



13.3

TECHNICAL INFORMATION

TITLE: AB BULLETIN 1406 TO MPS MOTOR PROTECTION SYSTEM RETROFIT

The MPS Motor Protection System is an excellent choice as a replacement for the AB Bulletin 1406 Motor Protector due to similarities in modular design and terminal layout. While the MPS can be programmed to simulate the AB-1406, it can also add protective features, control, metering, data logging, and communications.

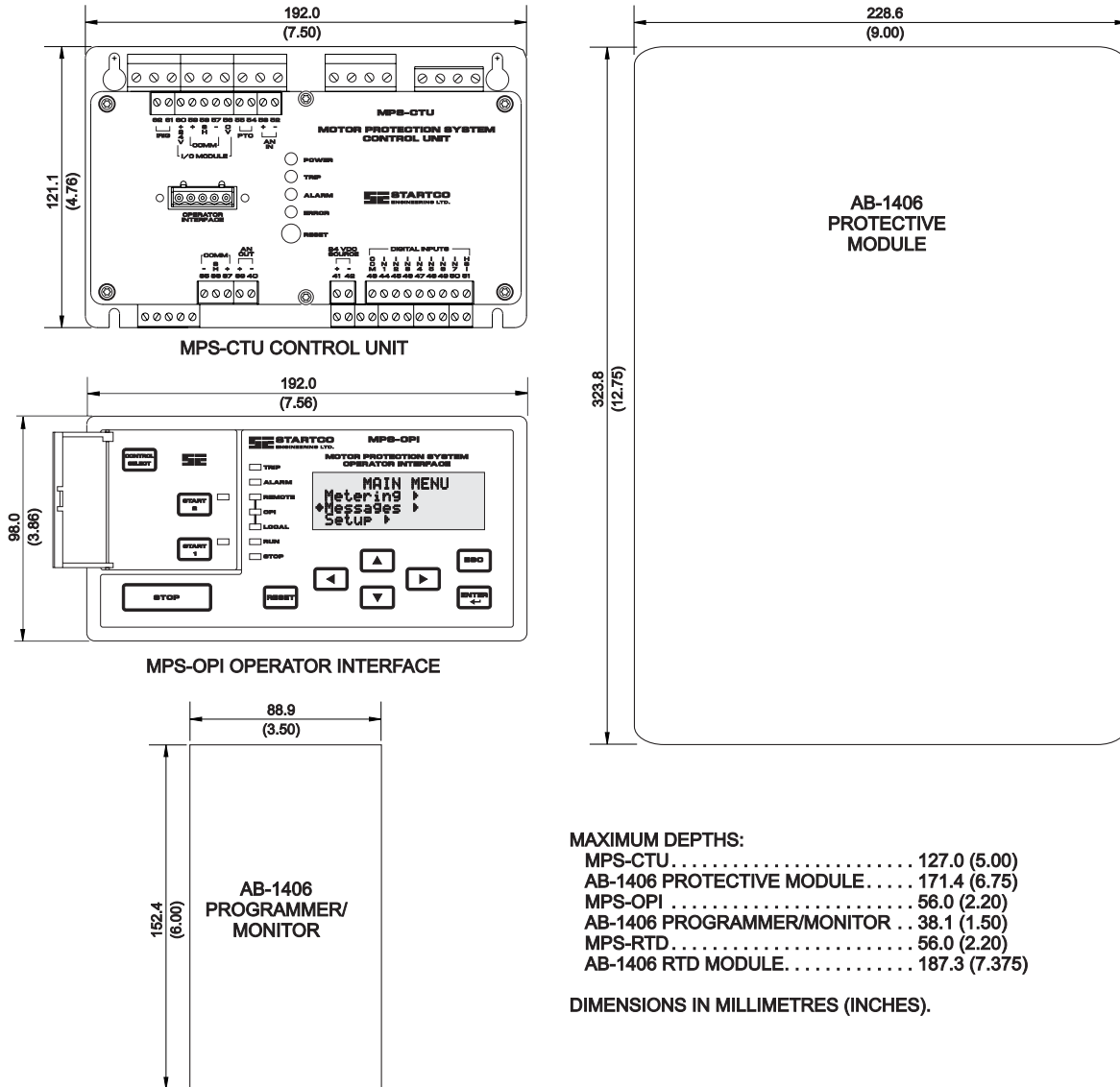


FIGURE 1A. Physical Dimensions.

DATE	REV	AUTHOR	DOCUMENT LOCATION	PAGE
2006-Mar-28	1	TK	http://www.startco.ca/library/techinfo/section13/13.3.pdf	1 of 5



TECHNICAL INFORMATION

TITLE: AB BULLETIN 1406 TO MPS MOTOR PROTECTION SYSTEM RETROFIT

Before the AB-1406 is removed from service, the following information should be recorded. Use this table as a guideline when programming the MPS to mimic an AB-1406.

