MITSUBISHI

PROGRAMMABLE CONTROLLER

MELSEC-A

User's Manual

Pulse catch module
type A1SP60
(Hardware)

INTRODUCTION

Thank you for choosing the Mitsubishi MELSEC-A Series of General Purpose Programmable Controllers Please read this manual carefully so that the equipment is used to its optimum A copy of this manual should be forwarded to the end User

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1. GENERAL DESCRIPTION

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This User's Manual explains the specifications, handling, and how to use the A1SP60 type pulse catch module (hereafter called the A1SP60) that is used with an AnSCPU

An A1SP60 has a pulse catch function that can catch a short width pulse (a minimum of 0 5 msec width) that cannot be caught by the normal input module

(1) An A1SP60 applies to an AnSCPU

(2) Number of A1SP60 modules is not limited

1 1 Features

(1) An A1SP60 has both a pulse catch function and a normal input function

Either of the function can be selected at every 4 points by DIP switches

(2) An input signal is latched by the pulse catch function

The method of resetting a latched signal is selected DIP switches

(a) A latched signal is reset by an output Y which corresponds to the input signal, in case of the direct I/O control mode

(b) A latched signal is reset by sequence refresh processing in the refersh I/O control mode

2. SPECIFICATIONS

2 SPECIFICATIONS

2 1 General Specifications

| Item	Specifications				
Operating ambient temperature	0 to 55 °C (See the important notice described below)				
Storage ambient temperature	−20 to 75 °C				
Operating ambient humidity	10 to 90% RH, non-condensing				
Storage ambient humidity	10 to 90% RH, non-condensing				
Vibration resistance	Conforms to [2]JIS C 0911	Frequency	Acceleration	Amplitude	Sweep Count
		10 to 55 Hz	—	0 075 mm (0 003 in)	10 times [1](1 octave/ minute)
		55 to 150 Hz	9.8 m/s^2 (1g)	—	
Shock resistance	Conforms to [2]JIS C 0912 (98 m/s^2 (10g) x 3 times in 3 directions)				
Noise durability	By noise simulator of 1500 Vpp voltage,1 µsec noise width and 25 to 60 Hz noise frequency				
Dielectric withstand voltage	1500 VAC for 1 minute across AC external terminals and ground 500 VAC for 1 minute across DC external terminals and ground				
Insulation resistance	5 MΩ or greater by 500 VDC insulation resistance tester across AC external terminals and ground				
Grounding	Class 3 grounding; Ground to the panel if proper grounding is not available				
Operating ambience	Free of corrosive gases Dust should be minimal				
Cooling method	Self cooling				

IMPORTANT

Restriction for UL standard approved products

In order to be recognized as UL listed products, the following restrictions apply;

