

174194.00 - SM SERIES REMOTE KEYPAD INSTRUCTIONS

The SM Series Remote Keypad option allows the SM Series drive to be programmed and controlled from up to 8 feet away (typically from the front of the enclosure that houses the SM drive). When properly mounted, the remote keypad is rated up to NEMA 4X.

In addition to the functions available on the front of the SM drive, the remote keypad has Start/Stop and Forward/Reverse functions.

NOTE: The Remote Keypad option will only work with SM drives that have parameter version "320" or higher. The parameter version appears momentarily on the drive display when it is powered up, and also appears on a sticker on the drive's heatsink.

WARNING!

If OEM mode is selected (using Parameter 48), and if the OEM Default settings for Parameters 11, 12, and 14 are not "13", "21", and "02" respectively, the remote keypad will be disabled, and the **STOP** key WILL NOT work. Refer to the SM manual for more information on OEM Default settings.

1. PARTS LIST

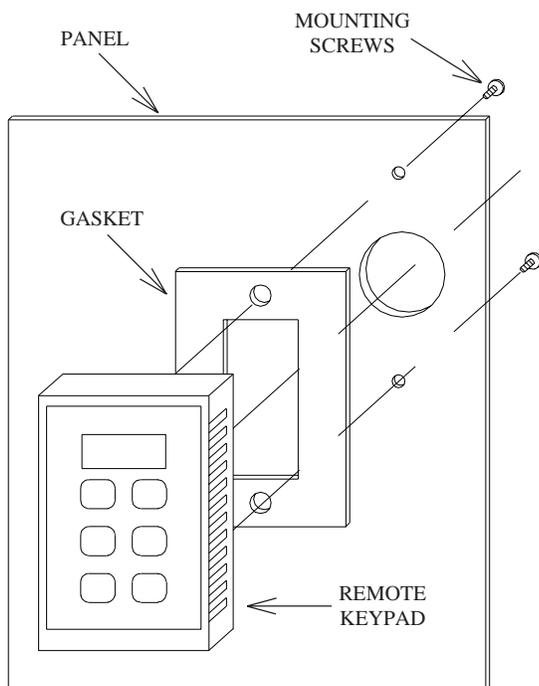
The SM Remote Keypad kit includes the following parts:

- | | |
|----------------------------------|-----------------------|
| (1) Remote Keypad | (1) Gasket |
| (2) Self-tapping Mounting Screws | (1) Instruction Sheet |
| (1) Eight foot cable | |

NOTE: The supplied cable is unshielded and can only be used in low-noise environments. In high-noise environments, use Belden 9842, Carol C4842, or equivalent (24 gage minimum) wire only. The maximum cable length that can be used is 8 feet.

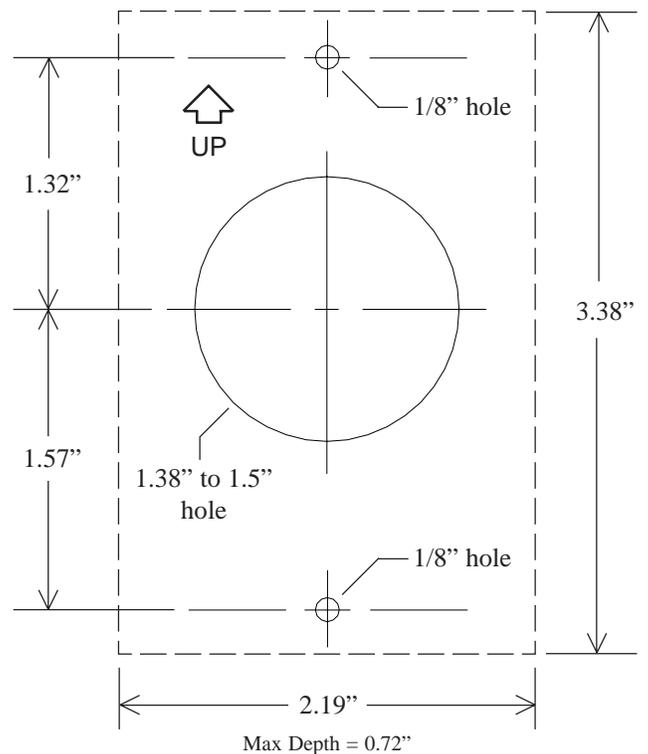
3. MOUNTING THE REMOTE KEYPAD

The diagram below illustrates how to mount the remote keypad to a panel. Use the template in Section 2 to mark the location of the mounting holes on the panel.



2. SM REMOTE KEYPAD TEMPLATE

Hold this page against the panel where the remote keypad is to be mounted, and use a center punch to mark the location of the holes. The dotted line is the outline of the remote keypad.



