MOTORTRONICS ™

Solid State AC Motor Control

Msmart

LV Addendum - GEN 3

GEN 3 212R

Table of contents

1. About Msmart

1.1 General / Features

Msmart is a unified screen for all Motortronics products and consists of an active touch screen / information display. In addition, Msmart supports multiple languages and supports dedicated information and graphs for each product. Msmart also has built-in an auto sleep function with wake-up on motion.

Features
- Color Touch Panel
- Hardware Pushbuttons for Harsh Environments
- Auto Sleep Function with Motion Sensing
- Support for 6 Languages
- Unified Touchscreen for all Motortronics Products

Available Information / Graphs
- Operation Status
- Starting Current Graph
- Bar Graph for RTD Temperatures
- Three Phase Voltage / Current Information
- Relay Status
- RX and TE-RTD12 Interface

Compatible with
- MVC4 Medium Voltage Soft Starter
- VMX Low Voltage Solid State Soft Starter
- VMX S.A.F.E. Series
- VMX NEMA Series
- VMX-synergy Series
- Smart TCB
- RX Series Motor Protection Relay
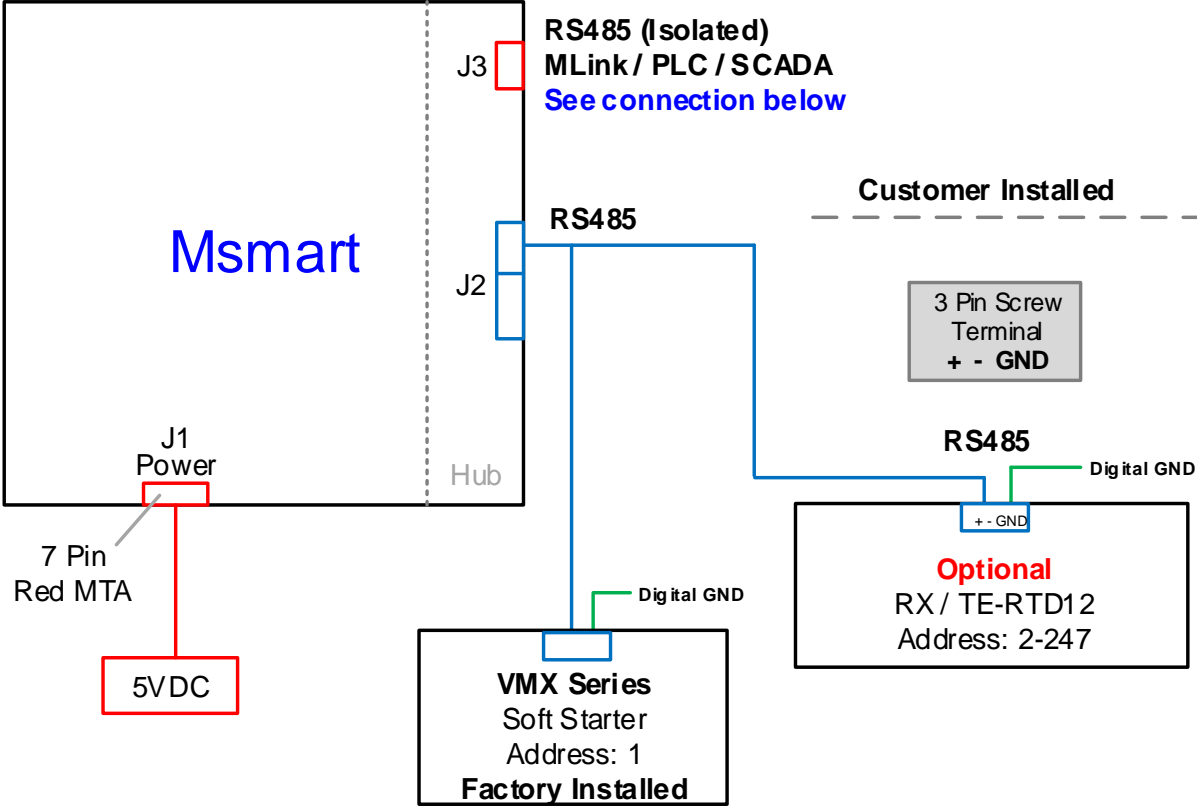- TE-RTD12 Motor RTD Relay

