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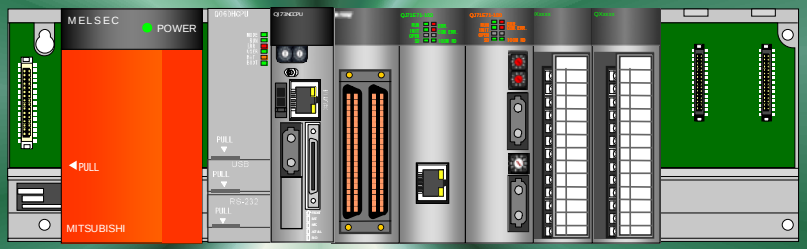
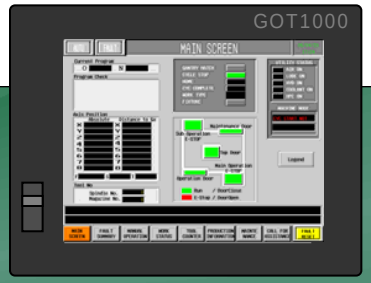
# MITSUBISHI CNC C70 Safety Observation Function




# Safety Observation Function

***Advantage: Provides extra safety for machine operations.***

***Benefit: Provides for more Automotive opportunities***

European Safety Standard's **EN954-1 Category 3** is satisfied

**<Basic function>**

**1. Safety signal comparison**

-Safety signals are input/output via two routes

-Two CPUs compare the input/output signals

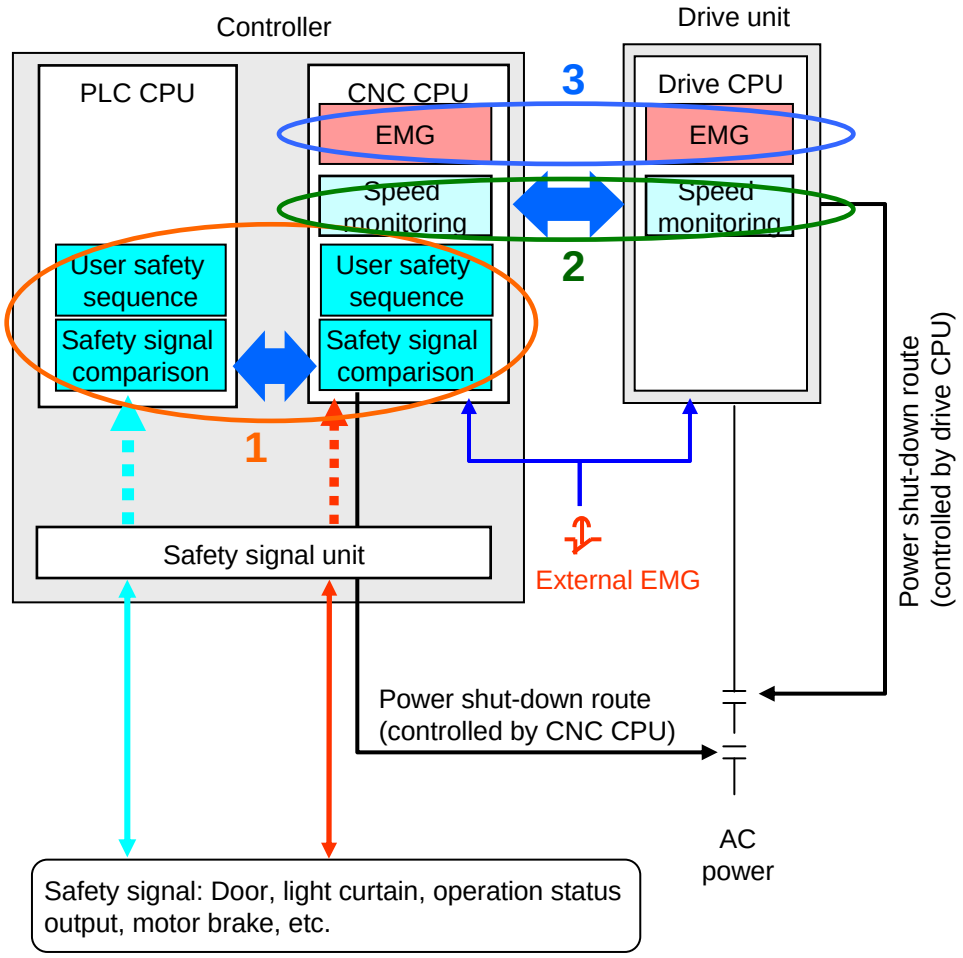
**2. Speed monitoring**

-Two CPUs monitor if the commanded speed and actual speed exceed the safety speed or not (Servo/Spindle)

