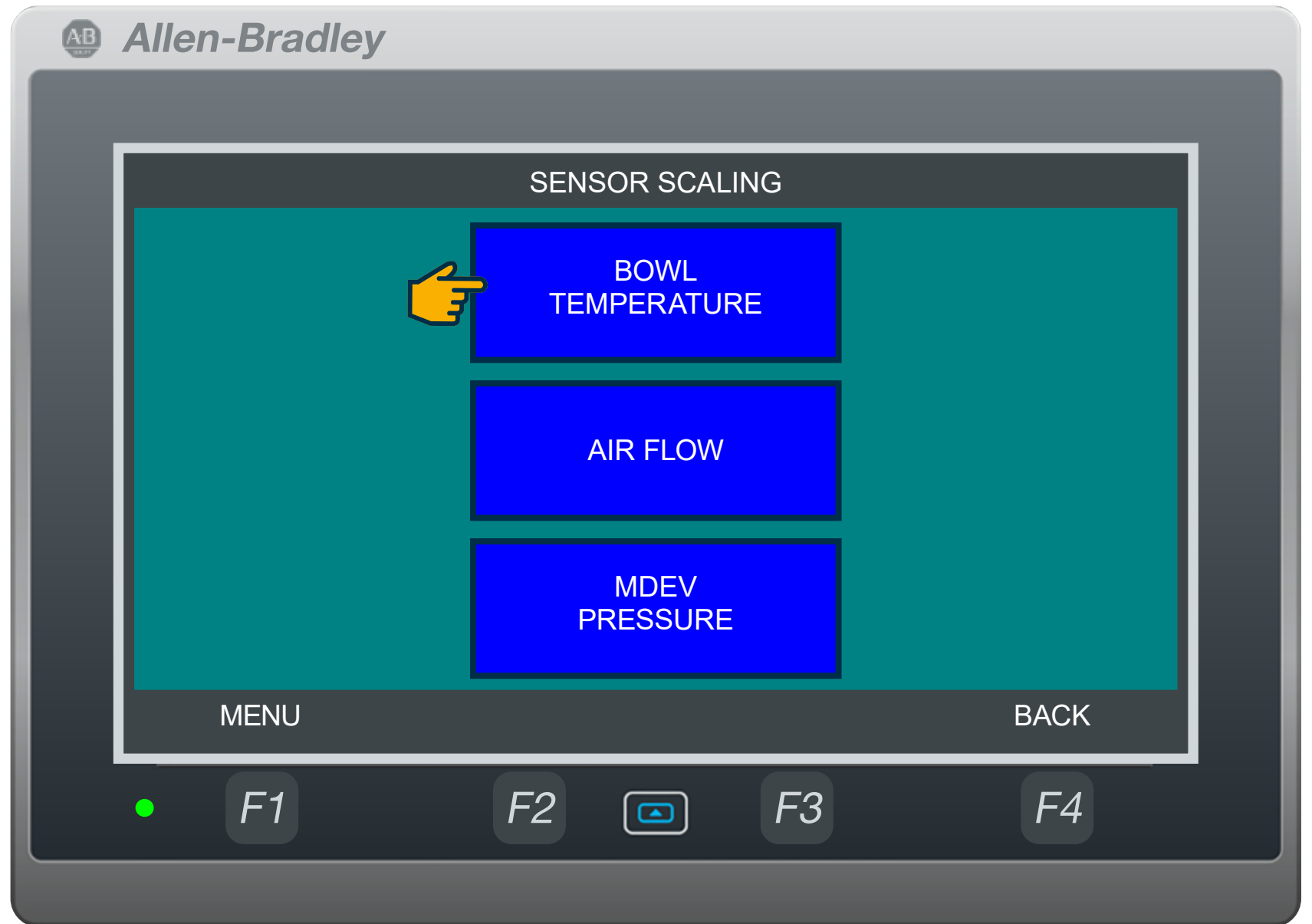
MENU   BACK

F1   F2   F3   F4

Bowl Temperature Sensor Scaling Screen

Allen-Bradley

BOWL TEMPERATURE SENSOR SCALING (Deg F)

BOWL TEMP at 4 mA	BOWL TEMP at 20 mA
-20.0	248.0

RAW VALUE	SCALED VALUE
9.7 mA	76

MENU   BACK

F1   F2   F3   F4

Allen-Bradley

SENSOR SCALING

BOWL
TEMPERATURE

AIR FLOW

MDEV
PRESSURE

MENU

BACK

F1

F2

F3

F4

Air Flow Sensor Scaling Screen
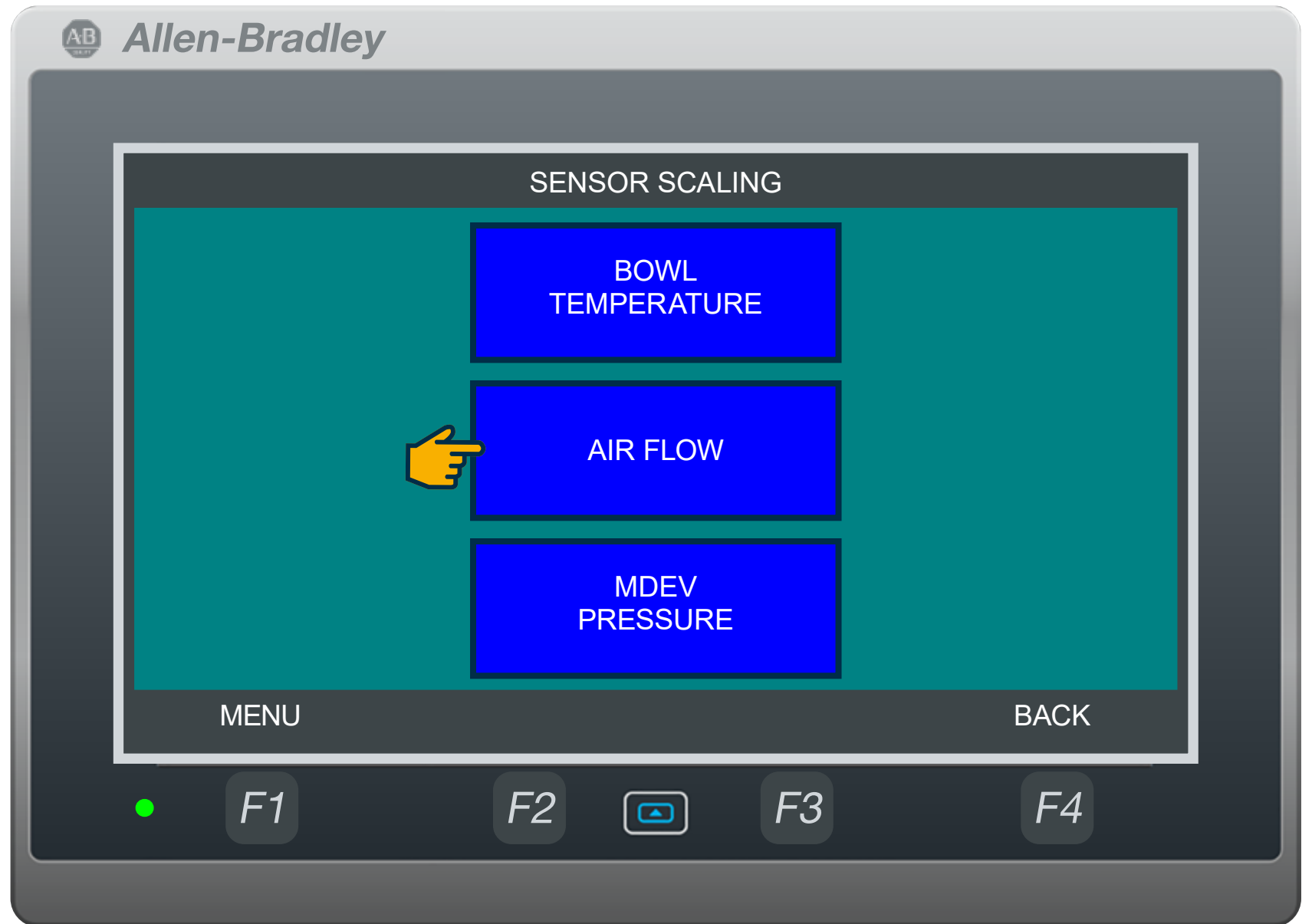
Allen-Bradley