1.2   Dimensions
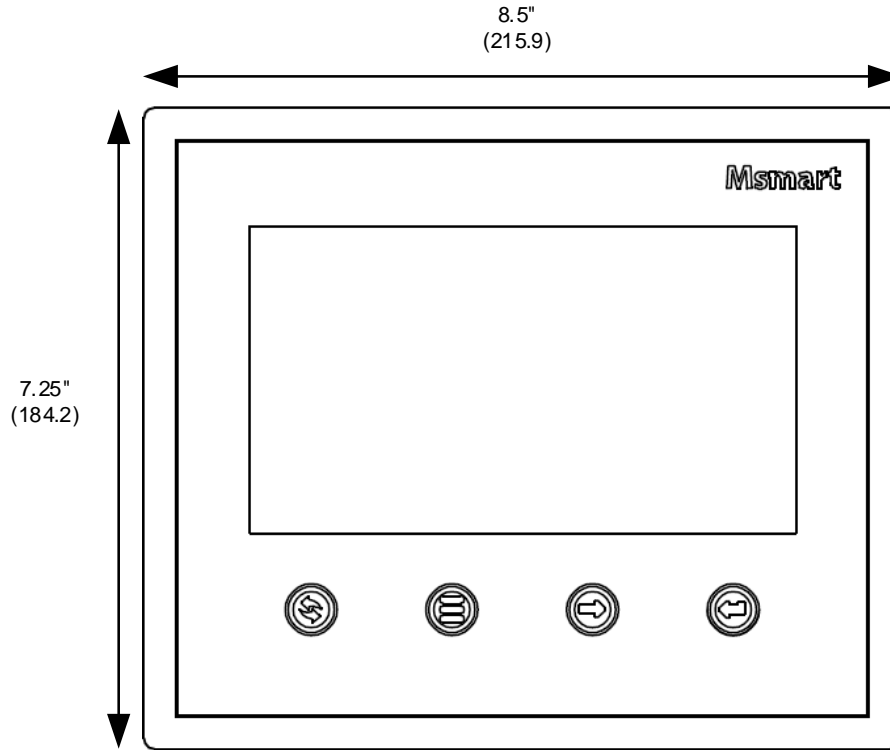
8.5" x 7.25" x 1.75" (H x W x D)

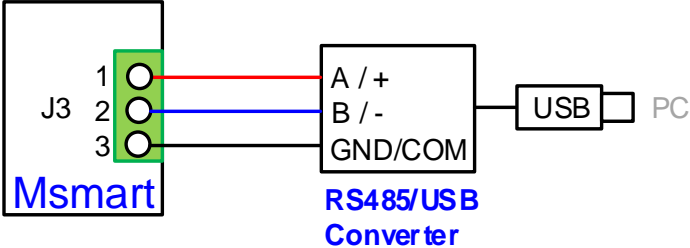215.9 mm x 184.3 mm x 44.5 mm (H x W x D) (mm)

1.3   General Connection Diagram

Msmart connection diagram to the VMX Soft Starter.

MLink Connection

Connect the RS485 converter to J3 of the Msmart touchscreen. Plug USB port into PC with MLink.
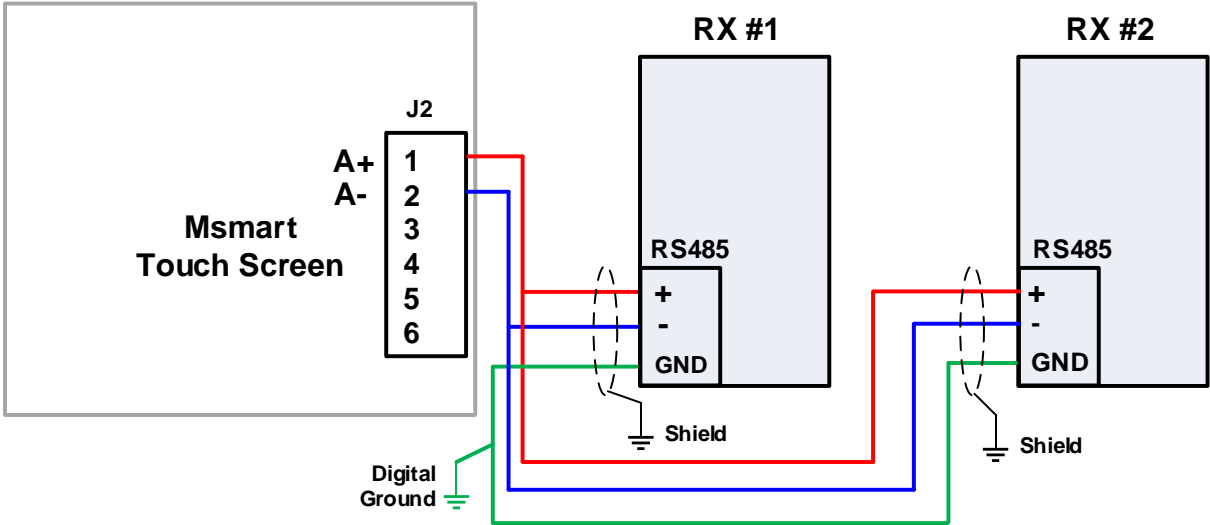
2. Connecting Optional Auxiliary Devices

The next steps describe how to connect devices to Msmart

2.1   Connecting Optional RX Motor Protection Relays

Use shielded cable to connect the RX to the Msmart Touch Screen

J2 Port:
RS485/RS422, 6 terminals, non-isolated
Protocol: Modbus RTU
Device Address: Range 2-247
Baud Rate: 19200
Pin 1 = A+, Pin 2 = A-

Note: Maximum number of RX units (Factory installed + Customer installed) is 2.

Communication Settings

Parameter	Description	Settings / Range	Default RX #1	Default RX #2
F072	**Password**	**0 – 9999**	**2000**	**2000**
F060	Communications	Range: 0 – 4 0 = Disabled 1 = Enabled (11 bit format) 2 = Enabled (10 bit format) 3 = Enabled (11 bit) and Remote Start Control 4 = Enabled (10 bit) and Remote Start Control	2	2
F061	Baud Rate	4.8, 9.6 and 19.2 KB **Note: For Msmart set to 19.2 kB**	19.2	19.2
F062	Modbus Address	1 - 247	2-247	2-247

