PROGRAMLANABİLİR DENETLEYİCİ
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External Preset Function

Preset values of timer (TIM) and counter (CNT) instructions programmed in the FA-1J and counter coincidence and greater/smaller comparison instructions can be set via digital switch installed externally.

Specifications

Preset type	BCD multiple setting
No. of circuits	Max. 16 (BCD 4 digits)
No. of I/Os (per circuit)	DC input unit (Source type): 4; Transistor output: 4
Applicable digital switch	Binary digital switch (with diode). Install diodes (for switching) according to the connection diagram. (Ex.) IDEC's type DF( )( )-031D(K) Diode Rating: Reverse voltage 80V min. Average rectifying current 100mA min. Lead diameter 0.5 to 0.6mm

Note: 4n I/Os are allocated continuously for external preset setting starting from the initial I/O No. according to designation by FUN70 to 85. FUN numbers cannot be designated intermittently, such as FUN70 followed by FUN73.

- I/O allocation for the above setting

FUN No. Corresponding to Digital Switch	Input No.	Output No.
FUN70	10-13	220-223
FUN71	14-17	224-227
FUN72	20-23	230-233
...	...	...
FUN85	...	...
Digital switch	A-D	Lower to Upper digit

Programming Method

· Use FUN70 to FUN85 as data of instruction words.
· Allocate initial input and output numbers via function setting FUN30 and 31.

- I/O number allocation example

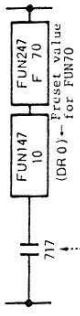When initial input number for FUN30 is 10 and initial output number for FUN31 is 220

- Key operation

FUN 3 0 READ
1 0 ENTR
FUN 3 1 READ
2 2 0 ENTR

- External preset example of counted value coincidence comparison instruction (Counter 30, Output 200, FUN70)
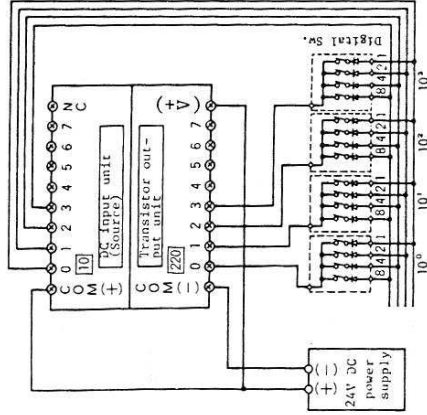

- Setting a constant for computing instruction

Note 1: Pulse input (SOT, etc.) cannot be used for this setting.

Note 2: Do not change preset values during counting. When a timer preset value is changed, the changed value becomes effective from the next timer operation.

Standard Connection Diagram (For the example at left)

Program Example

(When a digital switch is connected to an I/O No. corresponding to FUN70)

- Timer external preset example (Input 1, TIM0, FUN70)

- Counter external preset example (Reset input 1, clock input 2, CNT1, FUN70)

Note 3: Initial input and output numbers are allocated via FUN30 and 31.

Note 4: When using the external preset function, one scan time is 15msec at minimum. (When the external presetting (FUN70 to 85) is used, any program requires a scan time of 15msec at minimum.)

Note 5: When changing a preset value via an external preset device (digital switch), it takes a maximum of 15 scan times to register the changed value correctly.
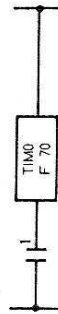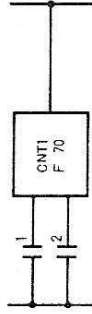
Note 6: When the external presetting is used as an operand of a computing instruction, be sure to use a continuous ON input for the conditions of the instruction. A value is read correctly 10 to 15 scans after turning ON the input.

Note 7: External presetting cannot be used in an MCS or JMP instruction.

Standard Connection Diagram

External Display Function

Values of timers (TIM), counters (CNT) and data registers (DR) can be displayed on external digital display devices using a standard transistor output unit.

Specifications

Display system	Dynamic lighting display
No. of circuits	Max. 8 (BCD 4 digits)
No. of outputs	Transistor output 8 points/circuit (Digit selection: 4 points, BCD output: 4 points)
Applicable display unit	7-segment LED digital display: BCD input (negative logic) with latch 24V DC (Ex.) IDEC's type • DD33-F31N-B(Z) • DD96-F(R)31N-B Note: Digit selection (latch) output can be latched to Low or High via FUN35.

Note 1: Be sure to use continuous ON input for input of external display instruction conditions. A correct value is displayed 8 scans after turning ON the input.

Note 2: External display instructions cannot be used more than 8 times.

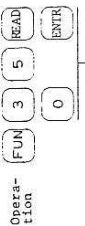Note 3: External display instruction cannot be used between MCS and MCR or between JMP and JEND.

Program Example

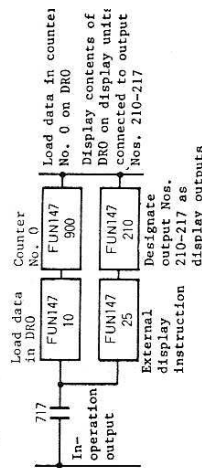External display instruction [FUN147] [25]

Converts data at data register DR0 into BCD and outputs display data by one digit after each scan. It takes 8 scans to output 4-digit display data.

Ex. To display the counted value of counter No. 0 on 4-digit 7-segment display units connected to output Nos. 210 to 217.

① Set latch conditions of external display instruction via function setting (FUN35).

Operation [FUN] [3] [5] [READ]
[0] [ENTR]

0: Low (L) latch
1: High (H) latch

② Program

Load data in DR0
[FUN147] [10]
717
In-operation output

External display instruction
[FUN147] [25]

Load data in counter No. 0
[FUN147] [900]
Counter No. 0

Designate output Nos. 210-217 as display outputs
[FUN147] [210]

Load data in counter No. 0 on DR0

Display contents of DR0 on display units connected to output Nos. 210-217

Address	Inst'n Word		Data
0	LOD	717	
1	FUN	147	
2			10
3	FUN	147	
4			900
5	FUN	147	
6			25
7	FUN	147	
8			210