AIR FLOW SENSOR SCALING

AIR FLOW % at 4 mA	AIR FLOW % at 20 mA
0.0	264

RAW VALUE	SCALED VALUE
4.0 mA	0 %

MENU   BACK

F1   F2   F3   F4

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Sensor Scaling Screen

Allen-Bradley

SENSOR SCALING

BOWL
TEMPERATURE

AIR FLOW
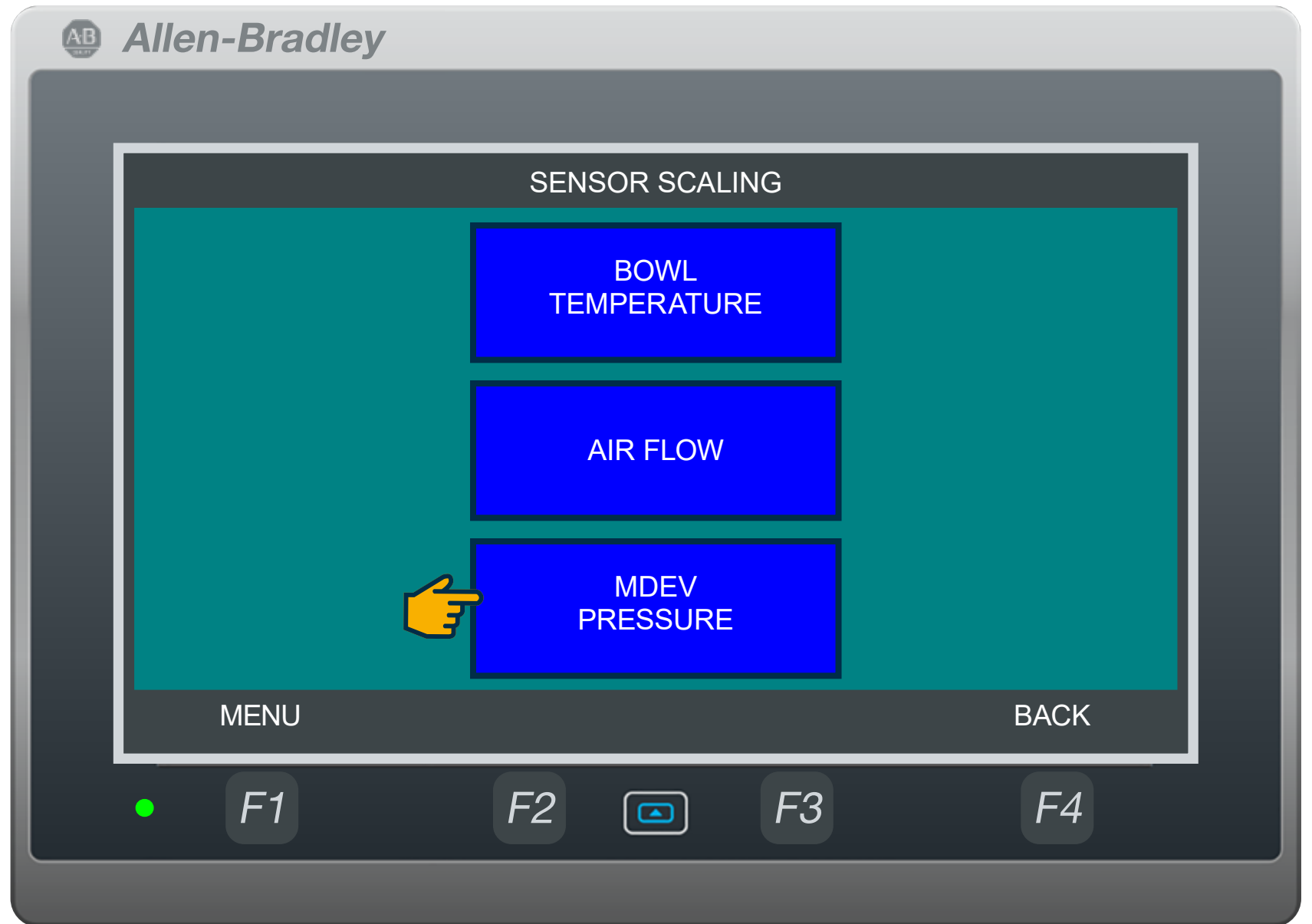
MDEV
PRESSURE

MENU   BACK

F1   F2   F3   F4

Allen-Bradley