2.2 Connecting Optional TE-RTD12 Motor RTD Devices

Use shielded cable to connect the TE-RTD12 to the Msmart Touch Screen

J2 Port:
RS485/RS422, 6 terminals, non-isolated
Protocol: Modbus RTU
Device Address: Range 2-247
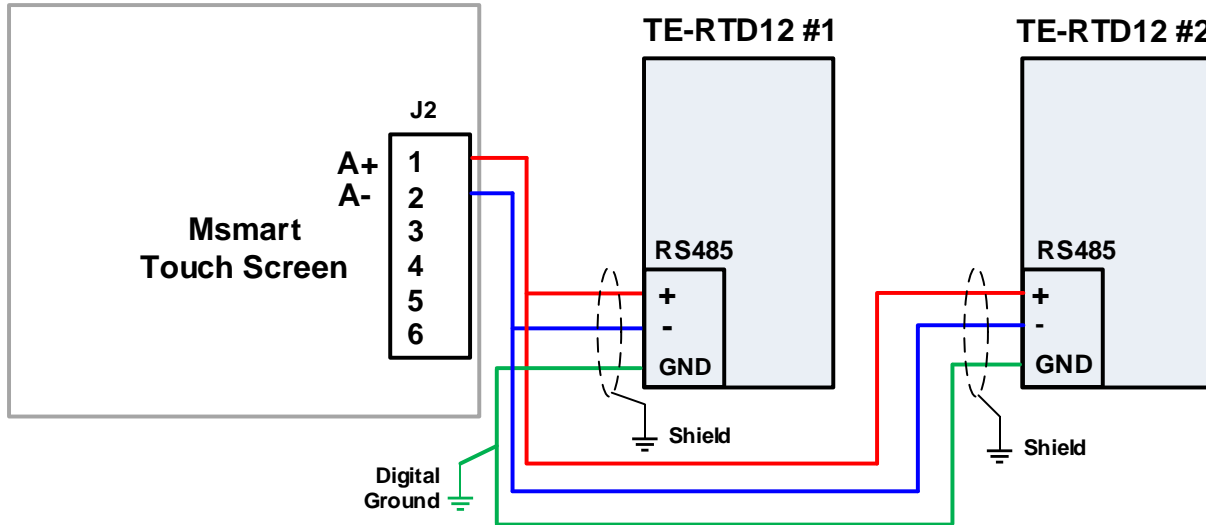Baud Rate: 19200
Pin 1 = A+, Pin 2 = A-

Note: Maximum number of TE-RTD12 units (Factory installed + Customer installed) is 2.

Communication Settings

Parameter	Description	Settings / Range	Default TE-RTD12 #1	Default TE-RTD12 #2
F102	**Password**	**0 – 9999**	**2000**	**2000**
F085	Communications	0 – 2 0=Disabled 1=Enabled (11 bit) communication only 2=Enabled (10 bit) comm. only	2	2
F086	Baud Rate	9.6, 19.2 and 38.4 **Note: For Msmart set to 19.2 kB**	19.2	19.2
F087	Modbus Address	1 - 247	2-247	2-247

3. Msmart Touch Screen

3.1   Startup

After connecting the Msmart touch screen to the VMX and connecting the RX and TE-RTD12 devices the system can be powered up.

Upon power-up the Msmart will show a splash startup screen with a status bar indicating the Msmart startup status.

Next the Msmart touch screen will attempt to communicate with the VMX and additional devices. The online status is shown on the top of the screen. Green indicates device is communicating properly and red indicates communication cannot be established with the device.

Msmart Splash Screen

Msmart consist of a touchscreen and four membrane buttons for navigation that can be used when the system is installed in a harsh environment.
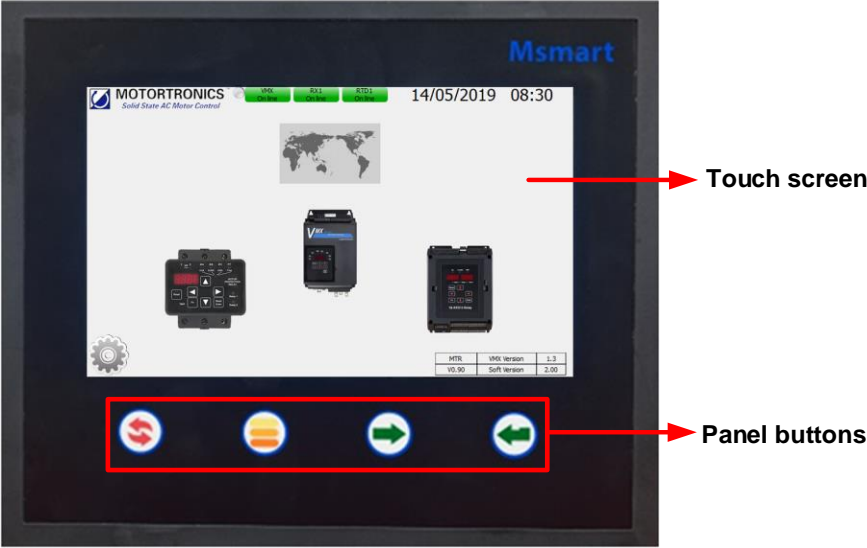
Msmart Touch Screen

Hardware Push Button Description		
Button		Resets the device on the screen only. Also resets the Msmart display by holding button for 6 – 10 sec.
		Switch between touchscreen and panel buttons (button mode). Menu icon will flash when panel buttons are active.
		Button used to move between selectable items on the touchscreen (forward Tab). The item will flash when selected.
		Select flashing item.

