

11 Diagnostics



Warning

If an Err 6 trip code occurs, all parameters except for those in Menu 60 will be reset to their default values.

If an EE trip occurs, check that parameter p60 indicates the correct value for the Drive model (see parameter p60 in Chapter 10 *List of Parameters*). Note that all parameters including those in Menu 60 will be reset to their default values.

If an Err trip occurs more than once or an EE trip occurs, contact the supplier of the Drive.



Warning

A faulty Drive must be returned to the supplier for repair. Internal repairs by the user are not authorized and may be hazardous.

11.1 Trip codes

If the Drive trips, the cause of the trip is indicated by a trip code which appears on the display.

The trip codes are as follows:

UU

Under-voltage

The DC-bus voltage is below the following value:

Models	VDC
Single-phase	160
Three-phase, low voltage	160
Three-phase, high voltage	360

Note

AC supply voltages

Even though the values stated in the table indicate that the Drive will continue to operate when the AC supply has fallen below the specified minimum voltage (see Chapter 3 *Data*), do not use a supply that is continuously or intentionally below the specified minimum voltage.

DC supply voltages

The same applies when the Drive is powered by a DC supply connected to the DC bus (see *Connecting an external supply to the DC bus* in Chapter 4 *Installing the Drive*).

OU

Over-voltage

The DC bus voltage is above the maximum acceptable value. This could be caused by motor regeneration during braking or the AC supply voltage being too high.

Ph

Phase loss from AC supply

The ripple voltage on the DC bus has exceeded 70V pk-pk for more than 16 seconds. The amplitude of the ripple voltage is dependent on the model size of Drive and the motor current.

It

I × t protection

I × t protection occurs when the load current exceeds the value of parameter p5. Under this condition, the decimal points on the display start flashing, and continue to do so for a short period after the load current is reduced below the value of p5. If I × t protection is allowed to continue, the Drive will cease operating, and the display will show It. This indicates that the maximum permissible value of I × t has been reached.

Oh

Over-heating

The maximum permitted heatsink temperature has been exceeded.

th

Thermal resistor value

The temperature of the motor is too high or a connection to the motor thermal resistor is broken.

If a motor thermal resistor is not being used, this trip code indicates that pin A6 is not connected to OV.

Et

External trip

An external trip signal has been received on pin C7. If the external trip input is not being used, this trip code indicates that pin C7 is open circuit.

cL

Current loop loss

If the frequency reference signal is a current signal, this trip code indicates the current signal is below 3mA (4 to 20 mA, or 20 to 4mA only).

The trip is disabled when parameter **b26** is set at 1.

PS

Power supply fault

A fault has been detected in the internal switch-mode power supply.

OI

Instantaneous over-current trip

Excess current has been detected in the output stage of the Drive. This can also indicate a phase-to-phase or phase-to-ground fault.



Err

Error

The self-test which is executed when AC power is applied to the Drive has detected that a hardware fault exists.

The **Err** trip code alternates with a number from 1 to 10.

It may be possible to clear the error code by re-initializing the Drive, as follows:

1. Remove AC power from the Drive and wait for the display to go blank.
2. While holding down  and , apply AC power to the Drive. The display flashes between **Err** and **6**.
3. Remove AC power and wait for the display to go blank.
4. Apply AC power to the Drive.
The Drive is now re-initialized. All parameters are now set at their default settings (except for **b5** *Logic selector* and those in Menu 60).

EE

NOVRAM error





A saved parameter setting is corrupt.

11.2 Fault history

It is possible that more than one type of trip can occur in quick succession. Trips may also have occurred and been reset automatically while the Drive was unattended (see *Menu 5* in Chapter 10 *List of Parameters*).

So that the nature of these trips may be identified, the Drive stores the trip codes of the ten most recent trips in parameter **pA**. This fault history is saved when the AC supply is subsequently disconnected from the Drive and cleared only when defaults are restored (see parameter **b13**).

Use the following procedure to view the fault history:

1. Select parameter **pA**
2. Press 
3. Press  to see the trip code for the last trip.
4. Repeatedly press  to view the preceding trip codes.
Each trip code is preceded by a number (eg. 0 for the most recent trip, -1 for the previous trip, -2 the trip before that, etc.)
5. Press  again to exit. Note that the **pA** is read-only and cannot be modified by the user.