MDEV AIR PRESSURE SENSOR SCALING

AIR FLOW %	AIR FLOW %
at 4 mA	at 20 mA
0.0	100.0

RAW	SCALED
VALUE	VALUE
4.1 mA	.7 %

MENU

BACK

F1   F2   F3   F4

Menu Screen

AB *Allen-Bradley*

2:23:06 PM   MAIN MENU   MANAGER

MAIN	ALARMS
SETPOINTS	DIAGNOSTICS
MAINTENANCE	CONFIGURATION

LOGIN   LOGOUT

F1   F2   F3   F4
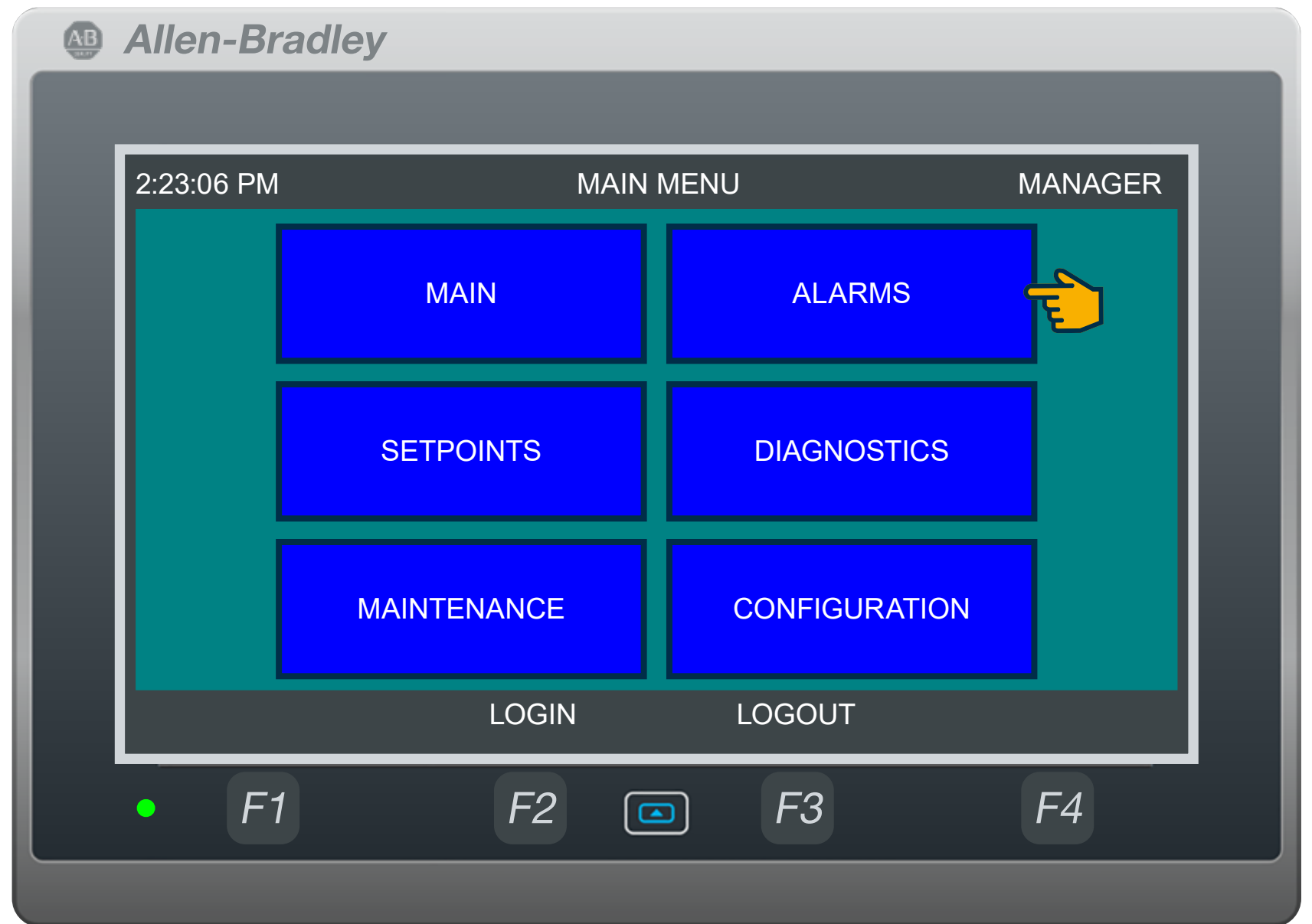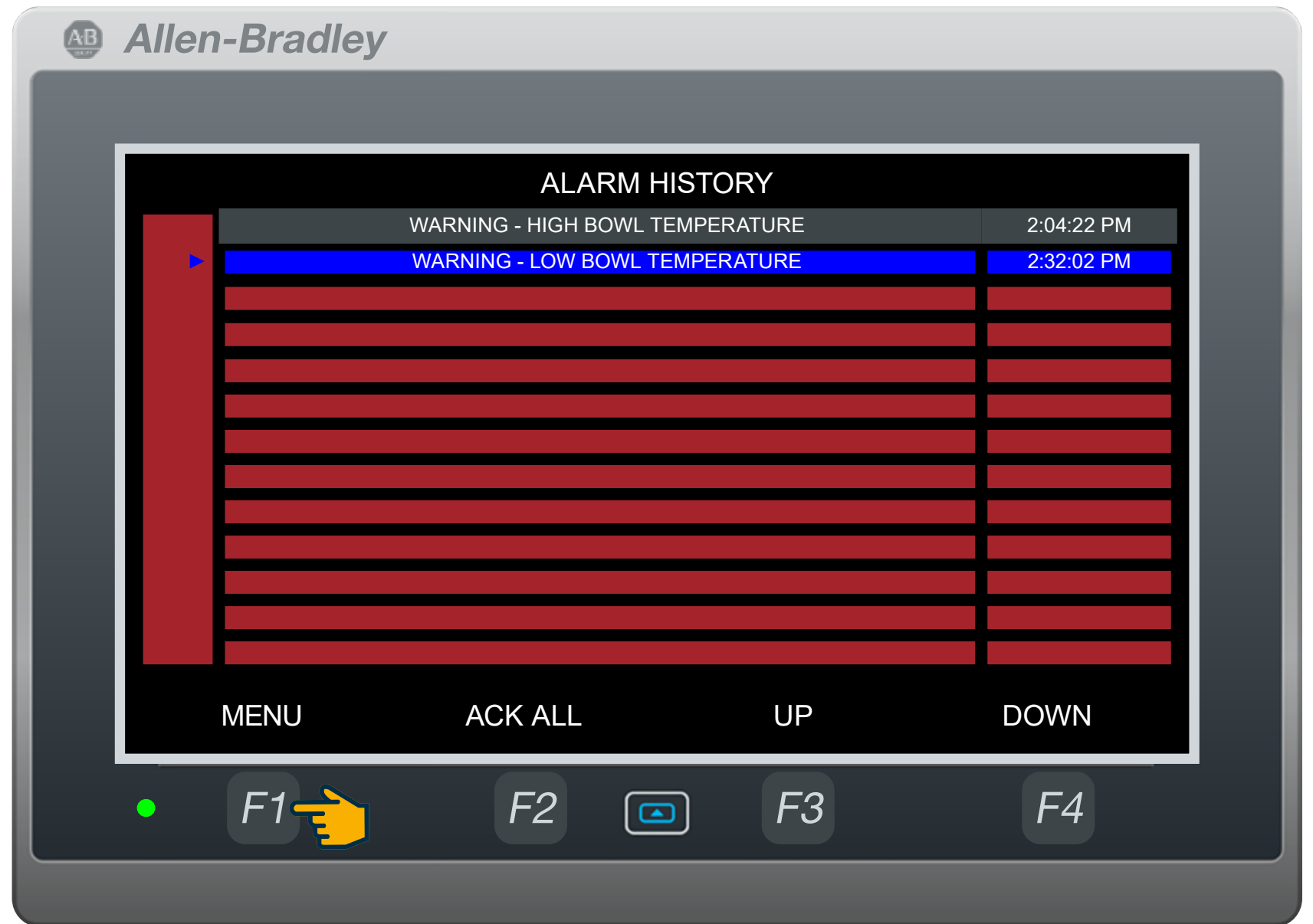
ALARMS