**3. Redundant emergency stop**

-External emergency stop signal is wired to the CNC CPU and Drive Unit

-Drive Unit's main power is shut-down via two routes



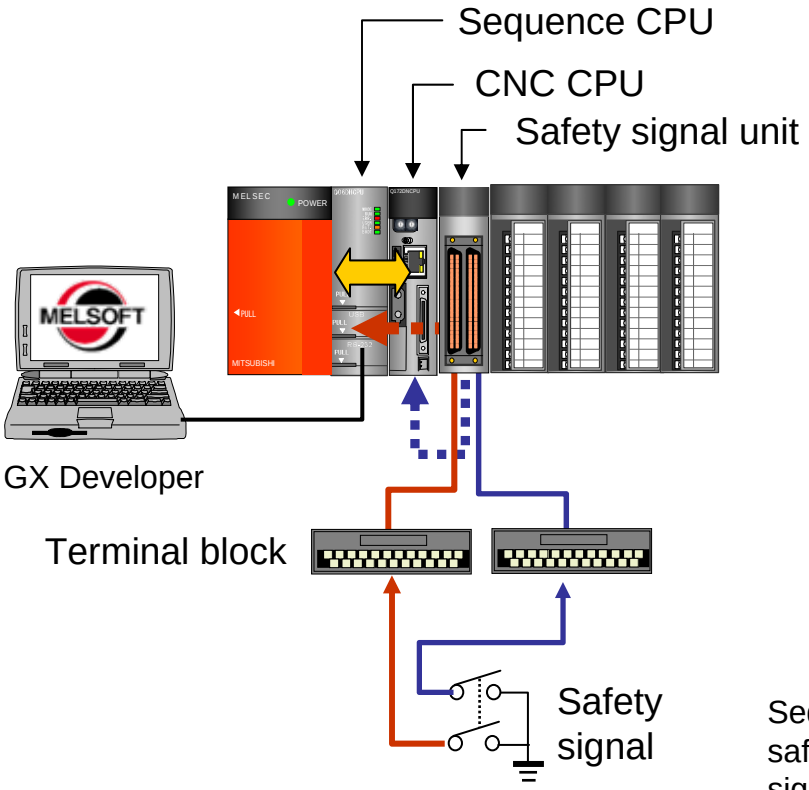
# Safety Observation Function

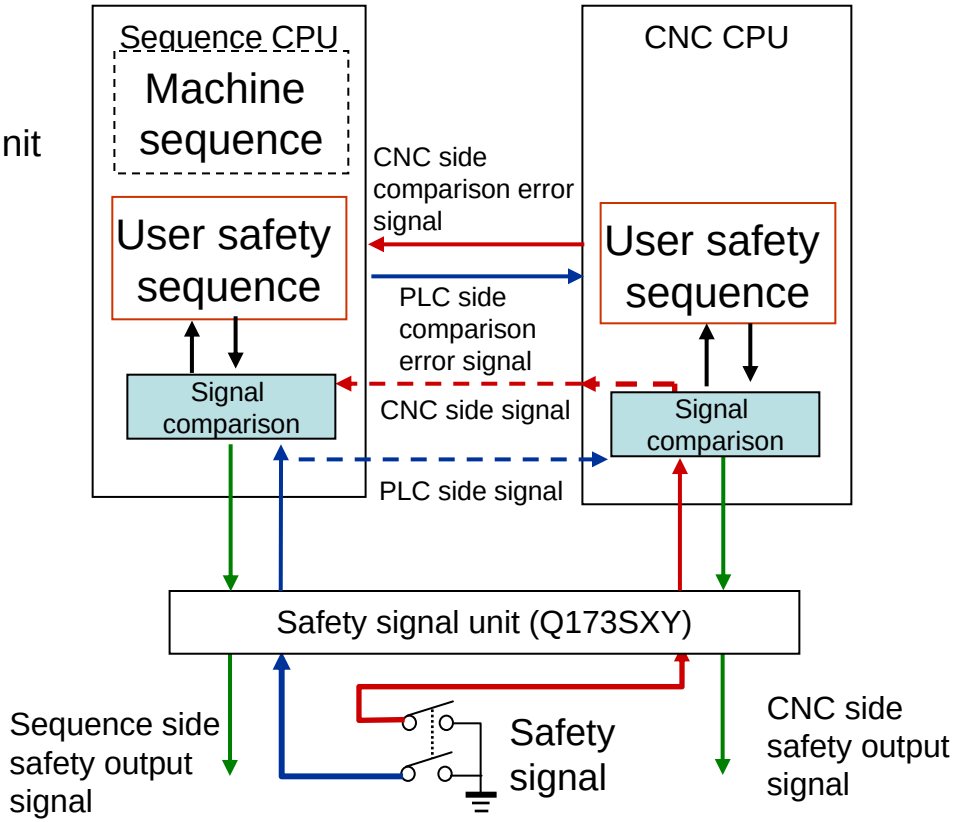
## Safety signal comparison function

-Monitor whether the safety signals from/to the Sequence and CNC CPUs match or not