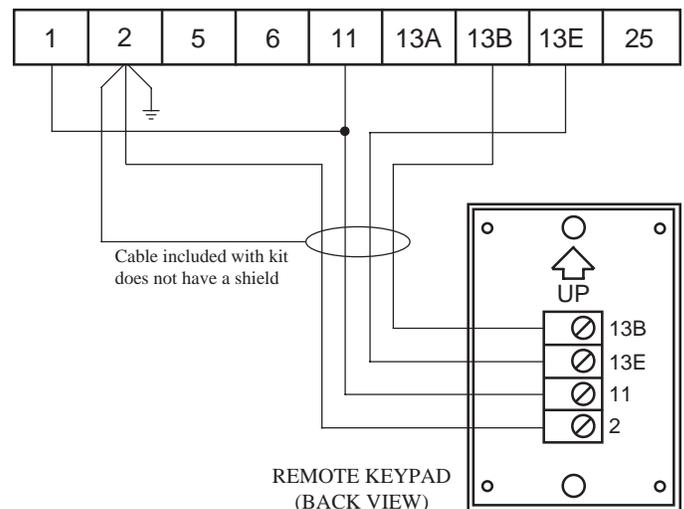
4. WIRING CONNECTIONS

WARNING!

Improper wiring may result in damage to the Remote Keypad. Keep the remote keypad cable away from power wiring.

The Belden and Carol cables specified consist of two twisted pairs. Make sure one twisted pair is used for connections to 13B and 13E, and the other is used for connections to 11 and 2. Do not mix connections between twisted pairs.

NOTE: The supplied cable is unshielded and can only be used in low-noise environments. In high-noise environments, use Belden 9842, Carol C4842, or equivalent (24 gage minimum) wire only. The maximum cable length that can be used is 8 feet.



5. SETTING UP THE SM DRIVE

To set up the SM drive to work with the Remote Keypad, the following parameters must be programmed:

P11	TB-13B FUNCTION	Set to REMOTE KEYPAD (13)
P12	TB-13E FUNCTION	Set to REMOTE KEYPAD (21)
P14	CONTROL	Set to REMOTE KEYPAD ONLY (02).

When this is done, and the Remote Keypad is connected, only the Remote Keypad can start the drive and select direction. This results in some functions of the drive being unavailable. These are explained below:

1. The Dynamic Braking option cannot be used because TB-13E is required for the Remote Keypad.
2. Settings 05, 06, and 07 on TB-13A (Parameter 10) are disabled. These settings are related to direction control. Only the Remote Keypad can be used for direction commands.

Refer to the SM Installation and Operation Manual for more information.

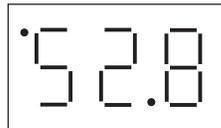
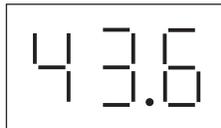
NOTE: Once the drive is set up for Remote Keypad control, the buttons on the front of the drive are disabled. If they are pressed, the drive display and Remote Keypad display will show "SE", indicating that the buttons are disabled.

7. REMOTE KEYPAD DISPLAY

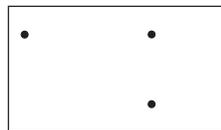
The SM Remote Keypad has a three digit display like the SM drive.



The displays below are examples of the drive in RUN mode. On the left, the drive is running at 43.6 Hz. On the right, the speed has been changed to 52.8 Hz (during speed command changes, the upper left decimal point turns on).



The displays below are examples of problems that will occur if the drive is not properly programmed or if the keypad is not wired properly to the drive.



Make sure Parameters 11, 12, and 14 are properly set.



Make sure the keypad is properly wired to the drive and the cable is away from noise.

6. REMOTE KEYPAD FUNCTIONS

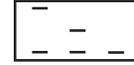
The **M** key and the **▲** and **▼** keys on the remote keypad function the same as the **Mode** button and the **▲** and **▼** buttons on the drive. The other remote keypad functions are described below:



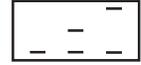
Reverse/Forward key: Selects Forward or Reverse direction. The **R/F** key is only active if Parameter 17 - ROTATION is set to "02" (FORWARD AND REVERSE).

When the **R/F** key is pressed, the symbol for the opposite direction will blink on the display. Press the **M** key within four seconds to confirm the rotation change.

Below are the display symbols used to indicate direction:



FORWARD



REVERSE



RUN key: Press **RUN** to Start the drive. TB-1 must be closed to TB-11. See the wiring diagram in Section 4



STOP key: Press **STOP** to Stop the drive. The **STOP** key is active whenever the remote keypad is operational.

WARNING!

If the remote keypad display is totally blank or only the decimal points are lit, or it is displaying a "JF" fault, the **STOP** key WILL NOT stop the drive. The remote keypad must be operational in order for the **STOP** key to be active.

8. TROUBLESHOOTING

CONDITION / DISPLAY	POSSIBLE CAUSES
Remote Keypad display is blank, or only the decimal points are illuminated.	Parameter 14 - CONTROL is set to "01" (TERMINAL STRIP ONLY) Parameter 11 - TB-13B is not set to "13". Parameter 12 - TB-13E is not set to "21". The Remote Keypad is not wired correctly to the drive.
Remote Keypad and/or SM drive displays "JF"	JF is a serial fault, which indicates a communication problem. Check for proper wiring between the remote keypad and the drive. A "JF" fault will also occur if an attempt is made to power the remote keypad and an auxiliary relay from TB-11. See Note 2 in Section 4.
The R/F key does not work to change rotation direction.	To use the R/F key to change rotation direction, the remote keypad must be selected as the control source, and Parameter 17 (ROTATION) must be set to "02" (FORWARD AND REVERSE). Refer to Sections 4 and 5.