Alarm History Screen

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ALARM HISTORY

WARNING - HIGH BOWL TEMPERATURE	2:04:22 PM
► WARNING - LOW BOWL TEMPERATURE	2:32:02 PM

MENU   ACK ALL   UP   DOWN

F1   F2   F3   F4

Allen-Bradley

2:23:06 PM   MAIN MENU   MANAGER

MAIN   ALARMS

SETPOINTS   DIAGNOSTICS

MAINTENANCE   CONFIGURATION

LOGIN   LOGOUT

F1   F2   F3   F4
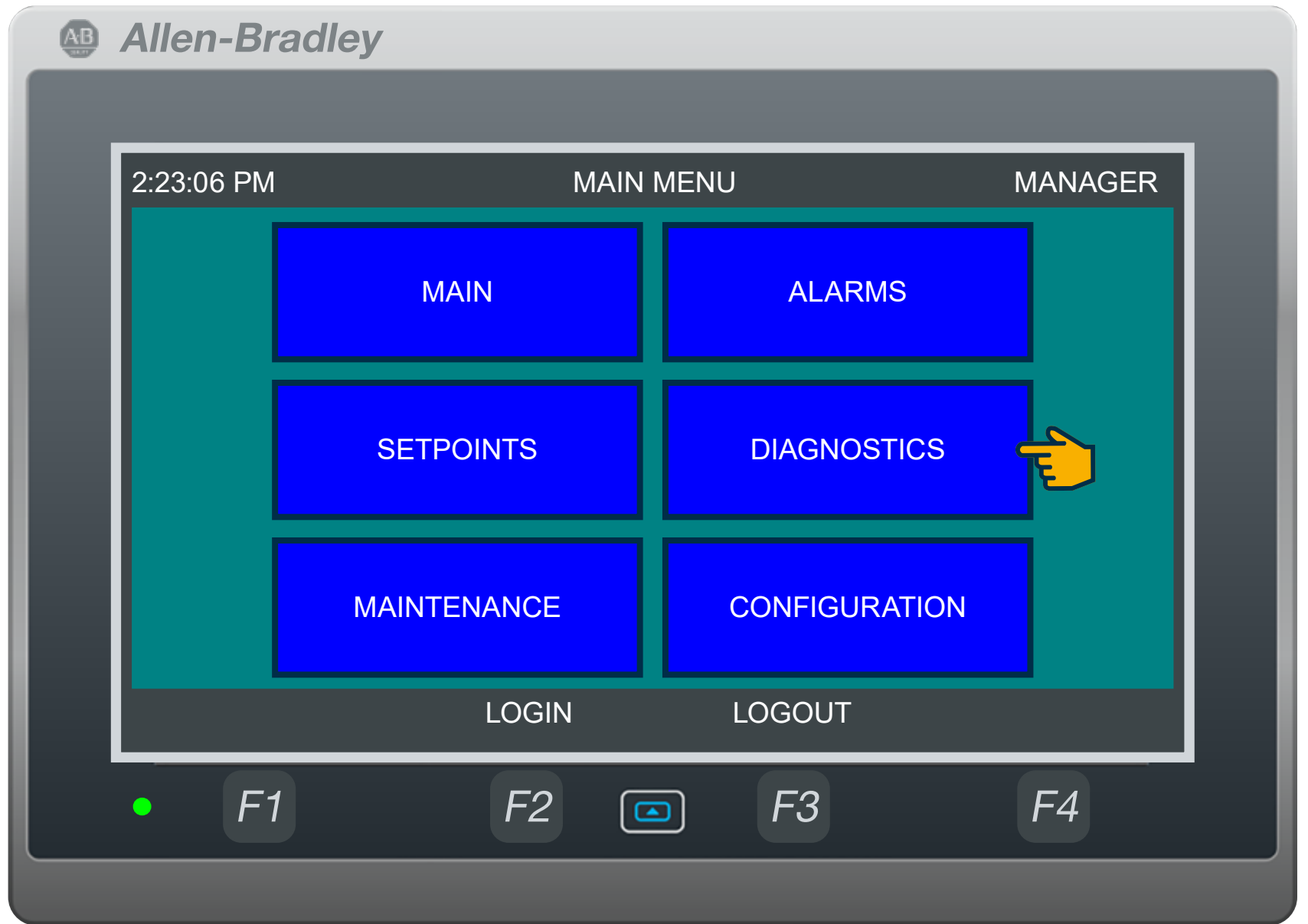
DIAGNOSTICS

Diagnostics Screen

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ANALOG INPUTS

2080 sc-IF4U ANALOG INPUT MODULE

CH 0	70.2 F	HEATER TEMPERATURE
CH 1	10.0 mA	BOWL TEMPERATURE
CH 2	4.0 mA	BOWL AIR FLOW
CH 3	4.0 mA	MDEV AIR PRESSURE

MENU   BACK

F1   F2   F3   F4

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Diagnostics Screen

Allen-Bradley

v1.00.00   DIAGNOSTICS   STEP 100

ANALOG
INPUTS

DIGITAL
INPUTS

ANALOG
OUTPUTS

DIGITAL
OUTPUTS
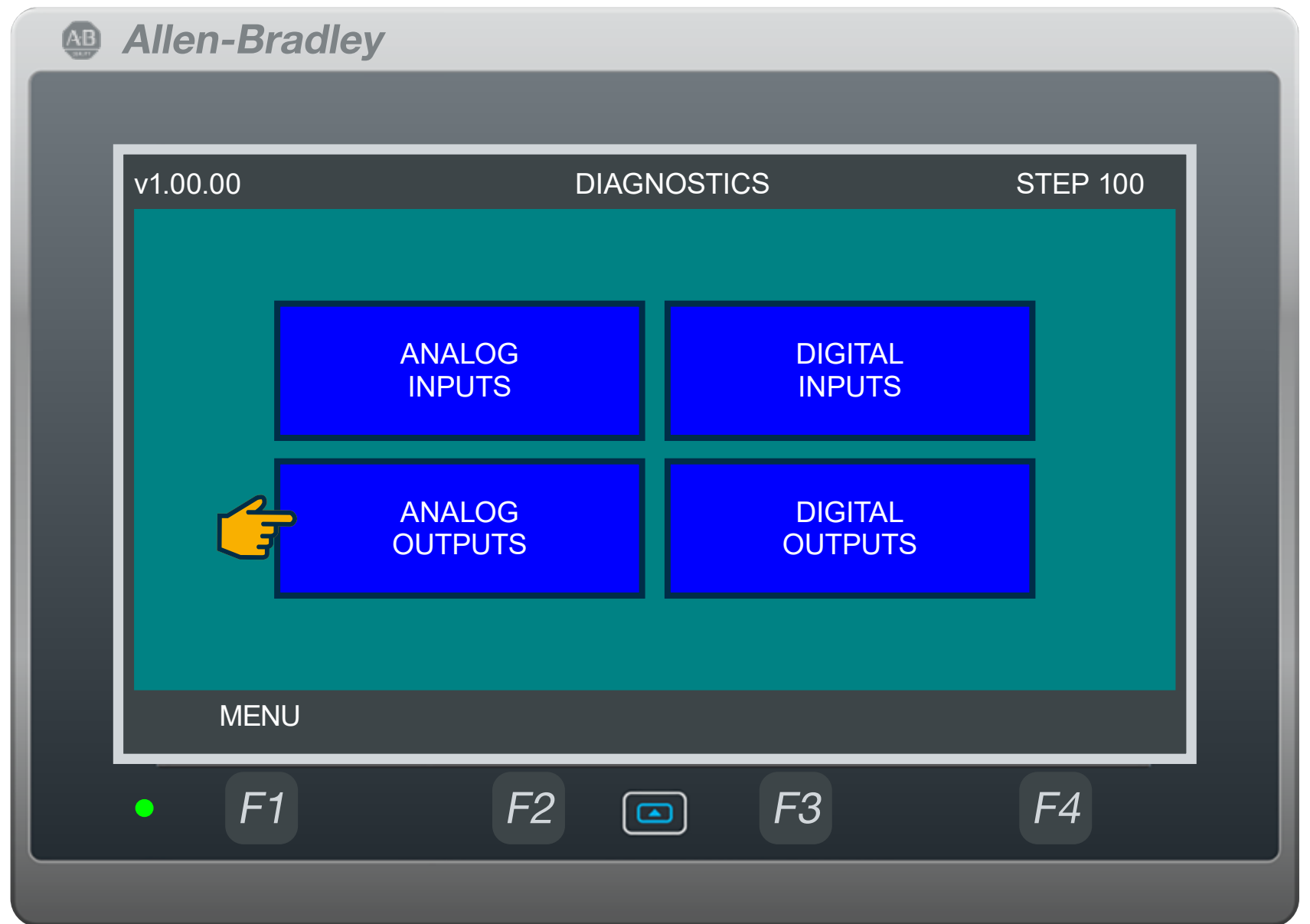
MENU

F1   F2   F3   F4

Allen-Bradley

ANALOG OUTPUTS

2080-LC20-20QBB PLC

CH 0   .0 VDC   BLOWER SPEED

2080-OF2 ANALOG OUTPUT MODULE

CH 0   4.0 mA   HEATER CONTROL

CH 1   .0 mA   SPARE

MENU   BACK

F1   F2   F3   F4

Diagnostics Screen

Allen-Bradley

| v1.00.00 | DIAGNOSTICS | STEP 100 |

ANALOG INPUTS

DIGITAL INPUTS

ANALOG OUTPUTS

DIGITAL OUTPUTS

MENU

F1   F2   F3   F4

Digital Inputs Screen

00 - 05

DIGITAL INPUTS

2080-LC20-20QBB PLC

00 ⚪ SPARE
01 ⚪ SPARE
02 ⚪ SPARE
03 ⚪ SPARE
04 🟢 EMERGENCY STOP OK
05 ⚪ POWER SWITCH

MENU   06 - 11   BACK

F1   F2   F3   F4

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DIGITAL INPUTS

2080-LC20-20QBB PLC

06 ● FILTER DOOR SWITCH OK

07 ● BOWL DISCHARGE DOOR CLOSED

08 ● FILTER PLUGGED

09 ● HEATER HIGH TEMP ALARM

10 ● BLOWER RUNNING

11 ● HEATER CONTACTOR AUX

MENU   00 - 05   BACK

F1   F2   F3   F4

Digital Inputs Screen

00 - 05

Allen-Bradley

DIGITAL INPUTS

2080-LC20-20QBB PLC

00	⚪	SPARE
01	⚪	SPARE
02	⚪	SPARE
03	⚪	SPARE
04	🟢	EMERGENCY STOP OK
05	⚪	POWER SWITCH

MENU   06 - 11   BACK

F1   F2   F3   F4

Diagnostics Screen

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v1.00.00   DIAGNOSTICS   STEP 100

ANALOG INPUTS

DIGITAL INPUTS

ANALOG OUTPUTS

DIGITAL OUTPUTS

MENU

F1   F2   F3   F4

Digital Outputs Screen

00 - 06

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DIGITAL OUTPUTS

2080-LC20-20QBB PLC

00 ● BLOWER VFD
01 ● HEATER CONTRACTOR
02 ● MDEV OPEN
03 ● MDEV OPEN
04 ● RED BEACON
05 ● YELLOW BEACON
06 ● GREEN BEACON

MENU   BACK

F1   F2   F3   F4

Menu Screen

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2:23:06 PM   MAIN MENU   MANAGER