Table 2

3.2   Navigation and Settings

3.2.1   Main Menu

After powerup Msmart will display the main menu navigation screen. The main menu allows the users to monitor and program all devices connected to Msmart system.
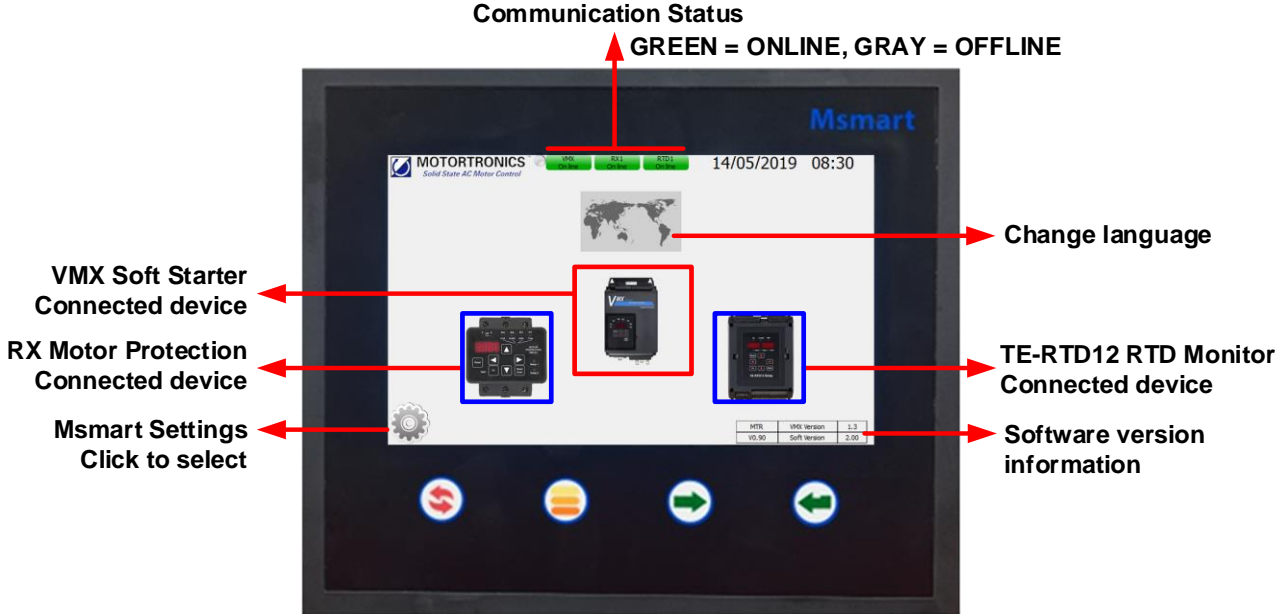
Note: The RX Motor Protection and TE-RTD12 are optional devices

Communication status

The communication status indicators at the top of the screen indicate if the Msmart is communicating successfully with the connected devices. Green means communication is ok, red for communication lost.

Communication Information

Click to display specific information about
- Connected devices
- Software version information

3.2.2   Main VMX Status / Setup Screen

The status screen shows current operation status and includes:

-   Alarm and trip status
-   Phase current and voltages
-   Relay status
-   VMX Parameters and Metering Page Access
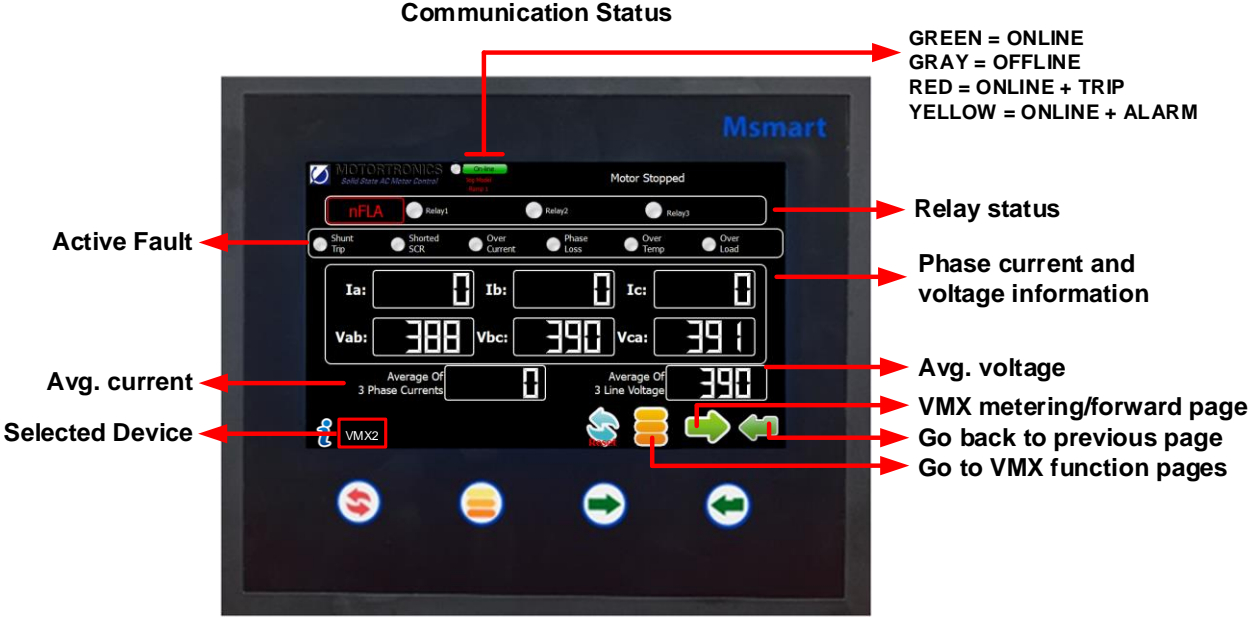
The VMX setpoint pages can be accessed by pressing the ⬛ button. See chapter VMX programming for more information.

The VMX metering pages can be accessed by pressing the ➡ button. See chapter VMX metering for more information.

3.2.3   Msmart Settings

Click on the gear tooth icon   to view/change the Msmart touch screen settings.