-Both the Sequence and CNC CPUs execute the user safety sequence

-When a safety signal comparison error occurs, emergency stop will be carried out to shut-down the Drive Unit power

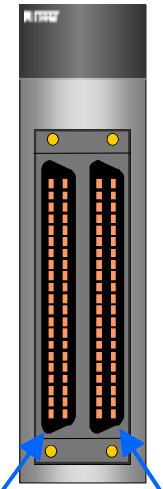


# Safety Observation Function

## Safety signal unit specification (Q173SXY)

- ◆20 input points and 12 output points for 2 systems
- ◆Up to 3 modules can be mounted



CNC side safety signal

Sequence CPU safety signal

| | Points | Signals | Remarks |
|---|---|---|---|
| Input | 20 | User safety signals | |
| Output | 1 | Shut-down signal | Turns ON when no signal comparison error is occurring |
| | 1 | Power shut-down signal | Turns ON when ready ON is possible |
| | 10 | User safety signals | |

*The second and third units' output signals are all available as user safety signals.

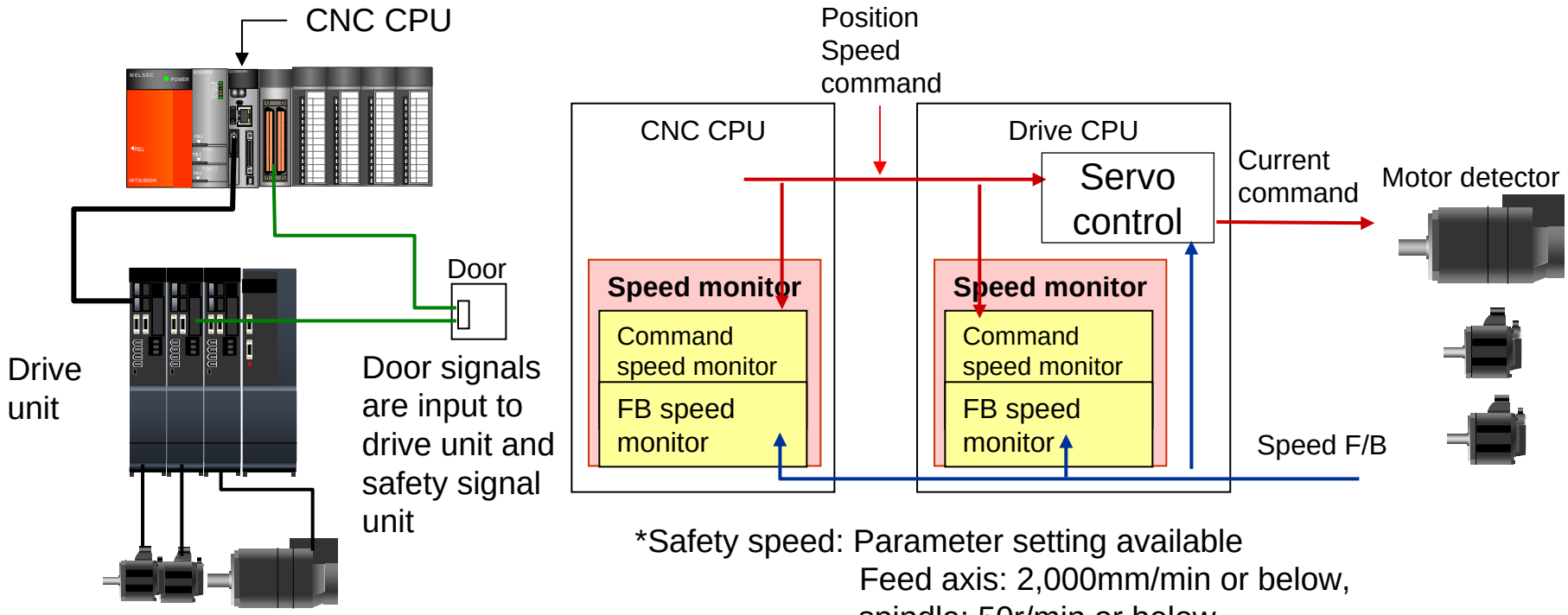
# Safety Observation Function

## Details on speed monitoring

-When the door is open, the CNC and drive CPUs redundantly monitor if the command speed and FB speed exceed the safety speed or not