MAIN   ALARMS

SETPOINTS   DIAGNOSTICS

MAINTENANCE   CONFIGURATION

LOGIN   LOGOUT

F1   F2   F3   F4
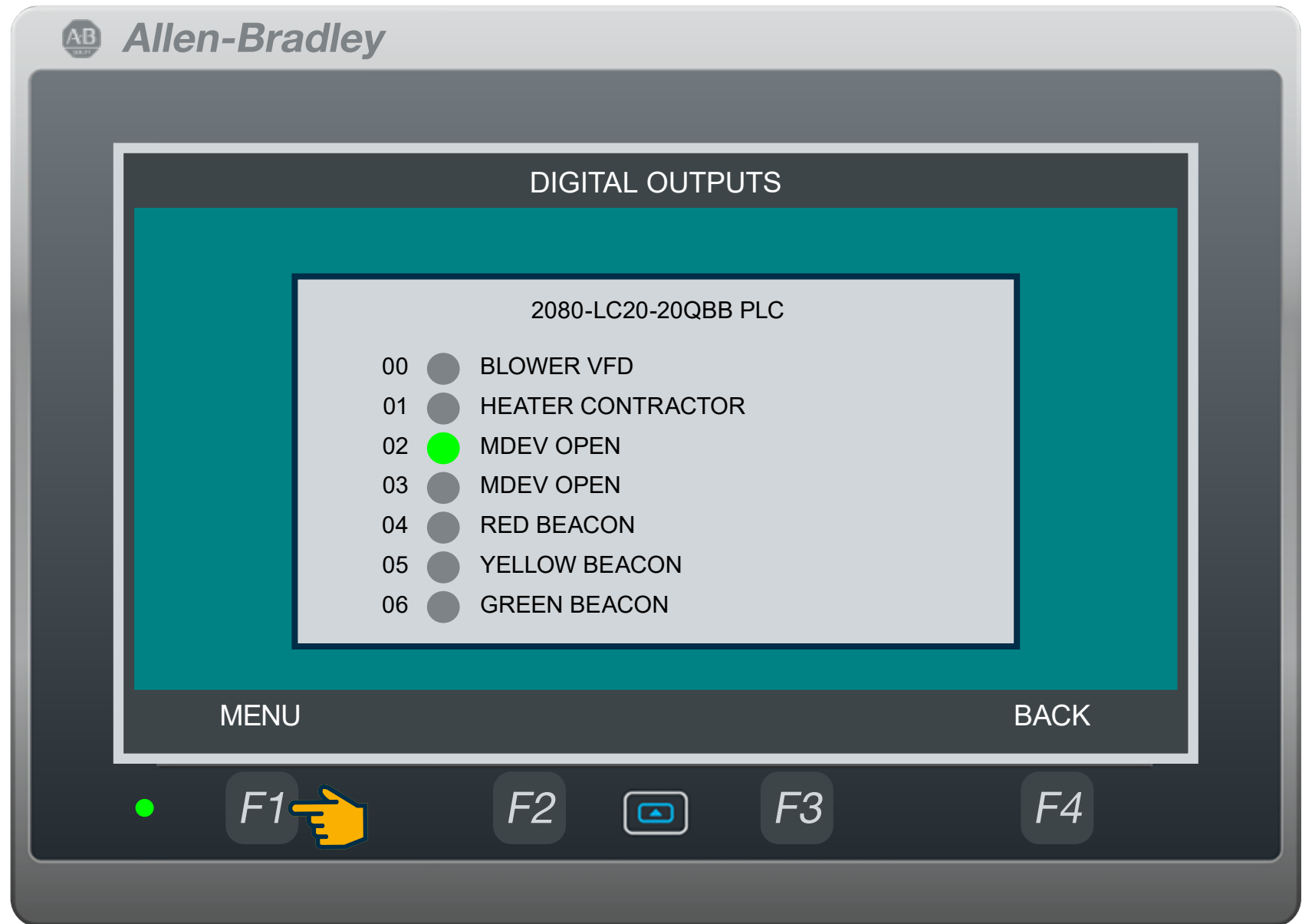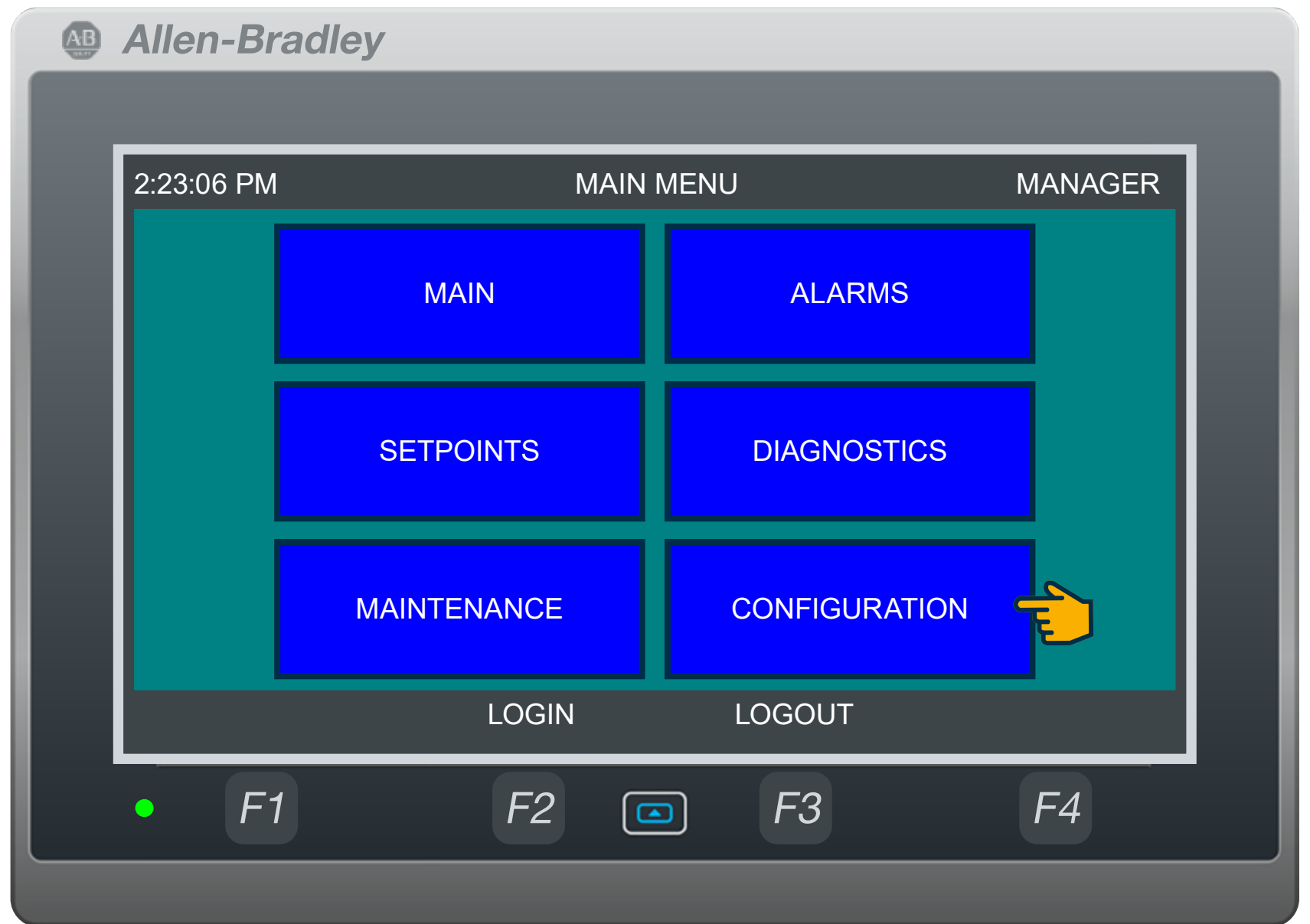
System Configuration Navigation Screen

