Siemens S7-1200

CPU 1212C AC/DC/Relay

Comparators Operations

The Compare instructions perform a **comparison of two values** with the **same data type.**

- **Equal** (==)
- **Not Equal** (<>)
- **Greater or Equal** (>=)
- **Less or Equal** (<=)
- **Greater than** (>)
- **Less than** (<)
- **IN_Range –** Value within Range
- **OUT_Range –** Value outside Range
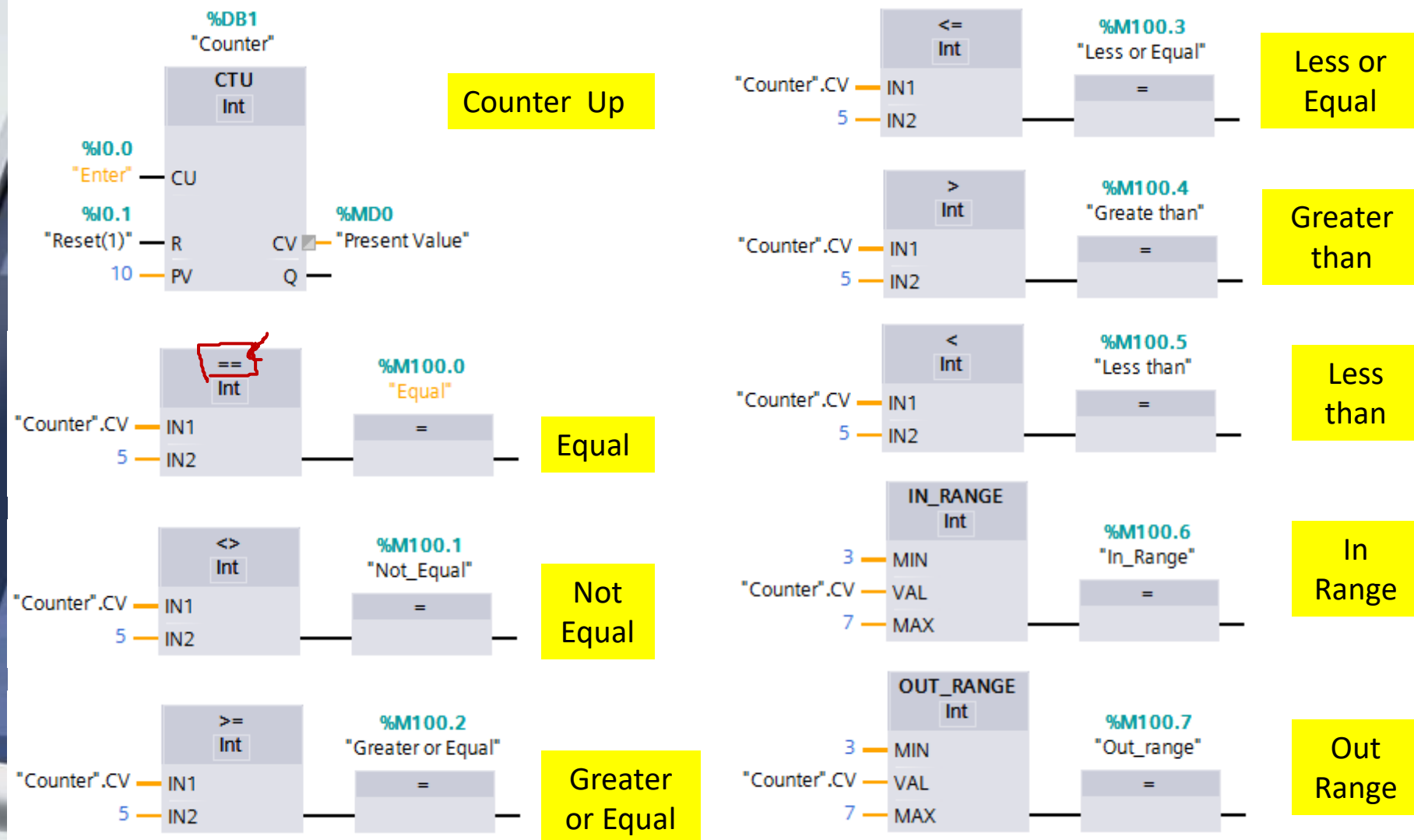
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Take an example of Counter with PV 10 and utilize all the comparison operators

Ladder Solution

Working Example in FBD- Comparator Operators </>

Take an example of Counter with PV 10 and utilize all the comparison operators

FBD Solution

%DB1
"Counter"

CTU
Int

%I0.0
"Enter" — CU

%I0.1
"Reset(1)" — R   CV — %MD0 "Present Value"

10 — PV   Q —

Counter Up

==
Int

"Counter".CV — IN1   %M100.0 "Equal"

5 — IN2   =

Equal

<>
Int

"Counter".CV — IN1   %M100.1 "Not_Equal"

5 — IN2   =

Not Equal

>=
Int

"Counter".CV — IN1   %M100.2 "Greater or Equal"

5 — IN2   =

Greater or Equal

<=
Int

"Counter".CV — IN1   %M100.3 "Less or Equal"

5 — IN2   =

Less or Equal

>
Int

"Counter".CV — IN1   %M100.4 "Greate than"

5 — IN2   =

Greater than

<
Int

"Counter".CV — IN1   %M100.5 "Less than"

5 — IN2   =

Less than

IN_RANGE
Int

3 — MIN   %M100.6 "In_Range"

"Counter".CV — VAL   =

7 — MAX

In Range

OUT_RANGE
Int

3 — MIN   %M100.7 "Out_range"

"Counter".CV — VAL   =

7 — MAX

Out Range

Typical Comparison operators used:

➡ **Equals (==):** The comparison is true if IN1 is equal to IN2

➡ **Not equal (<>):** The comparison is true if IN1 is not equal to IN2

➡ **Greater than or equal to (>=):** The comparison is true if IN1 is greater than or equal to IN2

➡ **Less than or equal to (<=):** The comparison is true if IN1 is less than or equal to IN2

➡ **Greater than (>):** The comparison is true if IN1 is greater than IN2

➡ **Less than (<):** The comparison is true if IN1 is less than IN2

Thank you

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