

Technical instruction

ACS250 micro drives, 500-600 V

Selecting the start/restart mode



Overview

The ACS250 can be configured to interpret the drive enable signal in different ways when the drive first powers up. The ACS250 can be configured to automatically run following power up if the enable signal to the drive is already present. Alternatively the drive can be programmed to wait for a transition state from off to on following power up to ensure the drive does not automatically run.

The ACS250, when operating in keypad mode, can also be configured to enable and run at different initial speeds, depending on the preferences of the application.

Additionally the parameter to configure the start/restart mode is also used to activate the auto trip reset function to define what actions to take in the event of a trip condition occurring on the drive.

All of the parameters and settings associated with these functions are discussed within this technical instruction.

Parameters

2108 Start mode select/automatic restart

2108="Edge-r" (Edge run)

Drive in terminal mode

1103=0

The enable signal input (usually digital input 1) is configured to be edge-triggered and requires the run signal to be re-applied after a trip or a power-up to start the drive. If the run input is closed prior to the mains power being applied to the ACS250, and remains closed while the drive is powered up, the ACS250 will not start.

"Edge-r" may be used where, for safety reasons, the drive should not start automatically on power up should the run switch already be in a closed state. In this case, the run switch must be opened and then reclosed before the drive will start. The same rule applies after clearing/resetting a trip condition.

Drive in keypad mode

1103=1 or 2

The enable signal input must always be present in order for the drive to run. The drive will power up in a stop condition and the start button on the keypad will control drive start. Removal of the enable input will cause the drive to stop. While the enable is present normal start/stop behavior is controlled by the start and stop keys on the keypad.

2108="Auto-0" (Auto-run, default)

Drive in terminal mode

1103=0

The enable signal input (usually digital input 1) is configured to be automatically recognised and is not required to be re-asserted following a trip or a power-up in order to start the drive. If the run input is closed prior to the mains power being applied to the ACS250, and remains closed while the drive is powered up, the ACS250 will start.

"Auto-0" is normally used where access to the enable input is restricted and the drive needs to run as soon as mains power is applied. It must only be used where this form of start up presents no danger to personnel or equipment in the vicinity of any moving or electrical parts.

Drive in keypad mode

1103=1 or 2

The enable signal input must always be present in order for the drive to run. The drive will power up in a stop condition and the start button on the keypad will control drive start. Removal of the enable input will cause the drive to stop. While the enable is present normal start/stop behavior is controlled by the start and stop keys on the keypad.

2108="Auto-1", "Auto-2", "Auto-3", "Auto-4", "Auto-5"

In this mode, the operation is similar to "Auto-0", except that the user can define how many times the drive will automatically attempt to clear a trip and restart before permanently tripping and requiring a manual reset. The drive will make between 1 ("Auto-1") and 5 ("Auto-5") automatic attempts to clear the trip and restart.

The delay between restart attempts is set at 20 seconds.

The restart attempt counter (1-5) is reset by any of the following operation.

- Powering the drive down and back up again.
- Pressing the reset (stop) button on the drive keypad when the drive is tripped (displaying a trip message).
- Removing and reapplying the hardware enable signal.



1100 Keypad mode restart speed

These values apply only when the drive is running in keypad mode, 1103= 1 or 2.

Minimum speed

1100=0

The ACS250 will automatically run at the minimum programmed frequency (value entered into parameter 2007) when started from the keypad, regardless of the speed it was previously running at prior to a stop or power off condition being applied. With minimum speed (2007) set to 0 the drive will always restart with a set point speed of 0.

Previous operating speed

1100=1

The ACS250 will automatically run at the previous speed set point, prior to the stop condition being applied, when started from the keypad. This applies both to the drive being stopped and to the mains input power being removed (previous set point is retained on power off). E.g. with the drive powered off while running at 20 Hz, the next start after power on will cause the drive to run immediately up to 20 Hz.

Current running speed

1100=2

This mode of operation is used where the drive has other speed references signals that can be selected by the user in addition to keypad operation. When set to 'current running speed' the drive will maintain its current operating speed when switching back into keypad mode.

For example, if the drive was running in preset speed mode at a speed of 35 Hz and is switched from preset speed mode into keypad mode then keypad mode operation would commence at 35 Hz. If 'current running speed' was not selected (in 1100) then the drive would revert to operating at the start up speed defined by 1100.

Preset speed 4

1100=3

The ACS250 will automatically run at the frequency programmed into preset speed 4 (value entered into parameter 1205) when started from the keypad, regardless of the speed it was previously running at prior to a stop or power off condition being applied. With preset speed 4 (1205) set to 0 the drive will always restart with a set point speed of 0.

For more information please contact your local ABB representative or visit:

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