SINAMICS G120X

Free Function Blocks for
logic or mathematical operations

SINAMICS G120X Free Function Blocks (FFB) are modules that enable logic or mathematical operations by combining several states to a control signal required for controlling the drive system in a wide variety of applications.

Added value by using the Free Function Blocks

Less components are needed since no PLC is required

Effortless operation with user-friendly wizards using the Wi-Fi enabled SINAMICS Smart Access Module (from firmware V1.5) via any mobile device

Quick and easy setup due to simple programming logic at the parameter level

Flexible performance by customizing multiple mathematical functions

Cost-efficient solution since all calculations are integrated within the drive

Overview of the Free Function Blocks

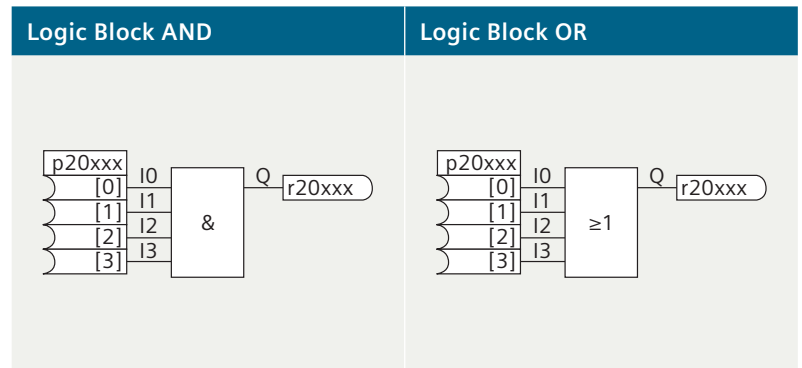| Block type	FFB (No. of blocks)
Logic	**AND** (3), **XOR** (3), **OR** (3), **NOT** (3)
Calculation	**Adder** (2), **Subtractor** (2), **Divider** (2), **Multiplier** (2), **Comparator** (2)
Timer	**Pulse generator** (3), **ON time** (3), **OFF delay** (3)
Memory	**RS flip-flop** (3)
Breaker	**Analog switch** (2)
Control	**Limiter** (2)
Complex	**Limit monitor** (2)

Important FFB notes

- There are 40 blocks in total that can be used and 16 different types.

  For example: The SINAMICS G120X drive has a maximum of 2 ADDERS available, and if you have configured both, then no additional ADDERS are available.

- The Free Function Blocks are compatible with the following drive types:

  SINAMICS G120X FSA ... FSG

- By using the FFB as a newly-added feature from the **SINAMICS G120X FW V1.03, no additional PLC is needed** for programming basic logical and mathematical operations.

- See the **full list of Free Function Blocks** in the Operation Instructions.

  (SIOS entry ID: 109781534)

- For additional information visit:
  usa.siemens.com/sinamics-g120x

Free Function Blocks runtime groups

Runtime group	4	5	6
Time slice	64 ms	128 ms	256 ms
AND, OR, XOR, NOT, RSR	☑	☑	☑
ADD, SUB, MUL, DIV, NCM, MFP, PDE, PDF, NSW, LIM, LVM	—	☑	☑

Examples of Free Function Blocks for logical operation

Logic Block AND	Logic Block OR

Easy configuration process in four simple steps

Do it wirelessly, do it faster.

With the wireless SINAMICS Smart Access Module (SAM), it's possible to configure Free Function Blocks in your SINAMICS G120X by simply using the web browser on your mobile phone, tablet or PC—no additional app installation is needed.

Example of configuring the block ADD

1 Setup

2 FFB menu

3 Select the block to configure

4 Configure and activate