-If it is detected that the safety speed is exceeded, emergency stop will be carried out to shut-down the Drive Unit's power

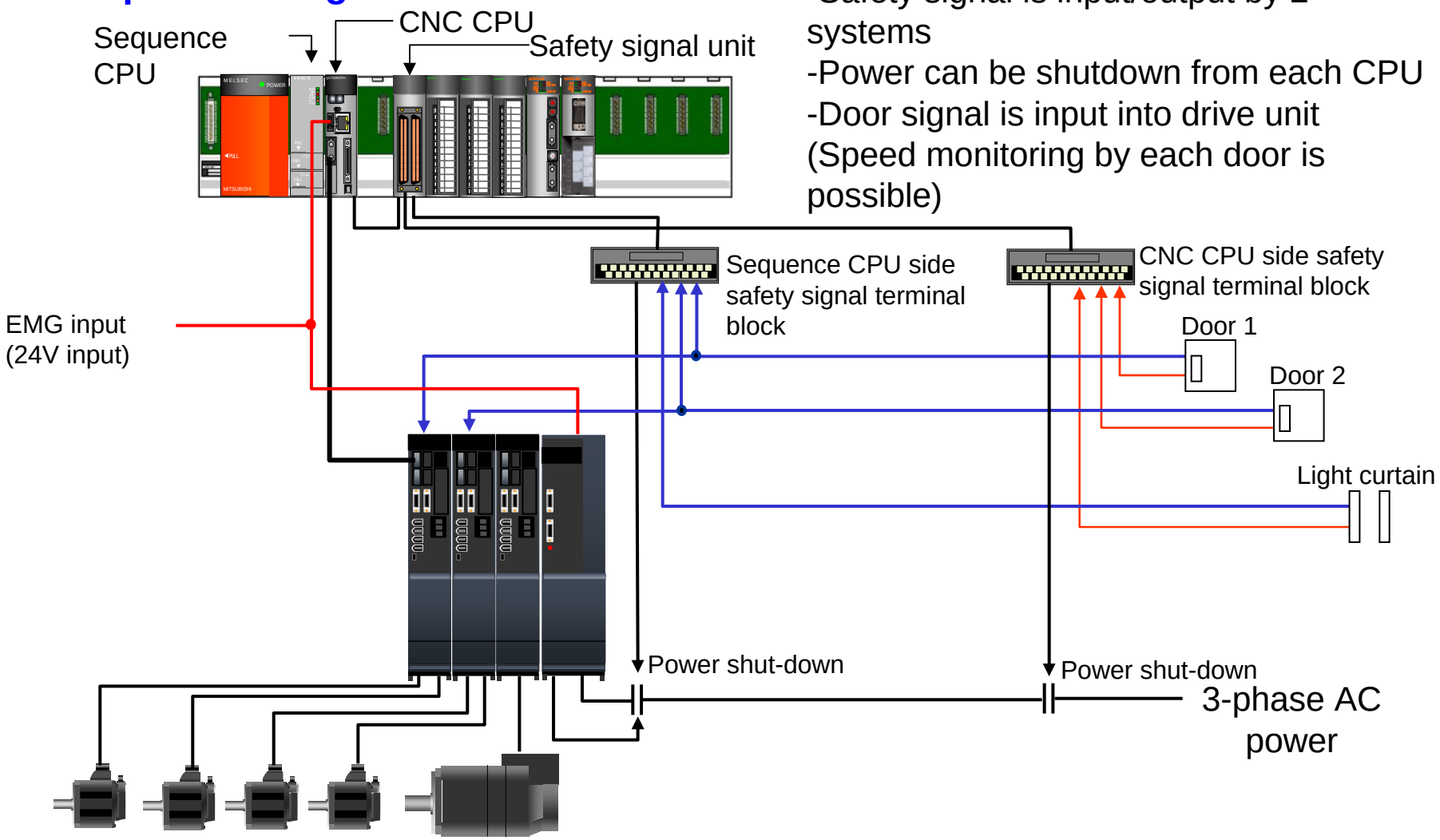
-Individual selection is possible for each door whether to enable/disable monitoring (For up to 16 doors)




*Safety speed: Parameter setting available
Feed axis: 2,000mm/min or below,
spindle: 50r/min or below

# Safety Observation Function

## Example of wiring



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