The following settings can be adjusted:
- Main page background color
- Backlight brightness
- Beep sound
- Save delay time
- Return delay to main menu

Increase

Decrease

Click to change main page background color

Click to change beep status

Save selected and go back

3.3 Device Selection and Programming

3.3.1 Device Selection

Depending on the Msmart system configuration all available devices will be displayed on the main menu page.
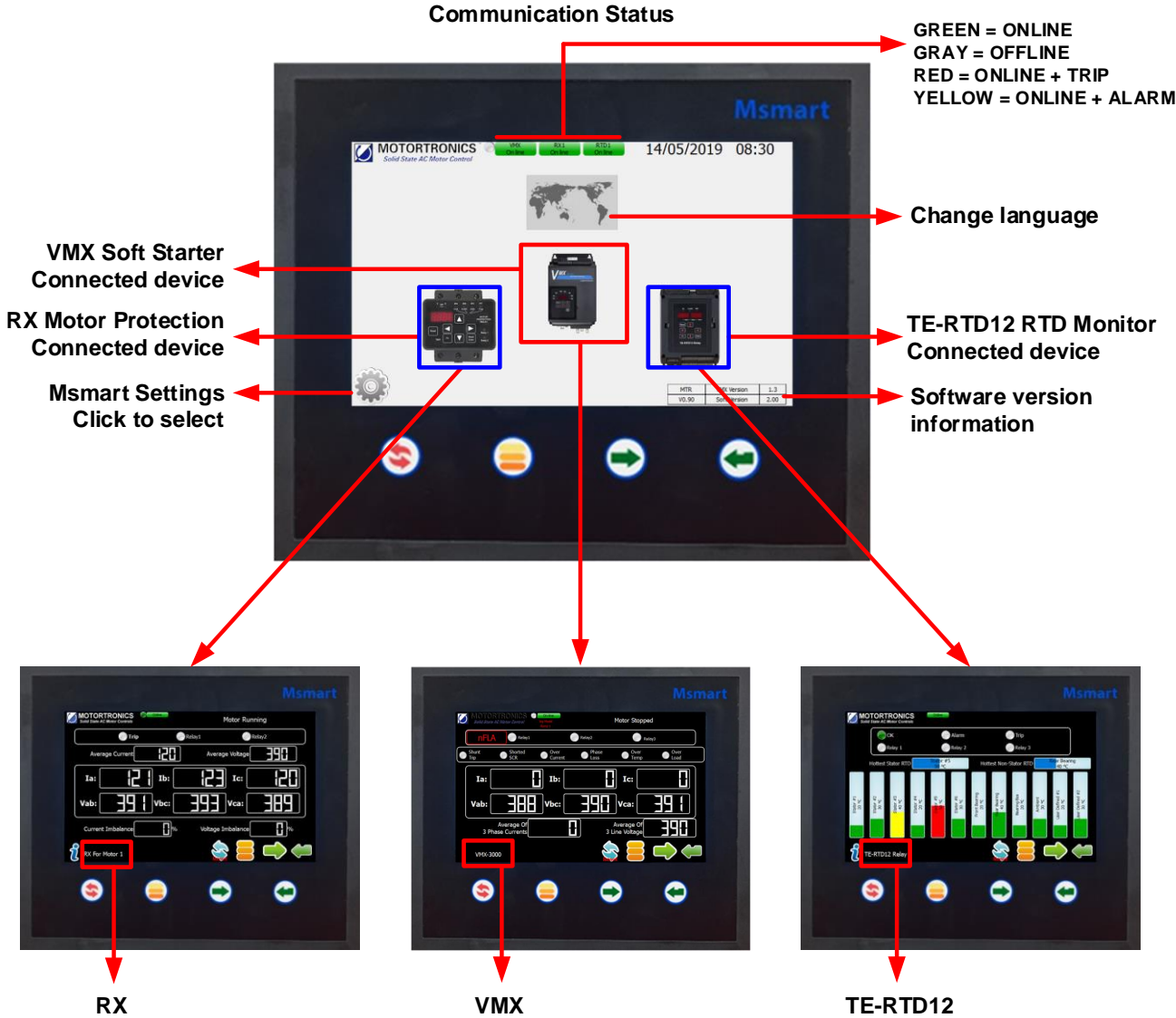
Navigation Keys (Button mode)

Use touch screen or dedicated keys on the Msmart touch screen to select device.

3.3.2 VMX Programming

The Msmart touch panel offers an easy way to program the VMX series soft starter.

1. Go to main menu and click on the VMX
2. Next click on the ▤ button to access the VMX function pages

Note: If the motor data in the VMX has not been set a message is shown indicating the VMX has not been programmed yet. Click the **Setup** button to go directly to the function pages to setup the VMX.

