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Subject: description of G120XA two/three-wire system control

Introduction:

Two/three-wire control motor forward and reverse rotation

Firmware version:

FW version V1.02

Problem:

In the application of G120XA, there is a kind of fan which requires the motor to reverse under specific conditions or process requirements. The following will introduce how to realize the clockwise and counter-clockwise rotation of the motor via the DI of the control unit in two-wire and three-wire ways.

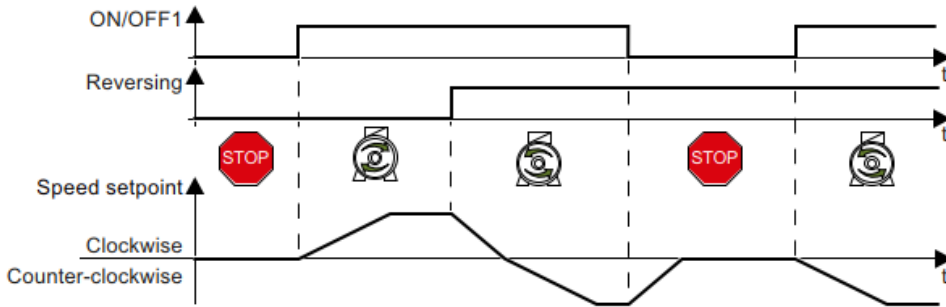
Answer:

1. Two-wire control scheme I

The command "ON/OFF" is used to turn on and off the motor, and the command "reverse" is used to invert the motor rotation direction.

Wiring: DI0 (for starting and stopping the motor), DI1 or other unoccupied DI (for inverting motor direction of rotation).

Two-wire control, method 1



| ON/OFF | Reverse | Function |
|--------|---------|---------------------------|
| 0 | 0 | OFF1: motor stop |
| 0 | 1 | |
| 1 | 0 | ON: motor rotates forward |
| 1 | 1 | ON: motor rotates reverse |

Parameter configuration method

| Based on the 41 macro, configure the parameter steps | | |
|--|----------------|--|
| Step | Parameter | Description |
| 1 | P29650 = -1 | Cancel ON/OFF2 function |
| 2 | P29652 = 0 | Cancel the internal interconnection between ON/OFF2 and DI0 |
| 3 | P1110 = 0 | Activate the reverse function |
| 4 | P3334 = 0 | Default setting |
| 5 | P840 = r722.0 | DI0: ON/OFF1 |
| 6 | P1113 = r722.1 | DI1: reverse rotation (example, can be configured as other DI ports) |
| 7 | P971 = 1 | Save settings |

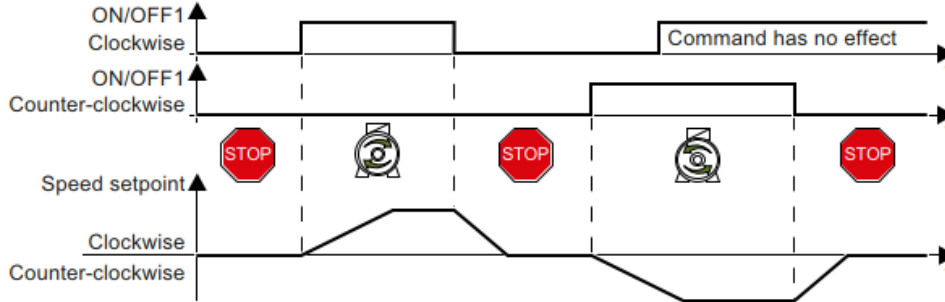
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2. Two-wire control scheme II

Command “ON/OFF1 clockwise” and “ON/OFF1 counter-clockwise” switch on the motor- and simultaneously select a direction of rotation. The inverter only accepts a new command when the motor is at a standstill.

Wiring: DI0 (for switching on and off the motor), DI1 or other unoccupied DI (for switching motor direction)

Two-wire control, method 2



| ON/OFF1 forward rotation | ON/OFF1 reverse rotation | Function |
|--------------------------|--------------------------|---|
| 0 | 0 | OFF1: Motor stop |
| 1 | 0 | ON: Motor rotates forward |
| 0 | 1 | ON: Motor rotates reverse |
| 1 | 1 | ON: The motor rotation direction is subject to the first instruction of "1" |

