

FX₂N-32ASI-M, Controlled Slave Units Supplement

FX₂N-32ASI-M type AS-i master block (Hereafter called "32ASI-M") can be connected to FX₂N, FX₁N, or FX₀N Series PLC's. The I/O control points of both the 32ASI-M and PLC CPU must not exceed the host PLC's maximum I/O point capacity.

Therefore, there is a limitation in the number of units (number of slaves) which can be controlled according to the I/O points recognized by the with PLC's CPU (occupation) as follows.

1. Controlled Maximum I/O Points of Each PLC

Table 1.1 :Controlled maximum I/O points of each PLC

PLC Type	maximum I/O points
FX ₂ N	256 points
FX ₁ N	128 points
FX ₀ N	128 points

2. Limited Number of Active Slaves

32ASI-M calculates the number of active slaves which can be operated, and sets a limit which cannot be exceeded.



Note:

There is a possibility that an active slave may not operate, even if it is within the system limits.

- 1) Calculation for the number of active slaves which can be operated
The number of active slaves which can be operated by each PLC type is calculated as follows.

$$\frac{(\text{Maximum I/O points}^{*1}) - (\text{Controlled I/O points})}{8} = \text{Number of active slave}$$



*1 Maximum I/O points, as shown in table 1.1.

- 2) Active slaves fall into 2 limitation categories.
 - a) Limitation 1
A slave which can operate is allocated the lowest available active slave address.
A slave which exceeds the number of allowable active slaves cannot operate.
 - b) Limitation 2
One slave requires 4 bits in either the upper or lower areas of a byte. If an active in an upper or lower byte area cannot operate (through limitation 1) then any other active slave located in the remaining 4 bits of the upper or lower byte area cannot operate either.



2.1 Limitation example 1




- Connected PLC: FX1N-40MR + 32ASI-M
- Controlled I/O points of PLC: 48 points
Number of active slaves which can be operated: $(128 - 48) \div 8 = 10$
- Active slave's address: 2, 4, 6, 7, 8, 9, 10, 12, 15, 17, 18, and 19

	Bit 15		Bit 0		
	Upper byte		Lower byte		
BFM #0	3	2	1	CE flag	 : This area represents an operative active slave address.
BFM #1	7	6	5	4	
BFM #2	11	10	9	8	 : This area represents an inoperative active slave address referring to limitation 1
BFM #3	15	14	13	12	
BFM #4	19	18	17	16	
BFM #5	23	22	21	20	
BFM #6	27	26	25	24	
BFM #7	31	30	29	28	

As these active slaves correspond only to limitation 1 in this example; The address of an active slaves which can be operate becomes 2, 4, 6, 7, 8, 9, 10, 12, 15, and 17.

2.2 Limitation example 2

- Composition of programmable controller: FX1N-40MR + FX0N-40ER + 32ASI-M
- Controlled I/O points of PLC: 88 points:
Number of active slaves which can be operated: $(128 - 88) \div 8 = 5$
- Active slave's address: 2, 4, 6, 7, 8, 9, 10, 12, 15, 17, 18, and 19

	Bit 15		Bit 0		
	Upper byte		Lower byte		
BFM #0	3	2	1	CE flag	 : This area represents an operative active slave address.
BFM #1	7	6	5	4	
BFM #2	11	10	9	8	 : This area represents an inoperative active slave address referring to limitation 1
BFM #3	15	14	13	12	
BFM #4	19	18	17	16	
BFM #5	23	22	21	20	 : This area represents an inoperative active slave address referring to limitation 2
BFM #6	27	26	25	24	
BFM #7	31	30	29	28	

The address of an active slave which can be operated becomes 2, 4, 6, and 7 because these active slaves correspond to limitation 1 and limitation 2 in this example.



Note:

In this example, the maximum capacity is 5 active slaves. If the 5th active slave is changed by either of the two following methods, it can be made operative.

- When the slave allocated to address 9 is reallocated in an empty address of 11 or more, the active slave address 8 can operate.
- .When the slave allocated to address 8 is re-allocated in an empty address, lower than its current address, the active slave can operate (from its new location) for example, relocation to position 3.