Go to function pages

Access VMX Setpoint Pages

VMX function pages

Motor Status

Setpoint Pages

Go to parameter functions

Go back to
main menu

#1 Select function page to view parameters direct

Parameters

Go back to main menu

Back to previous page

Next page
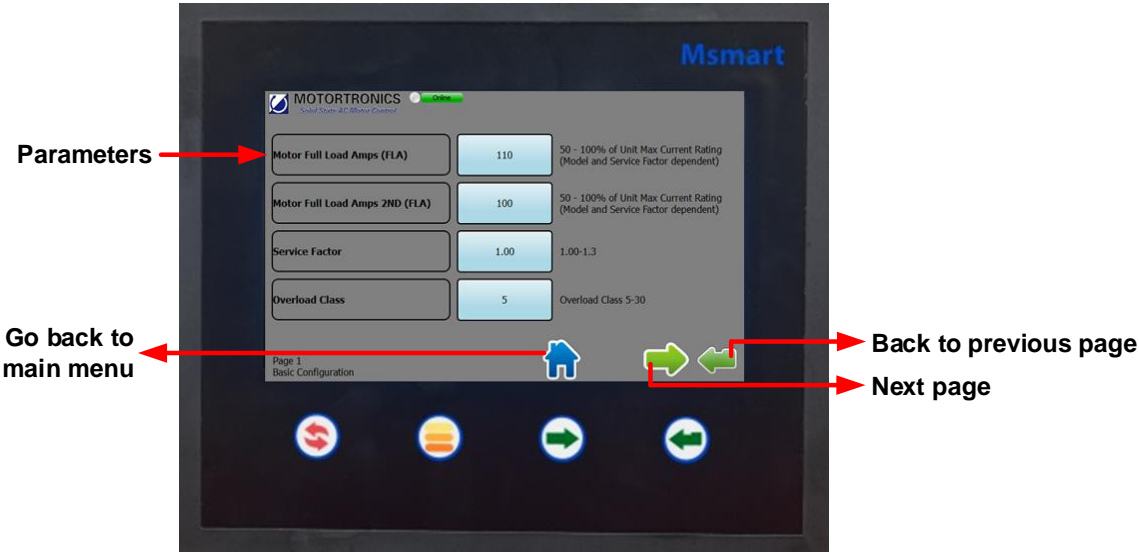
Change parameter settings

Parameter title

Parameter value

Save value

Time left to change value

Use + and – buttons to change value

Setting range

Back to previous page
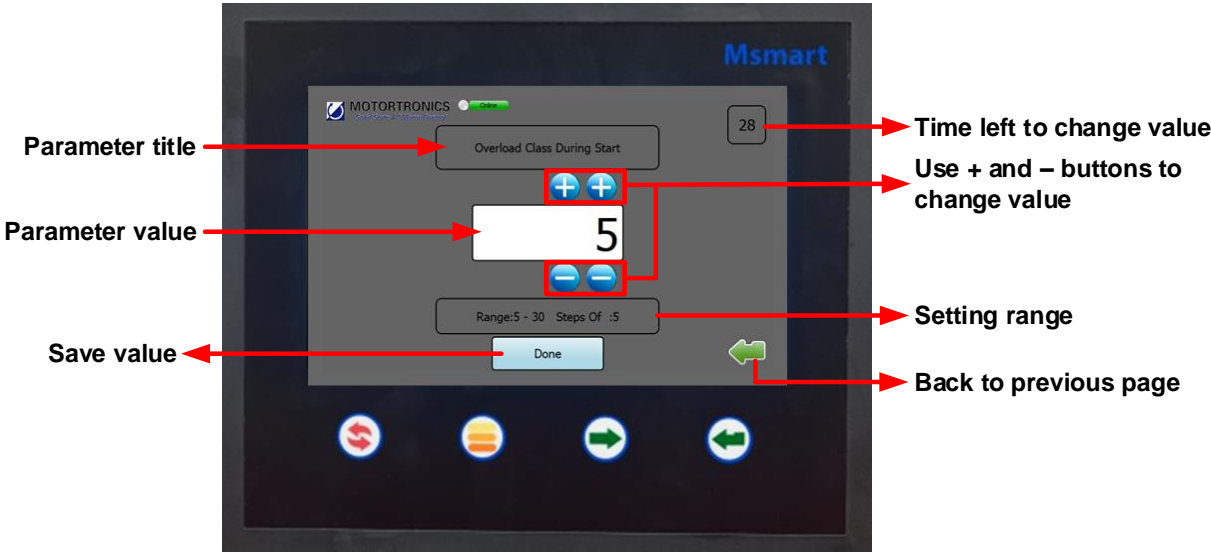
Click "done" button to save value

3.3.3   RX Programming

Select on the RX unit in the Msmart main menu.

RX

RX Status Overview

RX Trip & Relay Status

Info on other devices connected

Motor Status

RX Phase Currents

RX Phase Voltage

Back to previous page

Next page

Function pages

RX Function Pages

Setpoint Pages → (Motor & Overload Information F001 – F009)