Terminal Configuration

HMI settings

CBT Integration

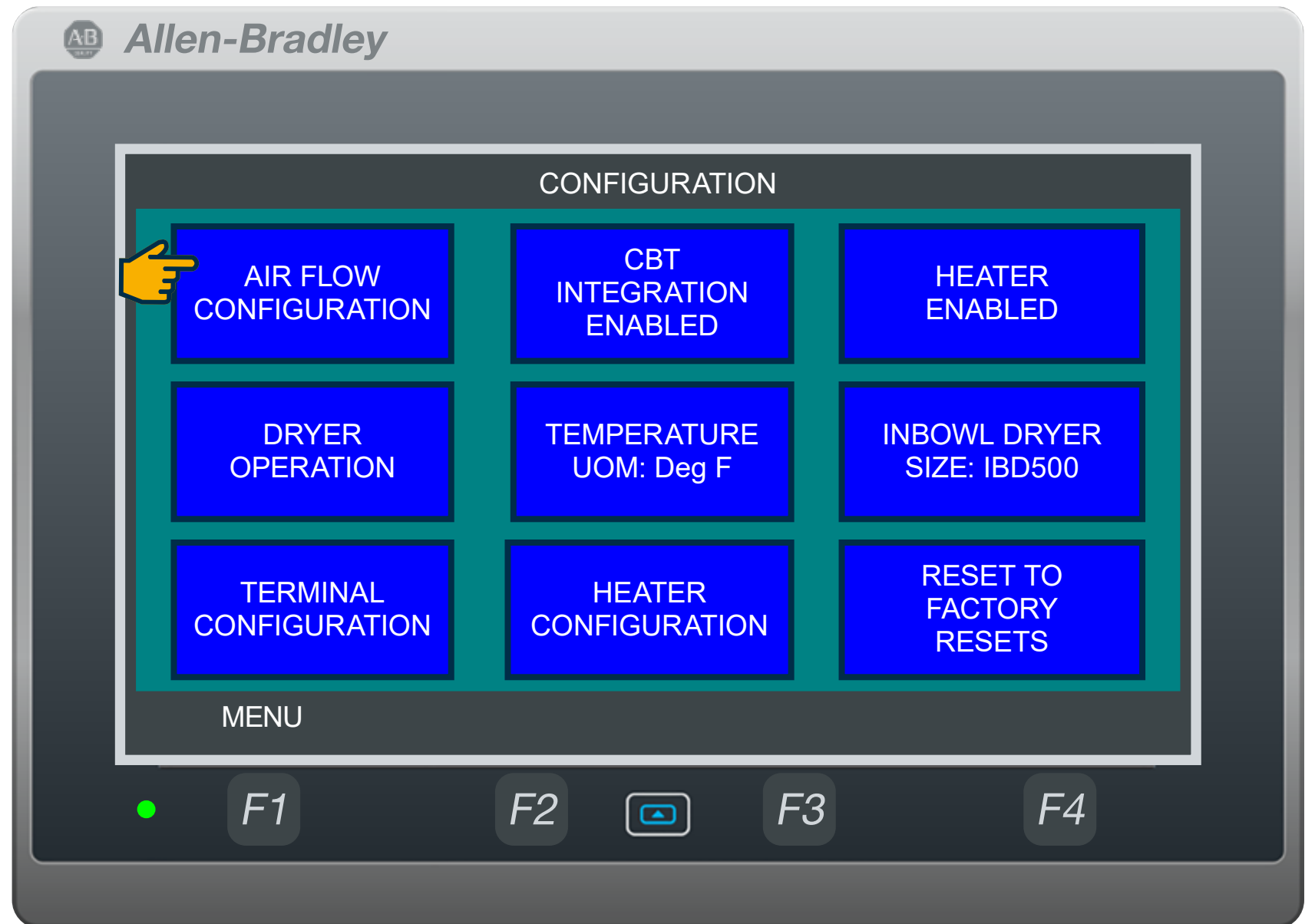- ENABLED
- DISABLED

Temperature units

- Def F
- Def C

Heater

- ENABLED
- DISABLED

In Bowl Dryer Sizes

- IBD250
- IBD500
- IBD250
- IBD1000

Reset to Factory Defaults

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CONFIGURATION

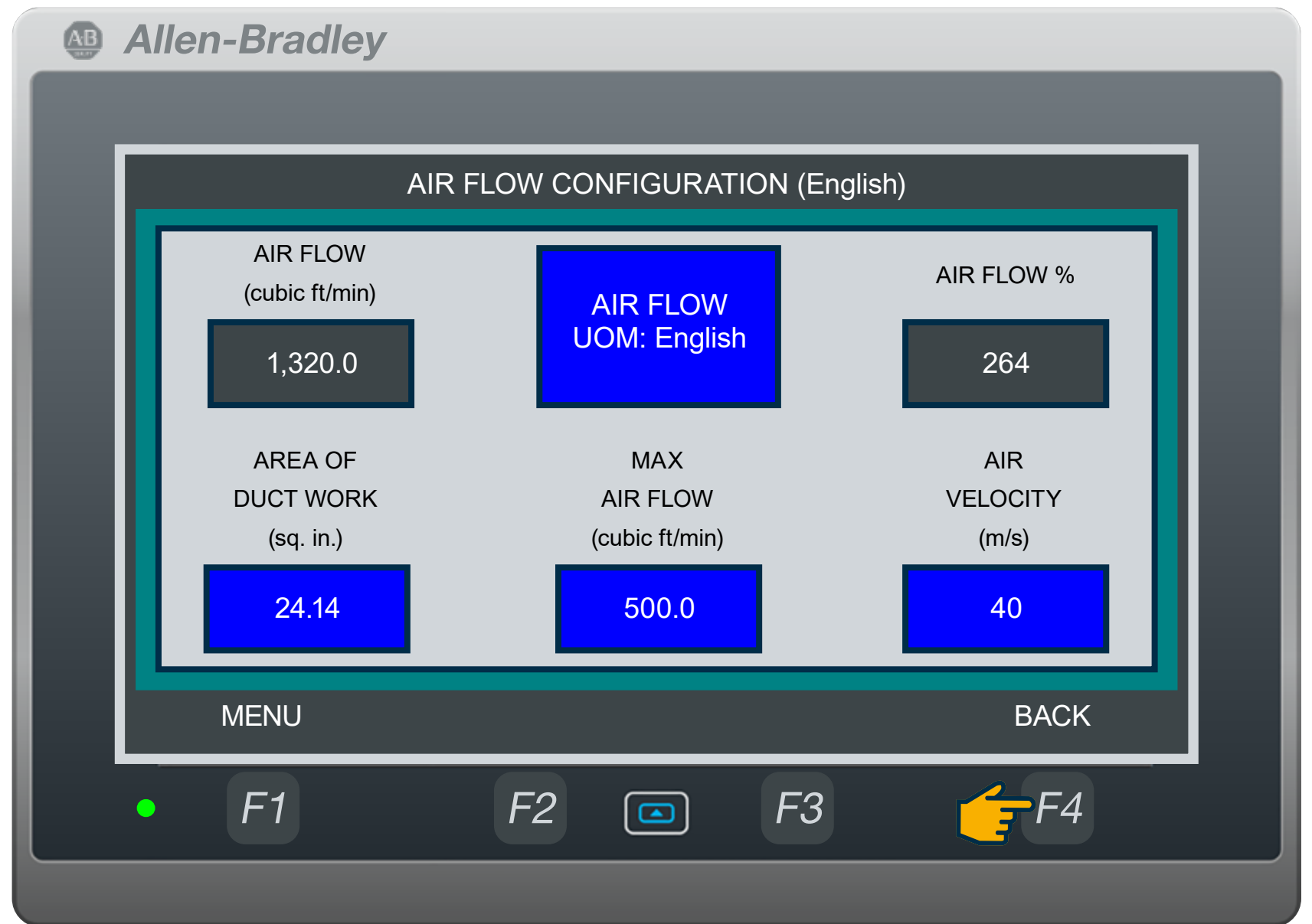| AIR FLOW CONFIGURATION | CBT INTEGRATION ENABLED | HEATER ENABLED |
| DRYER OPERATION | TEMPERATURE UOM: Deg F | INBOWL DRYER SIZE: IBD500 |
| TERMINAL CONFIGURATION | HEATER CONFIGURATION | RESET TO FACTORY RESETS |