(1) Operating ambient temperature is limited from 0 to 50°C

(2) A class 2 power supply recognized by the UL standard must be used

3. NOMENCLATURE
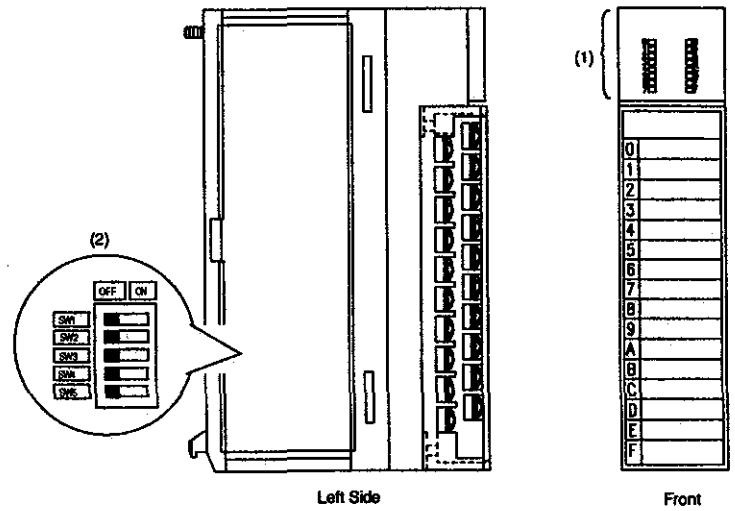
Left Side   Front

Number	Contents			
(1)	LED			
	Lit when there is external input.(Voltage is applied)			
(2)	Mode selection switch			
	Set this switch when a CPU is set Factory-set to OFF			
	Switch	Item	OFF	ON
	SW1	X00 to X03	Pulse catch function	Normal input function
	SW2	X04 to X07		
	* SW3	X08 to X0B		
	SW4	X0C to X0F		
	SW5	Resetting method	Reset in the direct mode	Reset in the refresh mode

* Correspnds to the I/O control mode of PC CPU

2 2 Performance Specifications

Items	Specifications
Input type	DC input sink/source common use type
Number of I/O points	16 points (I/O allocation output 16 points)
Isolation method	Photocoupler insulation
Rated input voltage	24 VDC
Rated input current	Approx 7 mA
Operating voltage range	19 2 to 26 4 VDC
Number of points of maximum simultaneous input	100 % simultaneous ON
ON voltage/ON current	13 V or more/3 5 mA or more
OFF voltage/OFF current	6 5 V or less/1 7 mA or less
Input resistance	Approx 3 3 kΩ
Response time	OFF → ON	0 5 msec or less
	ON → OFF	1 0 msec or less
Minimum input pulse width	0 5 msec
Common method	16 points/common
Operation display	ON display (LED)
External connection method	20 points terminal block connectors (M3 5 x 7 screws)
Applicable wire gauges	0 75 to 1 5 mm²
Applicable solderless terminals	1 25-3 5, 2 3.5, 1 25-YS3A 2-YS3A, V1 25-M3, V2-S3 V1 25 YS3A, V2-YS3A
Internal current consumption (5 VDC)	55 mA
Weight kg (lb)	0 19 (0 42)

4 EXTERNAL CONNECTIONS

External Connections	Terminal No.	Signal Name
	TB1	X00
	TB2	X01
	TB3	X02
	TB4	X03
	TB5	X04
	TB6	X05
	TB7	X06
	TB8	X07
	TB9	COM
	TB10	X08
	TB11	X09
	TB12	X0A
	TB13	X0B
	TB14	X0C
	TB15	X0D
	TB16	X0E
	TB17	X0F
	TB18	COM
	TB19	Vacant
	TB20	Vacant
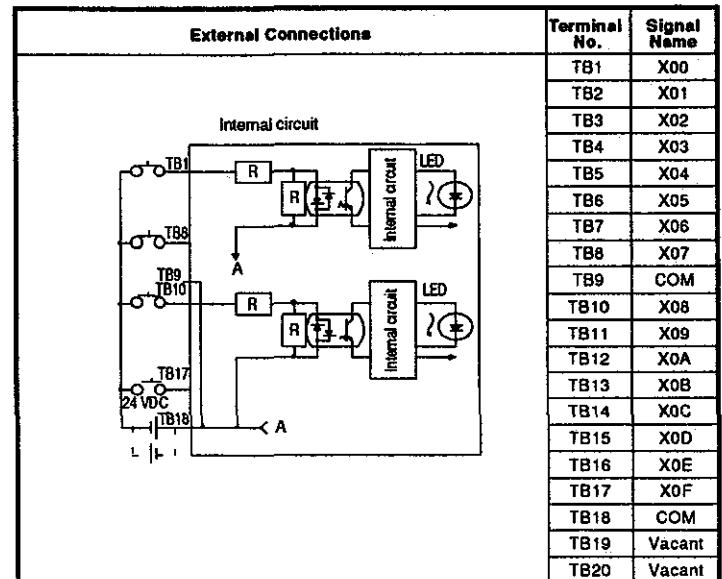
POINT

