

Remote Keypad Control of Minarik AC100 Series Drives

INSTALLATION AND OPERATION INSTRUCTIONS Document Number: 250-0304

The AC100 Series Remote Keypad option allows the AC100 Series drive to be programmed and controlled from up to 8 feet away. When properly mounted, the remote keypad is rated up to NEMA 4X.

In addition to the functions available on the front of the AC100 drive, the remote keypad has Start/Stop and Forward/Reverse functions.

NOTE

The Remote Keypad option will only work with AC100 drives that have parameter version "317" or higher. The last two digits of the parameter version appear momentarily on the drive display when it is powered up, and the full parameter version number appears on a sticker on the drive's heatsink.



Warning

Electric shock hazard! The terminals on the Remote Keypad are at line voltage potential when the Remote Keypad is connected to the AC100 drive.

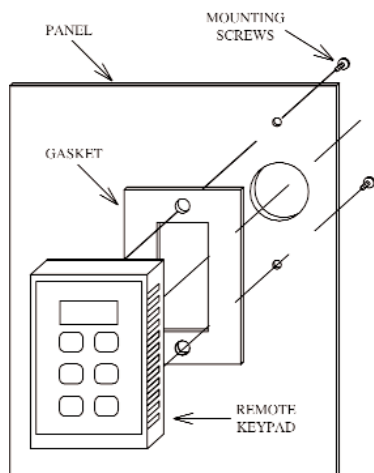
1. PARTS LIST

The AC100 Remote Keypad kit includes the following parts:

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

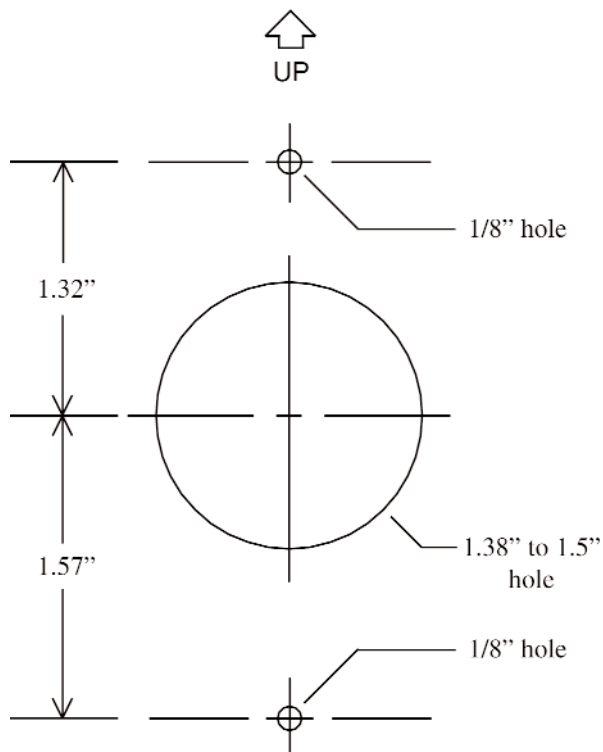
3. MOUNTING THE REMOTE KEYPAD

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. AC100 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.



4. WIRING CONNECTIONS



Warning

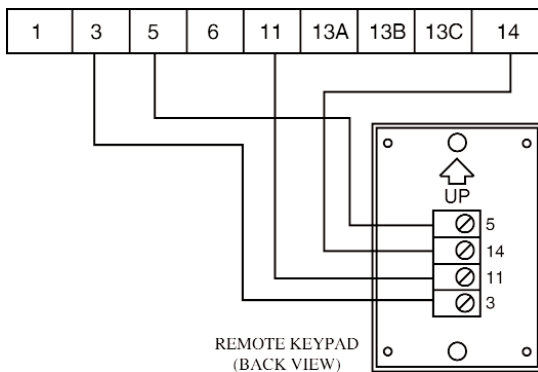
Improper wiring may result in damage to the Remote Keypad. Keep the remote keypad cable away from power wiring.

