

Product Group: SG2 Programmable Relay

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Revision: Original

Title: Comparator Instruction

Summary: All Comparator Instruction Modes will be defined. Three commonly used modes of the Comparator Instruction will be demonstrated using examples.

We will be using the SG2 Client V3.4 software Windows 7. Examples will be shown using the Ladder Logic program with the SG2-10HR-A model.

Procedure:

- Using the SG2 Client software, duplicate the program as shown in Figure 1 below.

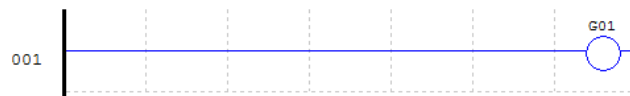



Figure 1

- Double-click your mouse with the pointer hovering over  G01 to open the “Edit Contact/Coil” screen as seen in Figure 2.

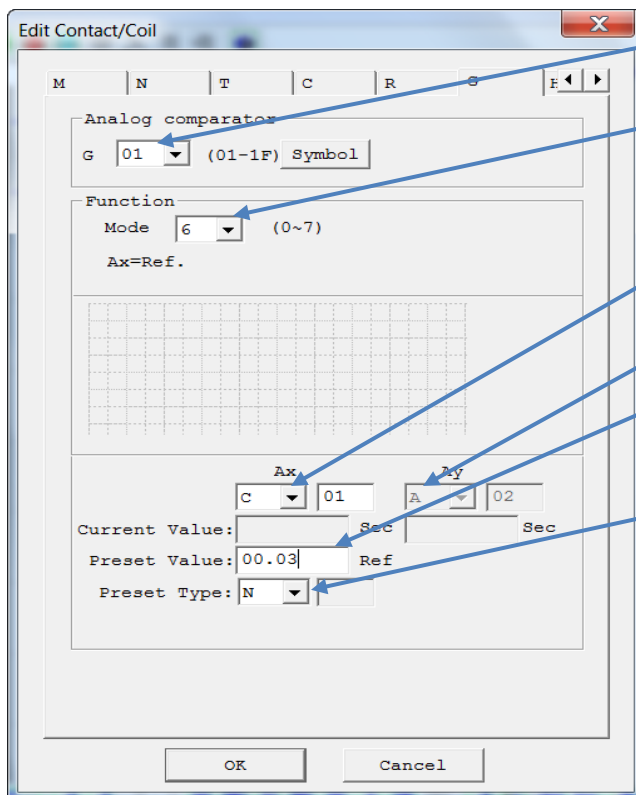


Figure 2

Comparator Selection: 31 comparator instructions available

Mode Selection: 8 operational modes available

Ax: Input Variable Selection 1

Ay: Input Variable Selection 2

Ref: Range 0.00~99.99

Preset Type Selection: Several options are available, including DR (Data Register), A (Analog Input), etc.

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Mode 1: $(Ay - Ref) \leq Ax \leq (Ay + Ref)$

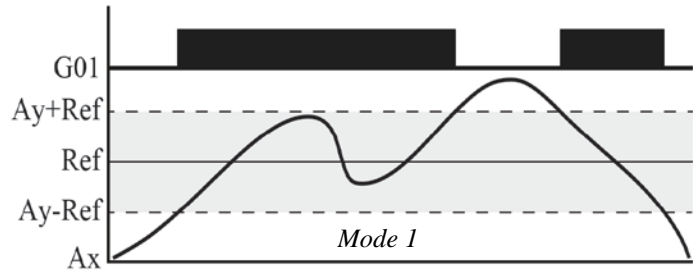
(Example Only)

Ax: Set to A01

Ay: Set to C02

Ref: Set to 4 (shown as 04.00)

Preset Type: Set to N (Numeric Constant)



The G01 Comparator coil activates when the following conditions are met:

- a. C02 (Ay) *minus* the Ref. is Less Than or Equal to A01 (Ax)
- AND
- b. C02 (Ay) *plus* the Ref. is Greater Than or Equal to A01 (Ax).

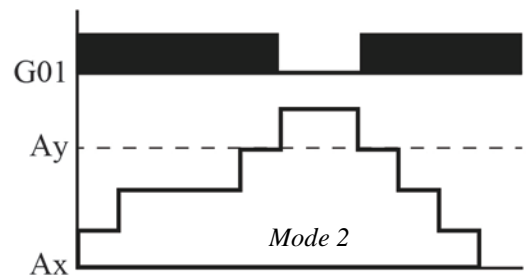
Mode 2: $Ax \leq Ay$

(Example Only)

Ax: Set to C01

Ay: Set to C02

Preset Type: Set to N (Numeric Constant)



The G01 Comparator coil activates when C01 (Ax) is **Less Than or Equal to** C02 (Ay).