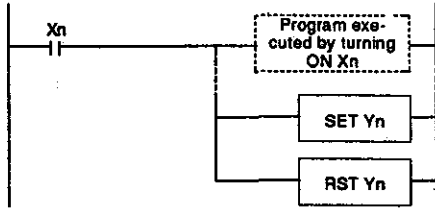To prevent improper operation due to noise, use shielded cables

5. PULSE CATCH OPERATIONS

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5.1 Pulse Catch Operations in the Direct Mode

This section explains reset program of a latched signal and the DIP switch settings and timing in case an AnSCPU is set at the direct I/O control mode
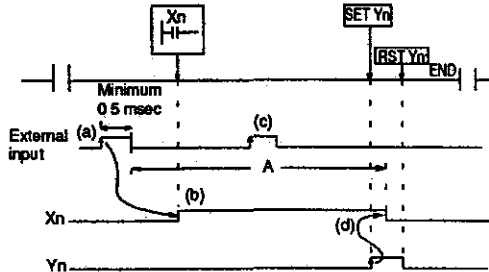
[Reset program]

[DIP switch settings]

SW 1 to 4: Set the switches that correspond to the device numbers used for the pulse catch function to OFF

SW5 : Make sure to set it to OFF.

[Timing]

Relationship between the Xn and Yn signals used for resetting is shown below

Operation contents

(a) A minimum 0 5 msec pulse is given from the external

(b) Xn is turned ON by the input (leading edge)

(c) Another input is ignored during A

(d) When Yn goes ON, Xn goes OFF

This section explains the reset program of a latched signal and DIP switch settings and timing in case an AnSCPU is set at the direct I/O control mode

[Reset program]

Unnecessary.
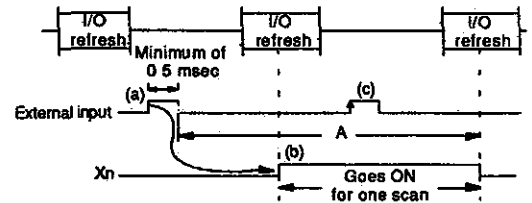
Reset signals of Y have no meaning

[DIP switch settings]

SW 1 to 4: Set the switches that corresponds to the device numbers that is used for the pulse catch function to OFF

SW5 : Make sure to set it to ON

[Timing]

The relationship between the Xn signal and I/O refresh used for resetting is shown below
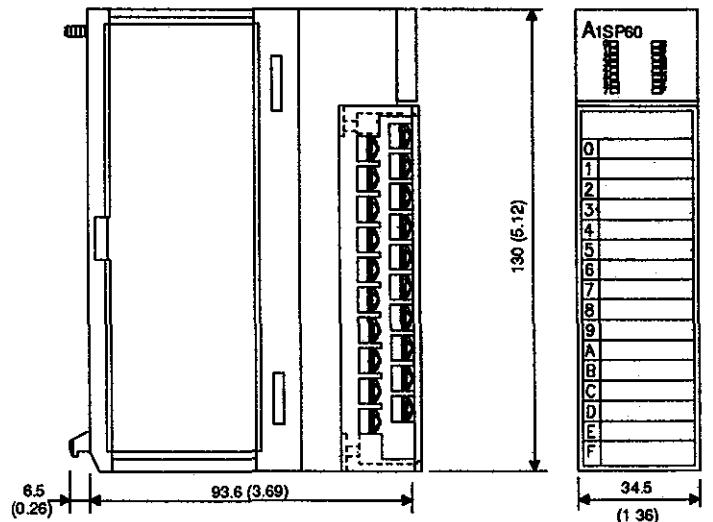

Operation contents

(a) A minimum 0 5 msec pulse is given from the external

(b) Xn is turned ON for one scan by the input (leading edge)

(c) Another input is ignored during A

(d) Xn is turned OFF by the second refresh processing from the external input

POINT

Do not use the SEG instruction with an A1SP60

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6. OUTSIDE DIMENSIONS

6 OUTSIDE DIMENSIONS

Unit mm(inch)

Apr., 1994	A	