AB-1406 Function #	Description	MPS-OPI Menu Location
1: _____	Phase CT primary rating (A)	Setup / System Ratings / CT Primary
2: _____	Full load current FLA (A)	Setup / System Ratings / FLA Rating
3: _____	Locked rotor current (A)* <i>* MPS is set as (x FLA)</i>	Setup / Protection / Overload / LR Current
4: _____	Line-to-line voltage (V)* <i>* AB-1406 uses 2 PT method</i>	Setup / System Ratings / System Voltage Setup / System Ratings / V Connection
5, 6: NOT REQUIRED		
7: _____	Locked rotor time, cold (s) <i>Locked rotor time, hot = 0 s</i>	Setup / Protection / Overload / LR Time Cold Setup / Protection / Overload / LR Time Hot
8: _____	Allowable Acceleration Time(s)* <i>* Zero speed switch input required</i>	Setup / Digital Inputs / Digital Input 2 / In 2 Bypass Delay
9: _____ ^{*1}	Number of starts per time increment	Setup / Protection / Starts/hour / # Starts/hour
10: _____ ^{*1}	Time increment (hours)	Setup / Protection / Starts/hour / Time between
11: _____	Phase unbalance (%FLA) <i>Phase unbalance delay = 2 s</i> <i>Phase unbalance alarm = 90% Trip Level</i>	Setup / Protection / Unbalance (I) / Trip Level Setup / Protection / Unbalance (I) / Trip Delay Setup / Protection / Unbalance (I) / Alarm Level
12: _____	Phase reversal protection (enable / disable)	Setup / Protection / Phase Reverse (I)
13: _____	Undervoltage (% line V)	Setup / Protection / Undervoltage / Trip Level
14: _____	Undervoltage trip delay (s)	Setup / Protection / Undervoltage / Trip Delay
15: _____	Ground-fault CT primary rating (A)	Setup / System Ratings / EF-CT Primary
16: _____	Ground-fault alarm level (A)* <i>Ground-fault alarm delay = 0 s</i>	Setup / Protection / Earth Fault / Alarm Level Setup / Protection / Earth Fault / Alarm Delay
17: _____	Ground-fault trip level (A)*	Setup / Protection / Earth Fault / Trip Level
18: _____	Ground-fault trip delay (ms) <i>* MPS is set as (x EFCT primary)</i>	Setup / Protection / Earth Fault / Trip Delay
19: _____	Low level fault current (x FLA)	Setup / Protection / Overcurrent / Trip Level
20: _____	Jam (x FLA)	Setup / Protection / Jam / Trip Level
21: _____	Trip inhibit (enable / disable)* <i>* MPS provides Aux. Overcurrent Setpoint</i>	Setup / Protection / Aux. Overcurrent
22: _____	Underload (%FLA)	Setup / Protection / Undercurrent / Trip Level
23: _____	Underload trip delay (s)	Setup / Protection / Undercurrent / Trip Delay
24: _____	Ultimate Trip Current (x FLA)	Setup / System Ratings / Service Factor
25: _____	Winding alarm temperature (°C)	Setup / Protection / RTD temperature
26: _____	Winding trip temperature (°C)	<i>RTD type, function, and trip and alarm setpoints are programmable for each RTD</i>
27: _____	Bearing alarm temperature (°C)	
28: _____	Bearing trip temperature (°C)	
29+: NOT REQUIRED		

TABLE 1. Setup Information.

^{*1} The MPS is programmed with a value for the maximum number of starts in one hour, and with a value for the minimum time between consecutive starts. The AB-1406 is programmed with a value for the maximum number of starts in a programmable time interval. These values are similar but not interchangeable.

DATE	REV	AUTHOR	DOCUMENT LOCATION	PAGE
2006-Mar-28	1	TK	http://www.startco.ca/library/techinfo/section13/13.3.pdf	3 of 5



TECHNICAL INFORMATION

TITLE: AB BULLETIN 1406 TO MPS MOTOR PROTECTION SYSTEM RETROFIT

In the MPS-OPI menu location *Setup / Relay Outputs / Relay x*, assign Output Relay 3 the *Alarm1* function, Output Relay 4 the *Trip1* function, and select *Fail-Safe* or *Non-Fail-Safe* operating mode. This allows the MPS output relays to mimic the AB-1406 output relays. There are many additional protective functions provided with the MPS that are not listed in Table 1. The MPS manual, available at www.startco.ca, describes each additional feature in detail.