Mode 3: $Ax \geq Ay$

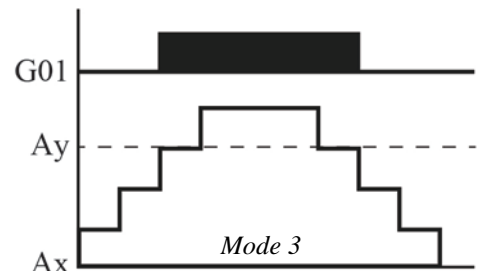
(Example Only)

Ax: Set to C01

Ay: Set to C02

Preset Type: Set to N (Numeric Constant)

Ref: Set to 3 (shown as 00.03)



The G01 Comparator coil activates when C01 (Ax) is **Greater than or Equal to** C02 (Ay).

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Mode 4: Ax <= Ref

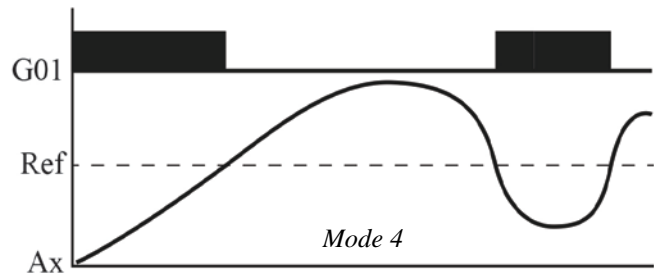
Ax: Set to A01

Preset Type: Set to N (Numeric Constant)

Ref: Set to 4.00 (shown as 04.00)

The G01 Comparator coil activates when A01 (Ax) is **Less Than or Equal to 4 (Ref)**.

(Example Only)



Mode 5: Ax >= Ref

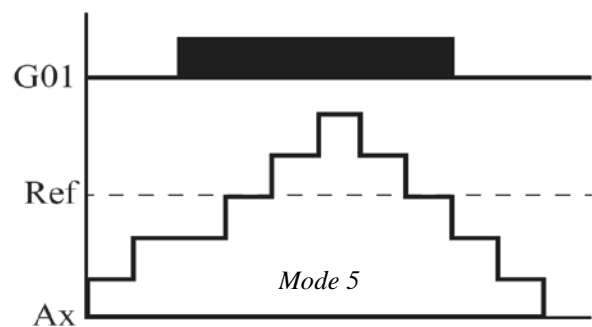
Ax: Set to T01

Preset Type: Set to N (Numeric Constant)

Ref: Set to 3 (shown as 00.03)

The G01 Comparator coil activates when T01 (Ax) is **Greater Than or Equal to 3 (Ref)**.

(Example Only)



Mode 6: Ax = Ref

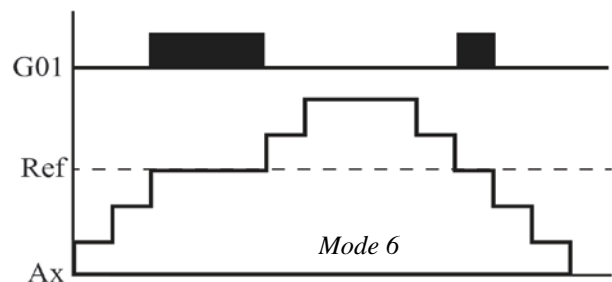
Ax: Set to C01

Preset Type: Set to N (Numeric Constant)

Ref: Set to 3 (shown as 00.03)

The G01 Comparator coil activates when C01 (Ax) is **Equal to 3 (Ref)**.

(Example Only)



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Mode 7: Ax > < Ref

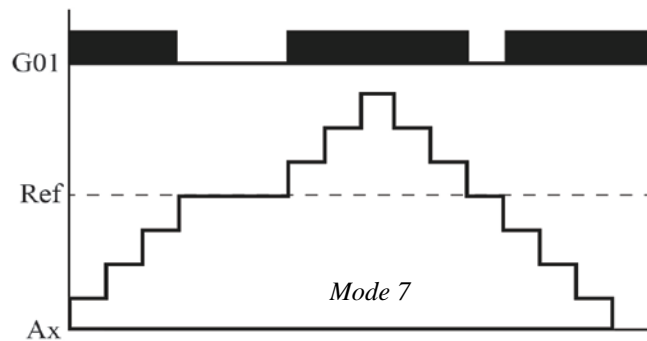
Ax: Set to C01

Preset Type: Set to N (Numeric Constant)

Ref: Set to 3 (shown as 00.03)

The G01 Comparator coil activates when C01 (Ax) is **Less Than or Greater Than 3 (Ref)**.

(Example Only)



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