EM730 Safe Torque Off (STO) Function Description

I.1 Overview

When the user enables the STO function, the inverter output can be blocked without powering off the inverter to prevent the device from starting unexpectedly. The function codes involved in this function are as follows:

Function code	Function code name	Parameter Description	Factory default
F07.50	STO Lock Selection	0: STO locked. When STO occurs, the fault must be reset after the H1 and H2 terminals are restored to exit the STO state. 1: STO unlocked. When STO occurs, the STO state is automatically exited after the H1 and H2 terminals are restored to their original state.	0
F03.00	Y1 output function selection	83: STO status indication output. When STO and STL1~STL3 faults occur, Y1 output is valid	83

Note:

STL1~STL3 are all alarm locked and can only be restored by powering off and then on again

I.2 STO logic function table

The STO function input status and the corresponding fault and STO status indication output are shown in the following table:

STO input status	STO function corresponding fault	STO status indication output
H1, H2 and 24V are closed at the same time	Normal state, inverter output is normal	OFF
H1, H2 and 24V are disconnected at the same time	The STO function is triggered, the inverter blocks the output, and the fault code is: E103: Safe Torque Off (STO)	ON
H1 is disconnected from 24V, H2 is closed from 24V	Triggering STL1 fault, fault code: E104: Channel 1 safety circuit abnormality (STL1)	ON
H1 is closed to 24V, H2 is disconnected to 24V	Triggering STL2 fault, fault code: E105: Channel 2 safety circuit abnormality (STL2)	ON
Internal circuit abnormality	Triggering STL3 fault, fault code: E106: Internal circuit abnormality (STL3)	ON

I.3 Troubleshooting:

Causes and solutions for faults

Fault Status	Fault name	cause of issue	Troubleshooting
STO	Safe Torque Off	1.Externally enabled safe torque off function	/
STL1	Channel 1 safety circuit abnormality	1. Incorrect wiring of STO function 2. Fault of external switch of STO function 3. Hardware fault of safety circuit of channel 1	1. Check whether the wiring circuit of the STO function H1 terminal is correct and firm 2. Check whether the external switch of the STO function is normal: 3. Replace the control board
STL2	Channel 2 safety circuit abnormality	1. Incorrect wiring of STO function 2. Fault of external switch of STO function 3. Hardware fault of safety circuit of channel 2	1. Check whether the wiring circuit of the STO function H2 terminal is correct and firm 2. Check whether the external switch of the STO function is normal: 3. Replace the control board
STL3	Channel 1 and channel 2 internal circuit abnormality	1.STO function circuit hardware failure	Replace the control board

I.4 Wiring diagram:

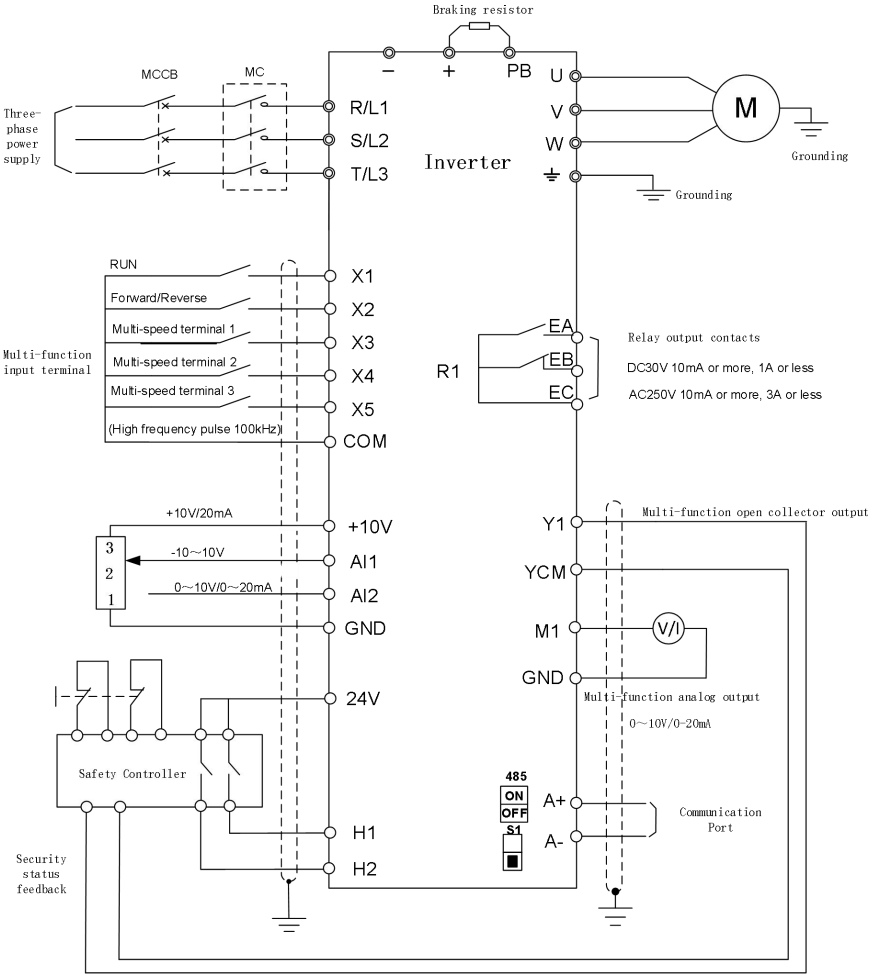

Figure 1 Control circuit wiring diagram