MENU

F1   F2   F3   F4

Air Flow Configuration Screen

Air Flow Configuration

- Used to calculate Air Flow %
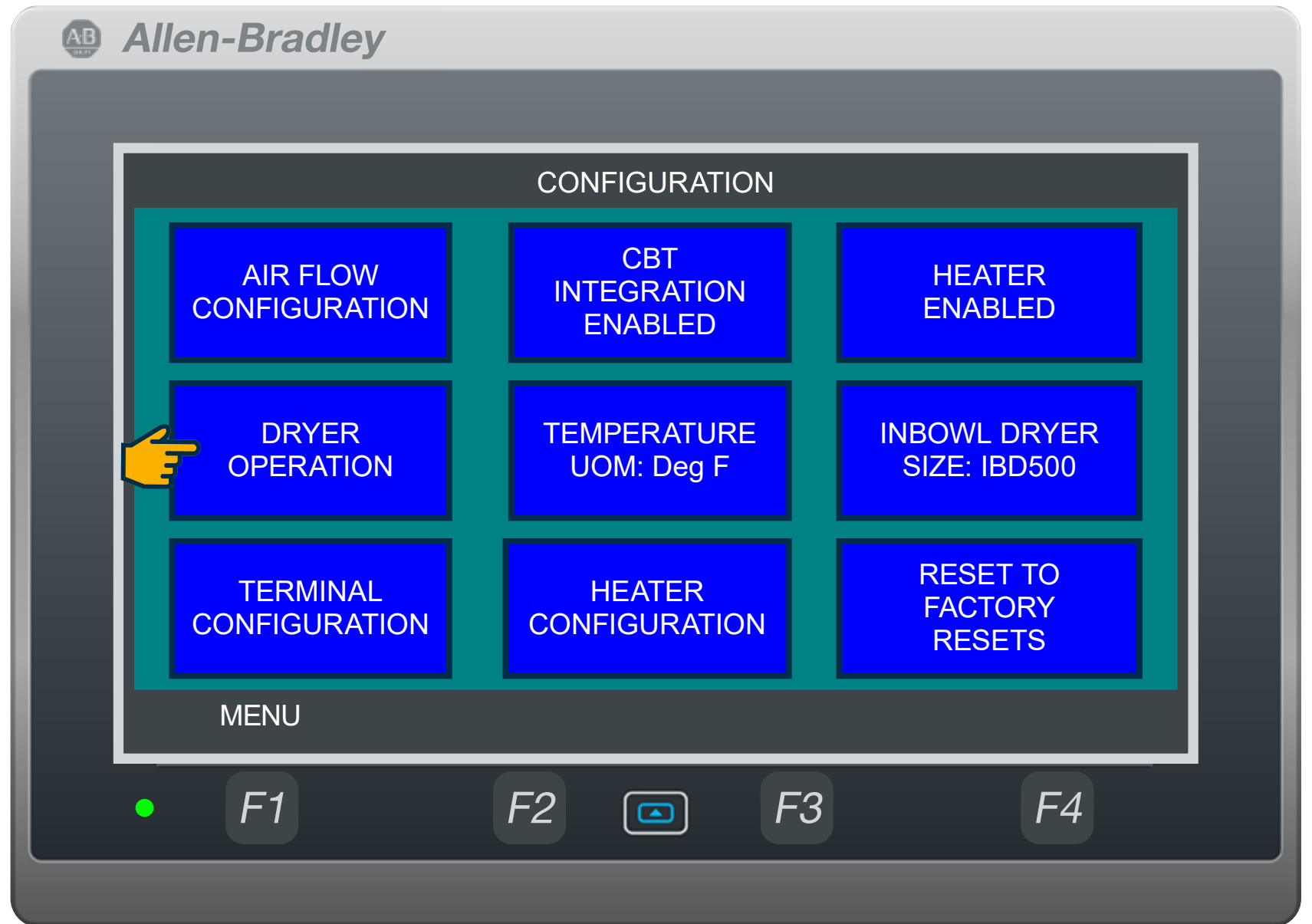- Default values are based on In Bowl dryer size selection

Air Flow Units

- English
- Metric

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AIR FLOW CONFIGURATION (English)

AIR FLOW
(cubic ft/min)

1,320.0

AIR FLOW
UOM: English

AIR FLOW %

264

AREA OF
DUCT WORK
(sq. in.)

24.14

MAX
AIR FLOW
(cubic ft/min)

500.0

AIR
VELOCITY
(m/s)

40

MENU

BACK

F1   F2   F3   F4

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CONFIGURATION

AIR FLOW CONFIGURATION	CBT INTEGRATION ENABLED	HEATER ENABLED
DRYER OPERATION	TEMPERATURE UOM: Deg F	INBOWL DRYER SIZE: IBD500
TERMINAL CONFIGURATION	HEATER CONFIGURATION	RESET TO FACTORY RESETS

MENU

F1   F2   F3   F4

Dryer Operation Screen

- Set how long the CBT needs to be idle before the dryer will shut down

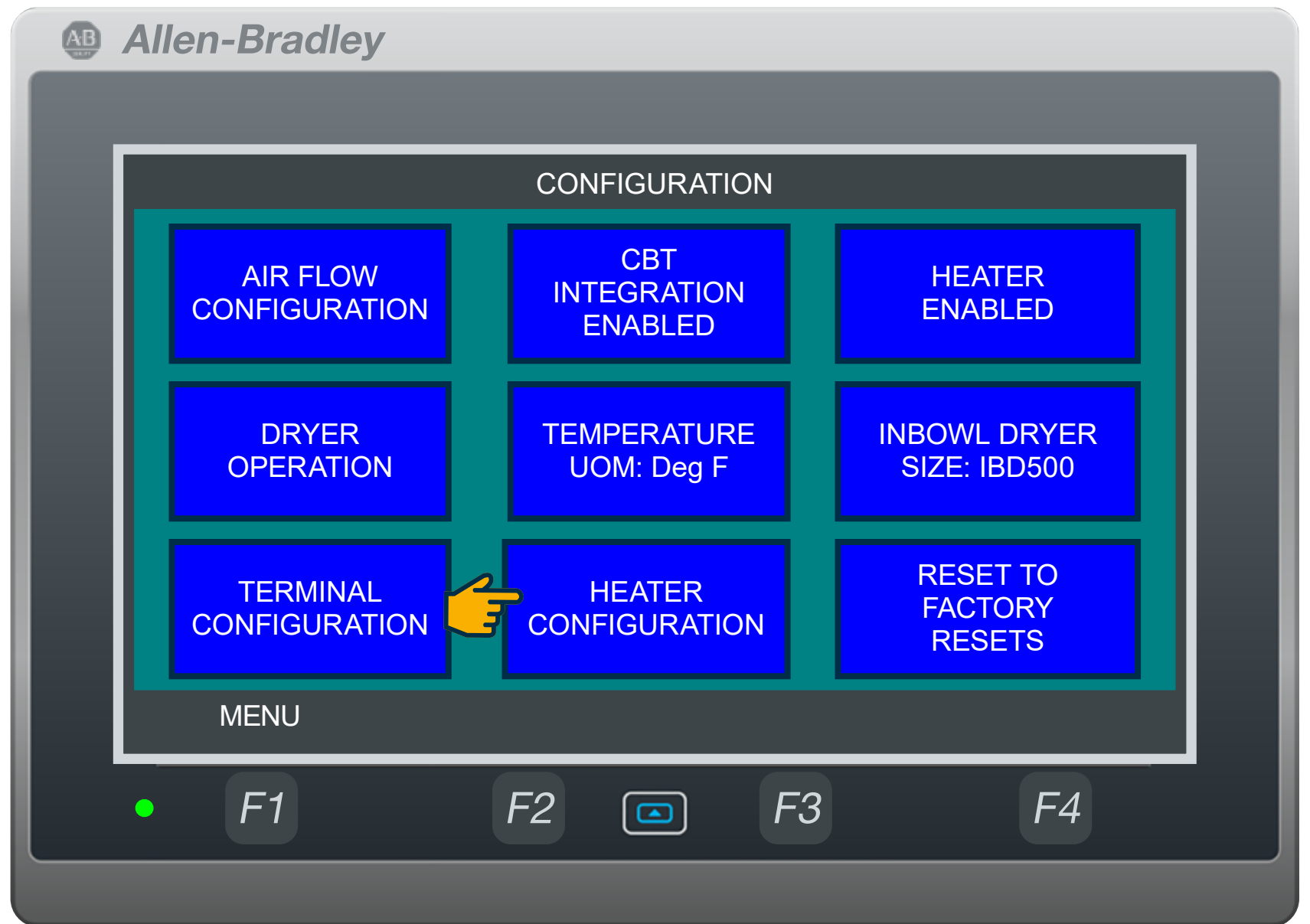- How long the blower will run once the heater is turned off

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DRYER OPERATION

| IDLE TREATER | |
SHUT-DOWN TIME (min)	COOL-DOWN TIME (min)
10	5

MENU   BACK

F1   F2   F3   F4

57

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CONFIGURATION

AIR FLOW CONFIGURATION	CBT INTEGRATION ENABLED	HEATER ENABLED
DRYER OPERATION	TEMPERATURE UOM: Deg F	INBOWL DRYER SIZE: IBD500
TERMINAL CONFIGURATION	HEATER CONFIGURATION	RESET TO FACTORY RESETS