Parameter configuration method

| Based on the 41 default macro, parameter configuration steps | | |
|--|-----------------|--|
| Step | Parameter | Description |
| 1 | P29650 = -1 | Cancel ON/OFF2 function |
| 2 | P29652 = 0 | Cancel the internal interconnection between ON/OFF2 and DI0 |
| 3 | P1110 = 0 | Activate the reverse function |
| 4 | P3334 = 1 | Two-wire control, method 2 |
| 5 | P3330 = r722.0 | DI0: ON/OFF1 forward rotation |
| 6 | P3331 = r722.1 | DI1: ON/OFF1 reverse rotation (Example, can be configured as other D ports) |
| 7 | P840 = r3333.0 | Correlated ON/OFF1 signal source |
| 8 | P1113 = r3333.1 | Reverse settings |
| 9 | P971 = 1 | Save settings |

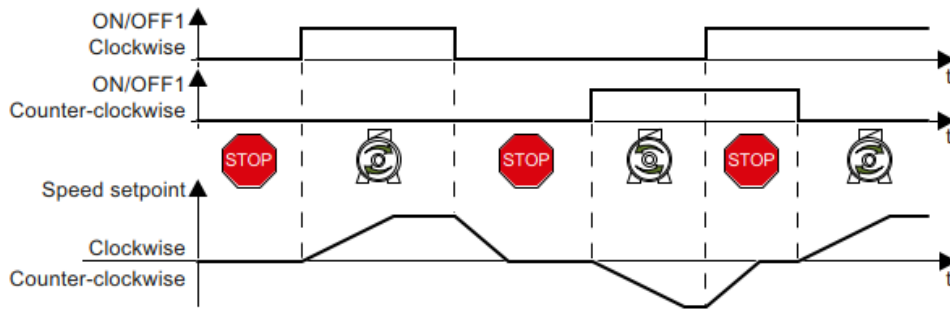
3. Two-wire control scheme III

The command “ON/OFF clockwise” and “ON/OFF counter-clockwise” switches on the motor- and simultaneously select a direction of rotation. The inverter accepts a new command at any time, independent of the motor speed.

Wiring: DI0 (for switching on and off the motor), DI1 or other unoccupied DI (for switching motor direction).

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Two-wire control, method 3



| ON/OFF1 forward rotation | ON/OFF1 reverse rotation | Function |
|--------------------------|--------------------------|---------------------------|
| 0 | 0 | OFF1: Motor stop |
| 1 | 0 | ON: Motor rotates forward |
| 0 | 1 | ON: Motor rotates reverse |
| 1 | 1 | OFF1: Motor stop |

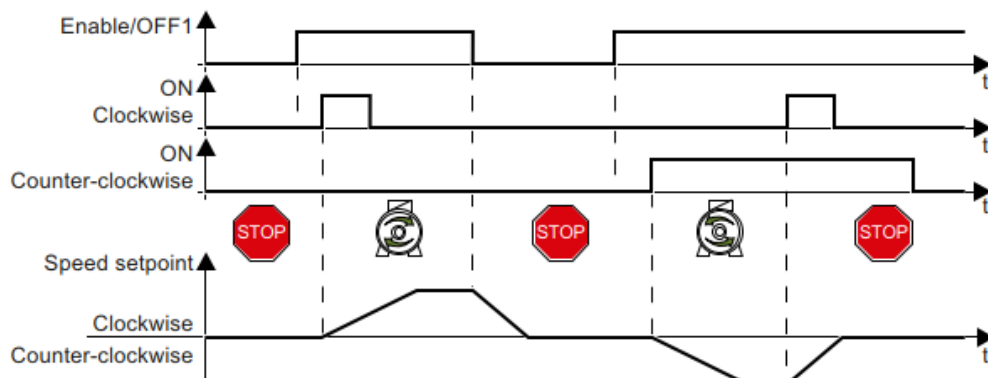
Parameter configuration method

| Step | Parameter | Explain |
|--|-----------------|--|
| Based on the 41 default macro, configure the parameter steps | | |
| 1 | P29650 = -1 | Cancel ON/OFF2 function |
| 2 | P29652 = 0 | Cancel the internal interconnection between ON/OFF2 and DI0 |
| 3 | P1110 = 0 | Activate reverse function |
| 4 | P3334 = 2 | Two-wire control, method 3 |
| 5 | P3330 = r722.0 | DI0: ON/OFF1 forward rotation |
| 6 | P3331 = r722.1 | DI1: ON/OFF1 reverse rotation (Example, can be configured as other D ports) |
| 7 | P840 = r3333.0 | Correlated ON/OFF1 signal source |
| 8 | P1113 = r3333.1 | Reverse settings |
| 9 | P971 = 1 | Save settings |

4. Three-wire control scheme I

The "Enable" command is a precondition for switching on the motor. Commands "ON clockwise" and "ON counter-clockwise" switch on the motor- and simultaneously select a direction of rotation. Removing the enable switches the motor off (OFF1).
Wiring: DI0 (for switching on and off the motor), DI1 (for controlling the clockwise rotation of the motor), DI2 (for controlling the counter-clockwise rotation of the motor), where DI1 and DI2 can be configured as other unoccupied DIs.