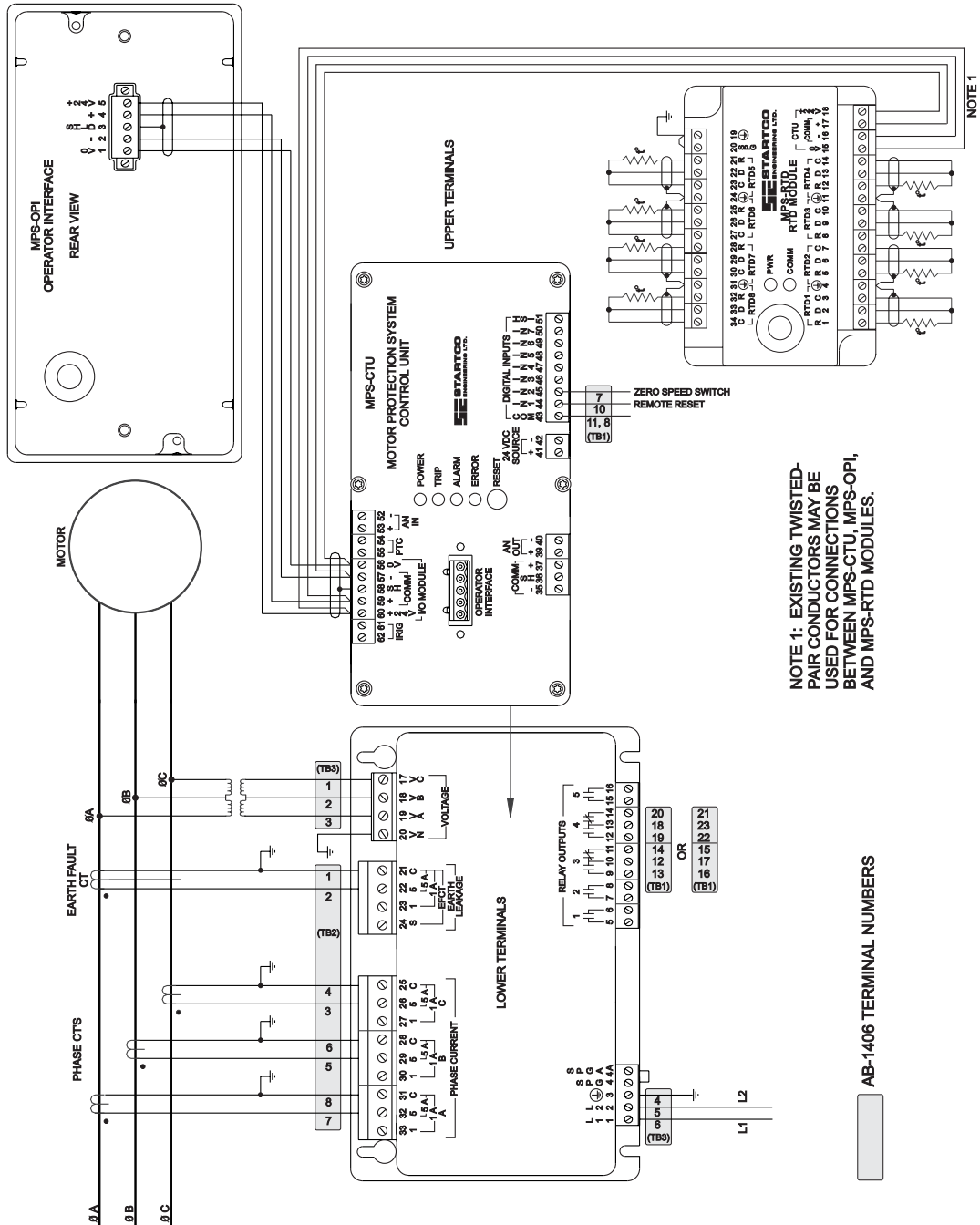
Install the MPS following the wiring guidelines shown in Fig. 3. These guidelines assume a typical installation of the AB-1406 Motor Protector. If remote reset and zero speed switch inputs are required, connect them to Digital Input 1 and Digital Input 2 on the MPS-CTU. Program Digital Input 1 as *Reset* under *Setup / Digital Inputs / Digital Input 1 / Function*. Program Digital Input 2 as *Trip 1 (with delay)* under *Setup / Digital Inputs / Digital Input 2 / Function*. The *Bypass Delay* value is found in Table 1, listed under AB-1406 Function #8.

CAUTION – All guidelines involved in this document assume a typical installation of the AB-1406. All wiring and set points should be confirmed. Be sure to follow all proper safety procedures when accessing the wiring / terminals on these devices.

DATE	REV	AUTHOR	DOCUMENT LOCATION	PAGE
2006-Mar-28	1	TK	http://www.startco.ca/library/techinfo/section13/13.3.pdf	4 of 5



TITLE: AB BULLETIN 1406 TO MPS MOTOR PROTECTION SYSTEM RETROFIT



NOTE 1: EXISTING TWISTED-PAIR CONDUCTORS MAY BE USED FOR CONNECTIONS BETWEEN MPS-CTU, MPS-OPI, AND MPS-RTD MODULES.

AB-1406 TERMINAL NUMBERS

DATE	REV	AUTHOR	DOCUMENT LOCATION	PAGE
2006-Mar-28	1	TK	http://www.startco.ca/library/techinfo/section13/13.3.pdf	5 of 5