Motor Status →

Go back to main menu ←

Next page →

Select function page to view parameters

Parameters →

Go back to main menu ←

Back to previous page →

Next page →

Changing parameter value

Parameter title

Parameter value

Save value

Time left to change value

Use + and − buttons to change value

Setting range

Back to previous page

Click done to save value

RX Monitoring Pages

RX Trip & Relay Status

Info on other devices connected

Motor Status

RX Phase Currents

RX Phase Voltage

Back to previous page

Next page
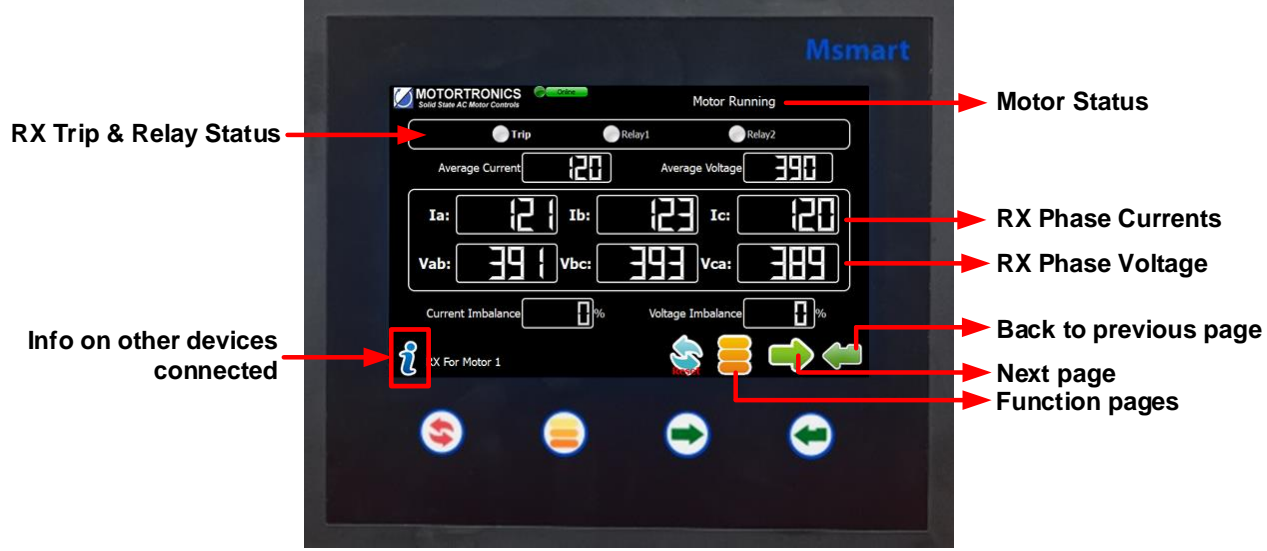
Function pages

3.3.4 TE-RTD12 Programming

Select the TE-RTD12 keypad in the Msmart main menu.