Three-wire control, method 1



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| Enable/OFF1 | ON forward rotation | ON reverse rotation | Function |
|-------------|---------------------|---------------------|---------------------------|
| 0 | 0 or 1 | 0 or 1 | OFF1: Motor stop |
| 1 | 0→1 | 0 | ON: Motor rotates forward |
| 1 | 0 | 0→1 | ON: Motor rotates reverse |
| 1 | 1 | 1 | OFF1: Motor stop |

Parameter configuration method

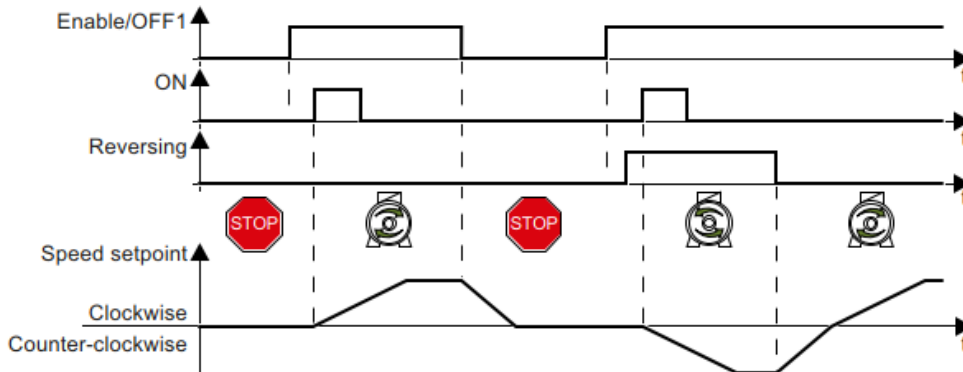
| Based on 41 default macro, configuration parameter steps | | |
|--|-----------------|--|
| Step | Parameter | Explain |
| 1 | P29650 = -1 | Cancel ON/OFF2 function |
| 2 | P29652 = 0 | Cancel the internal interconnection between ON/OFF2 and DI0 |
| 3 | P1110 = 0 | Activate reverse function |
| 4 | P3334 = 3 | Three-wire control, method 1 |
| 5 | P3330 = r722.0 | DI0: enable/OFF1 |
| 6 | P3331 = r722.1 | DI1: ON forward rotation (effective at rising edge) (Example, can be configured as other D ports) |
| 7 | P3332 = r722.2 | DI2: ON reverse rotation (effective at rising edge) (Example, can be configured as other D ports) |
| 8 | P840 = r3333.0 | Correlated ON/OFF1 signal source |
| 9 | P1113 = r3333.1 | Reverse settings |
| 10 | P971 = 1 | Save settings |

5. Three-wire control scheme II

The “Enable” command is a precondition for switching on the motor. Commands “ON” switches the motor on. The “Reversing” command inverts the motor direction of rotation. Removing the enable switches the motor off (OFF1).

Wiring: DI0 (for switching on and off the motor), DI1 (for controlling the clockwise rotation of the motor), DI2 (for controlling the counter-clockwise rotation of the motor), where DI1 and DI2 can be configured as other unoccupied DIs.

Three-wire control, method 2



| Enable/OFF1 | ON | Commutation | Function |
|-------------|--------|-------------|---------------------------|
| 0 | 0 or 1 | 0 or 1 | OFF1: Motor stop |
| 1 | 0→1 | 0 | ON: Motor rotates forward |
| 1 | 0→1 | 1 | ON: Motor rotates reverse |

Parameter configuration method

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| Based on the 41 default macro, configure the parameter steps | | |
|--|-----------------|--|
| Step | Parameter | Explain |
| 1 | P29650 = -1 | Cancel ON/OFF2 function |
| 2 | P29652 = 0 | Cancel the internal interconnection between ON/OFF2 and DI0 |
| 3 | P1110 = 0 | Activate reverse function |
| 4 | P3334 = 4 | Three-wire control, method 2 |
| 5 | P3330 = r722.0 | DI0: enable/OFF1 |
| 6 | P3331 = r722.1 | DI1: ON forward rotation (effective at rising edge) (Example, can be configured as other D ports) |
| 7 | P3332 = r722.2 | DI2: commutation (Example, can be configured as other D ports) |
| 8 | P840 = r3333.0 | Correlated ON/OFF1 signal source |
| 9 | P1113 = r3333.1 | Reverse settings |
| 10 | P971 = 1 | Save settings |

Keywords (for SIOS search):

G120XA two/three-wire system forward and reverse rotation

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