The specified Belden and Carol cables consists of two twisted pairs. Make sure one twisted pair is used for connections to 5 and 14, and the other is used for connections 11 and 3. Do not mix connections between twisted pairs. Connect the shield to TB-3 on the drive. At the keypad, trim the shield and cover any exposed shield with insulating electrical tape.

DO NOT connect the shield to chassis or earth ground; this may result in damage to the keypad and/or drive!

Note

The supplied cable can be used for distances up to 8 feet in low-noise environments. In high-noise environments, use Belden 9842, Carol C4842, or equivalent (24 gage minimum) wire only. See warning above.



5. SETTING UP THE AC100 DRIVE

To set up the AC100 drive to work with the Remote Keypad, set Parameter 14 - CONTROL to "02" (REMOTE KEYPAD ONLY).

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

1. A speed pot cannot be used for speed control because TB-5 is connected to the Remote Keypad. The ▲ and ▼ buttons on the Remote Keypad must be used for speed control.
2. The Dynamic Braking option cannot be used because TB-14 is connected to the Remote Keypad.
3. Settings 02, 04, 05, 06, and 08 on TB-13A (Parameter 10) are disabled. These settings are related to speed control, direction control, and dynamic braking. Only the Remote Keypad can be used for speed control and direction commands. The dynamic braking option cannot be used.
4. Settings 02, 05, 06, and 08 on TB-13B (Parameter 11) are disabled. These settings are related to speed control, jog, and dynamic braking. Only the Remote Keypad can be used for speed control, and the jog function. The dynamic braking option cannot be used.
5. Settings 02, 05, and 07 on TB-13C (Parameter 12) are disabled. These settings are related to speed control, direction control, and dynamic braking. Only the Remote Keypad can be used for speed control and direction commands. The dynamic braking option cannot be used.

Refer to the AC100 Installation and Operation Manual for more information.

6. REMOTE KEYPAD FUNCTIONS

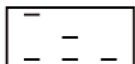
The **M** key and the ▲ and ▼ keys on the remote keypad function the same as the **Mode** button and the ▲ and ▼ buttons on the drive. The other remote keypad functions are described below:



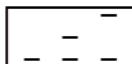
Reverse/Forward key: Selects Forward or Reverse direction. The **R/F** key is only active if Parameter 17 - ROTATION is set to "02" (FORWARD AND REVERSE.)

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. The **RUN** key is only active if the remote keypad is selected as the Start/Stop control source.



STOP key: Press **STOP** to Stop the drive. The **STOP** key is active whenever the remote keypad is operational, even if the remote keypad is only used for programming and monitoring.



Warning

If the remote keypad display is totally blank or 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.

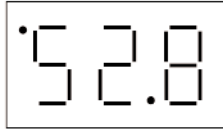
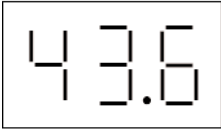
7. REMOTE KEYPAD DISPLAY

The AC100 Remote Keypad has a three digit display. To mimic the AC100 drive display, only two digits are used when the drive is being programmed. When the drive is running, the speed will be displayed using all three digits.

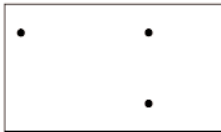
The display is shown below, with all segments and decimal points illuminated:



The displays below are examples of the drive in RUN mode. On the left, the drive is running at 43.5 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 communication problems between the drive and remote keypad. Check that the remote keypad is properly wired to the drive and that Parameter 14 is set to "02" (REMOTE KEYPAD ONLY).



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).
Remote Keypad and/or AC100 drive displays "JF".	JF indicates a communication problem. Check for proper wiring between the remote keypad and the drive.
The R/F key does not work to change rotation direction.	To use the R/F key to change rotation direction, Parameter 17 - ROTATION must be set to "02" (FORWARD AND REVERSE).