TE-RTD12

TE-RTD12 Status Overview

Trip & Relay Status

Info on other devices connected

Temperature Monitors

RTD Monitors

Back to previous page

Next page
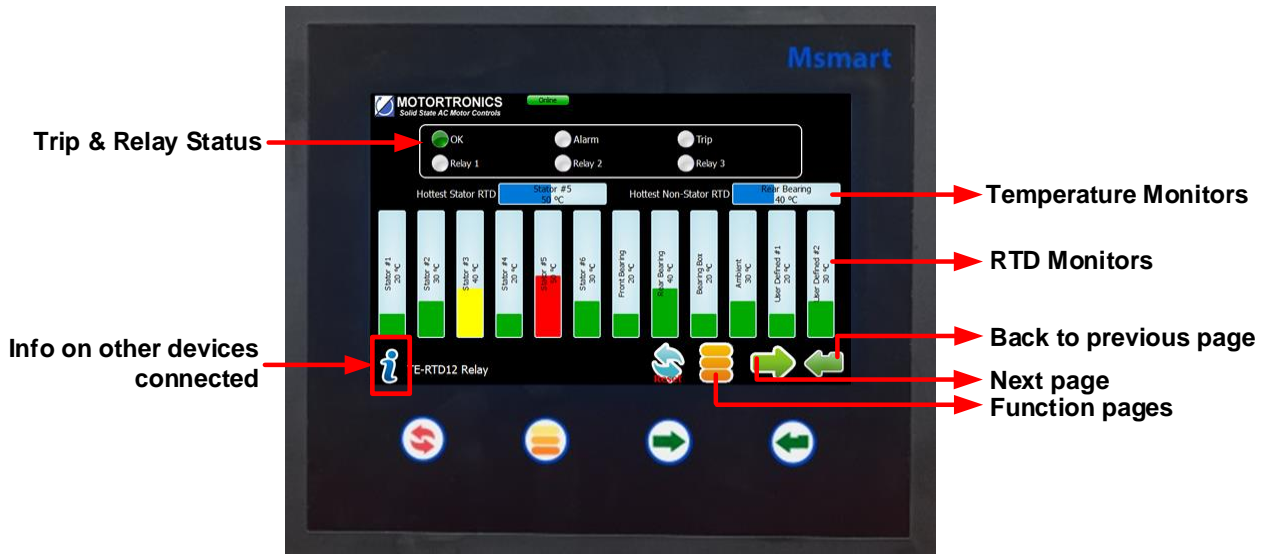
Function pages

TE-RTD12 Function Pages

Select function page to view parameters

Changing parameter value

Parameter title	→	Time left to change value
Parameter value	→	Use + and – buttons to change value
Save value	←	Setting range
		Back to previous page
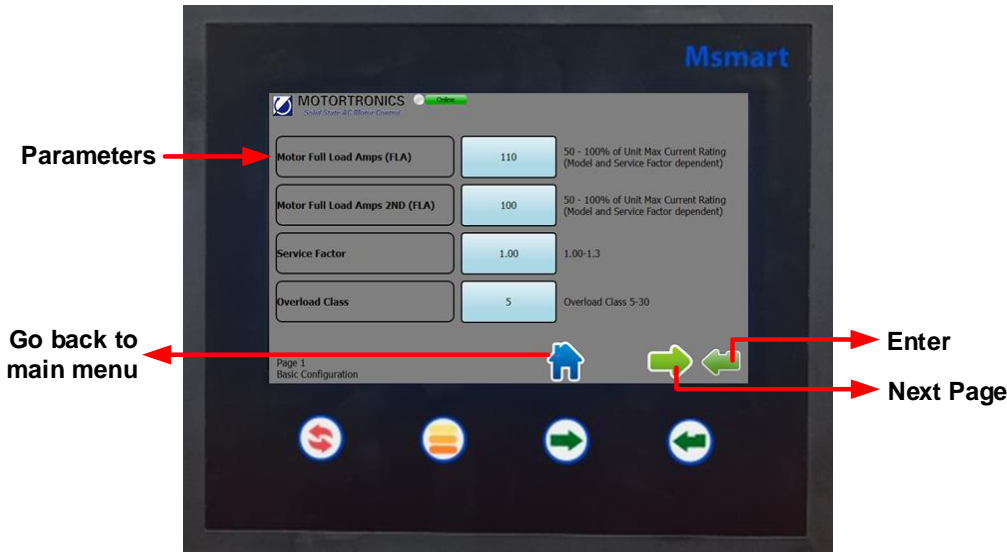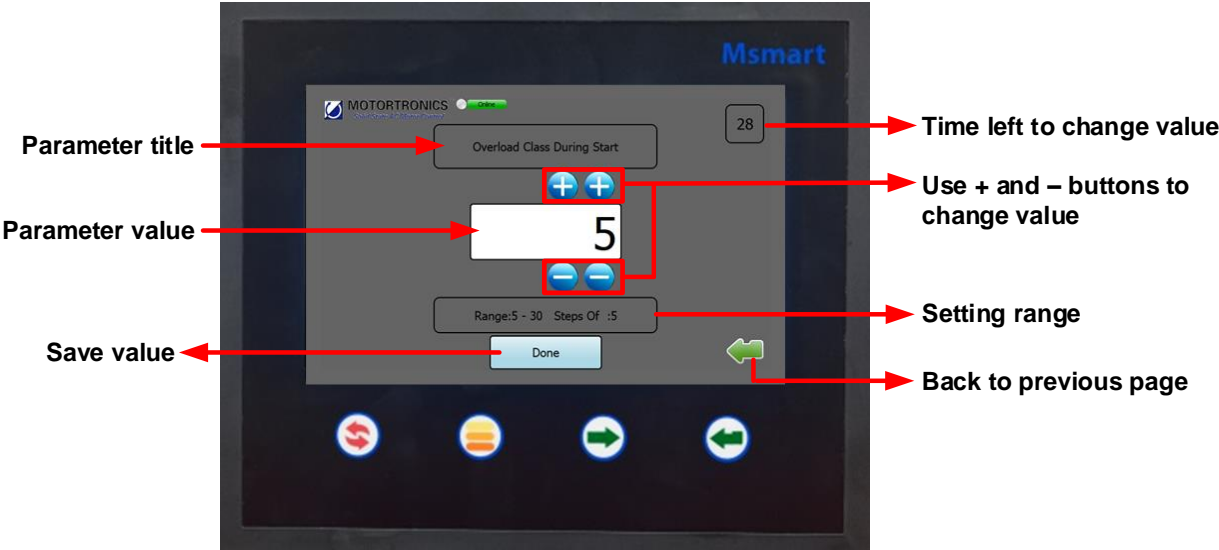
Click "done" button to save value

APPENDIX A: Technical Specifications

Screen Type:	Resistive Touch Screen
Keypad:	4 Membrane Keys
Input Voltage:	5VDC
Average Power Consumption:	3W
Real-time Clock:	Standard
Operating Design Temperature:	32ºF – 122ºF / 0ºC to 50ºC
Storage Temperature:	-4ºF – 176ºF / -20ºC to 80ºC
Ambient Conditions:	5% to 95% relative humidity 0 – 3300ft (1000m) elevation
Approval:	UR (Recognized component)

Warranty information

1 Year Warranty: Phasetronics Inc., dba Motortronics, (hereinafter "Company") warrants the **Msmart** product to be free from defects in material and/or workmanship for a period of one (1) year from the date of sale, or a maximum of 18 months from the date of manufacture (if no sales records are available) as indicated by the unit's date code. The Company reserves the right to repair or replace any malfunctioning units or sub- assemblies under warranty at the Company' sole option. Warranty repairs may be performed at the Company's facility, in the field by a factory-authorized technician, or by the customer only with prior approval and at the specific direction of the Company's Technical Services personnel. During the 1 year period, malfunctions of the control boards will be dealt with by replacement of the Modular Control Assembly (MCA), which contains the User Interface Panel, Digital Control Unit, Bypass control (if any) and Communications Interface. The MCA is designed to be replaced quickly without the need for tools (plug-in), and as such will constitute the majority of warranty replacements.

Warranty Service Procedure:

In the event that warranty service becomes necessary, contact the distributor where the starter was purchased, or Motortronics Technical Services department directly at (727) 573-1819. Be prepared to provide the complete Model number, Serial Number, date and place of purchase. It is also helpful to know the date of initial commissioning. When Technical Services has determined the nature of the problem and that sending replacement parts or assemblies can repair it, they will require a purchase order for replacement parts and issue a Return Material Authorization (RMA) for the defective parts or assemblies. If any components or assemblies are received at the factory without the proper RMA documentation, the shipment(s) will be refused.

When the replacement parts are received and evaluated at the factory, any warranty determination will result in an offsetting credit being issued for the replacement parts already sent out. If the unit is not needed for immediate operation, an alternative is to have the Technical Services representative provide an RMA for the components, and they will be evaluated and repaired at the factory, and returned. In either circumstance, freight/shipping costs are the responsibility of the purchaser.

Responsibility:

Company is not responsible for the misuse or misapplication of its products, intentional or otherwise. Improper application, installation, failure to provide safety devices or protective measures, or operation above its ratings, and failure to properly maintain or service products are all beyond the control and responsibility of the Company. Under no circumstances shall the Company be liable for loss of profits, indirect, incidental, special, consequential or other similar damages arising out of the misuse, misapplication or failure to maintain the

California Customers:

California Proposition 65 Warning

WARNING: this product and associated accessories may contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information visit https://p65warnings.ca.gov

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Solid State AC Motor Control

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