MENU

F1   F2   F3   F4

Heater Configuration Screen

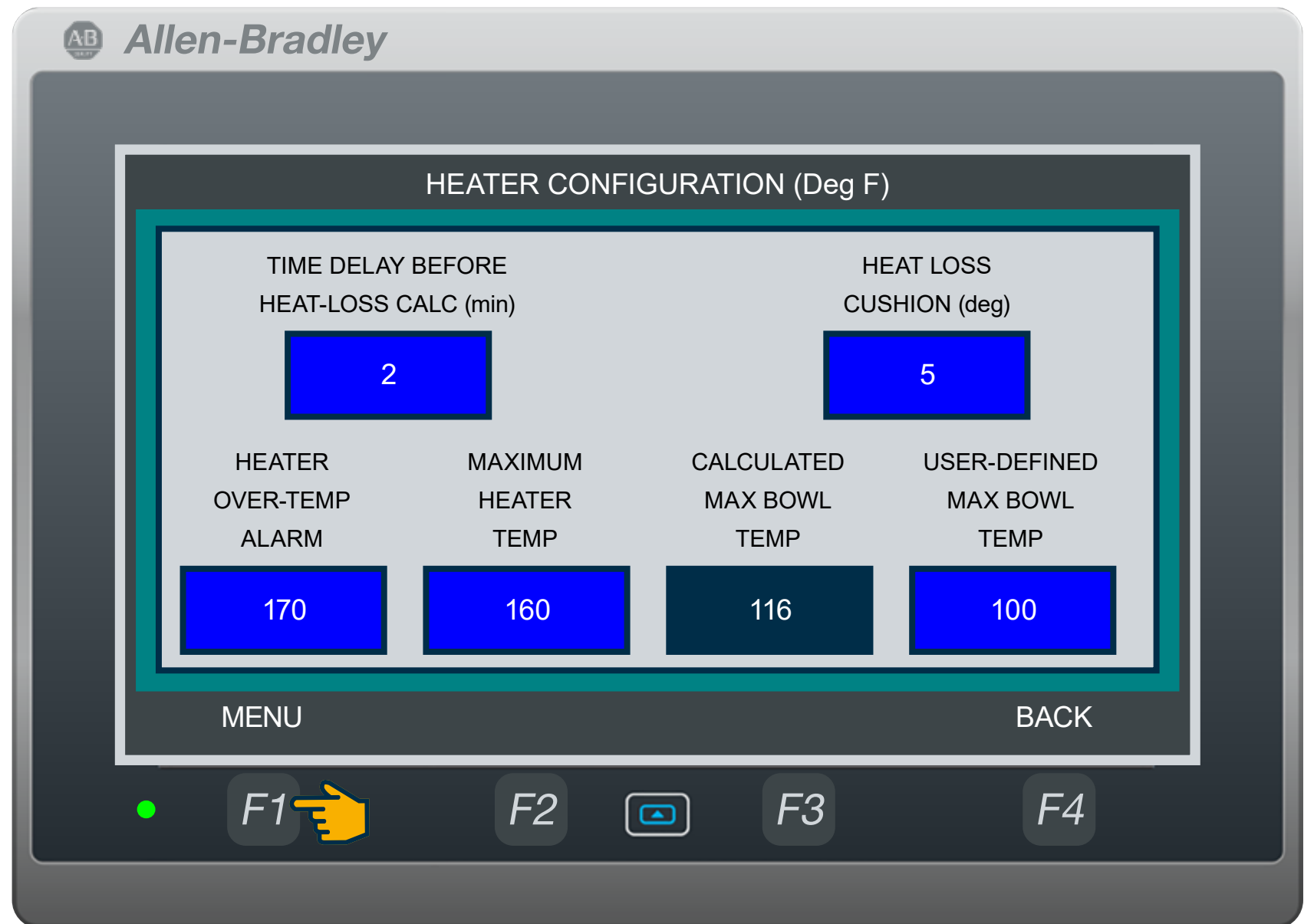**Set Delay before the heat-loss is calculated**

Heat Loss Cushion

Heater Alarms

- Max over temperature Alarm

- Limits the maximum heater temperature

Calculated max bowl temperature based on heat loss in the system
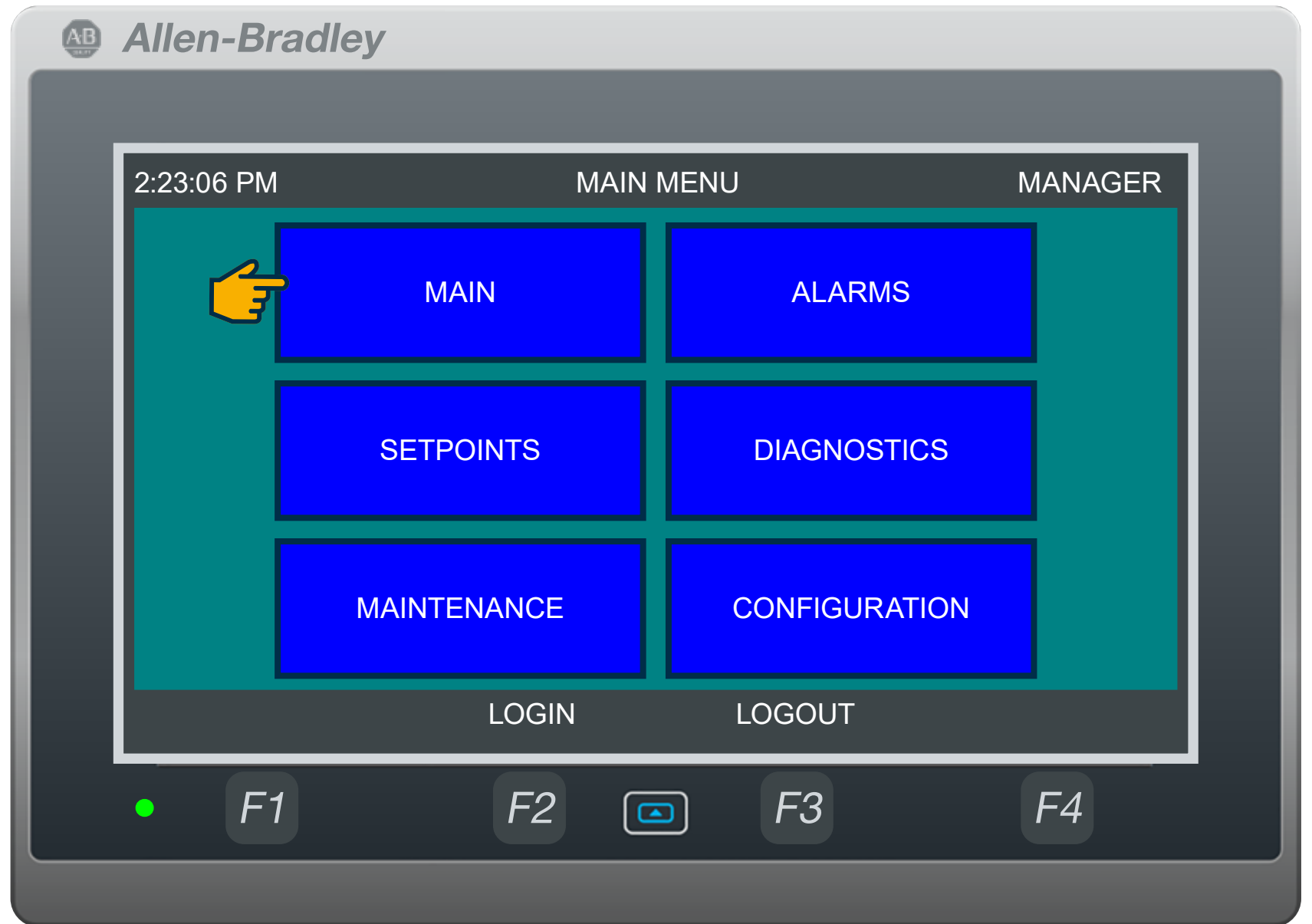
Max user defined bowl temperature

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HEATER CONFIGURATION (Deg F)

TIME DELAY BEFORE HEAT-LOSS CALC (min)		HEAT LOSS CUSHION (deg)	
2		5	

HEATER OVER-TEMP ALARM	MAXIMUM HEATER TEMP	CALCULATED MAX BOWL TEMP	USER-DEFINED MAX BOWL TEMP
170	160	116	100

MENU   BACK

F1   F2   F3   F4

Menu Screen

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2:23:06 PM   MAIN MENU   MANAGER

MAIN	ALARMS
SETPOINTS	DIAGNOSTICS
MAINTENANCE	CONFIGURATION

LOGIN   LOGOUT

F1   F2   F3   F4

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COOLING DOWN BEFORE STOPPING
WAIT UNTIL COOLING IS COMPLETE

HEATER TEMP (F)		MDEV PRESSURE		
ACTUAL	110	1.6	ACTUAL	LOCAL OVERRIDE

BOWL TEMPERATURE (Deg F)				HEATER
ACTUAL	97	100	SETPOINT	IDLE

BOWL AIR FLOW (%)				BLOWER
ACTUAL	75	75	SETPOINT	RUNNING

MENU

F1   F2   F3   F4

IN-BOWLDRYERUSERGUIDE20211022