# MITSUBISHI

## PROGRAMMABLE CONTROLLERS
### MELSEC-F

# FX-2PIF INTERFACE MODULE
# USER'S GUIDE

## Introduction

The FX-2PIF is an active two port communications module for use with all FX0(S), FX0N, FX, FX2C, FX2N and A series programmable controllers. The PC type selection is made by setting DIP switches. The features of the FX-2PIF include;

- The FX-2PIF allows shared access to the PCs programming port by a data access unit and one other programming or monitoring peripheral. The second peripheral can communicate to the PC on either an RS232 or a RS422 port. The active port is simply selected by a positive hardware switch. If the RS232 port is used the FX-2PIF also acts as a RS232/RS422 converter.
- The FX-2PIF has been designed for use as a test and maintenance tool. The FX-2PIF has a rugged design offering a small overall size and a convenient hanging hook for temporary mounting.
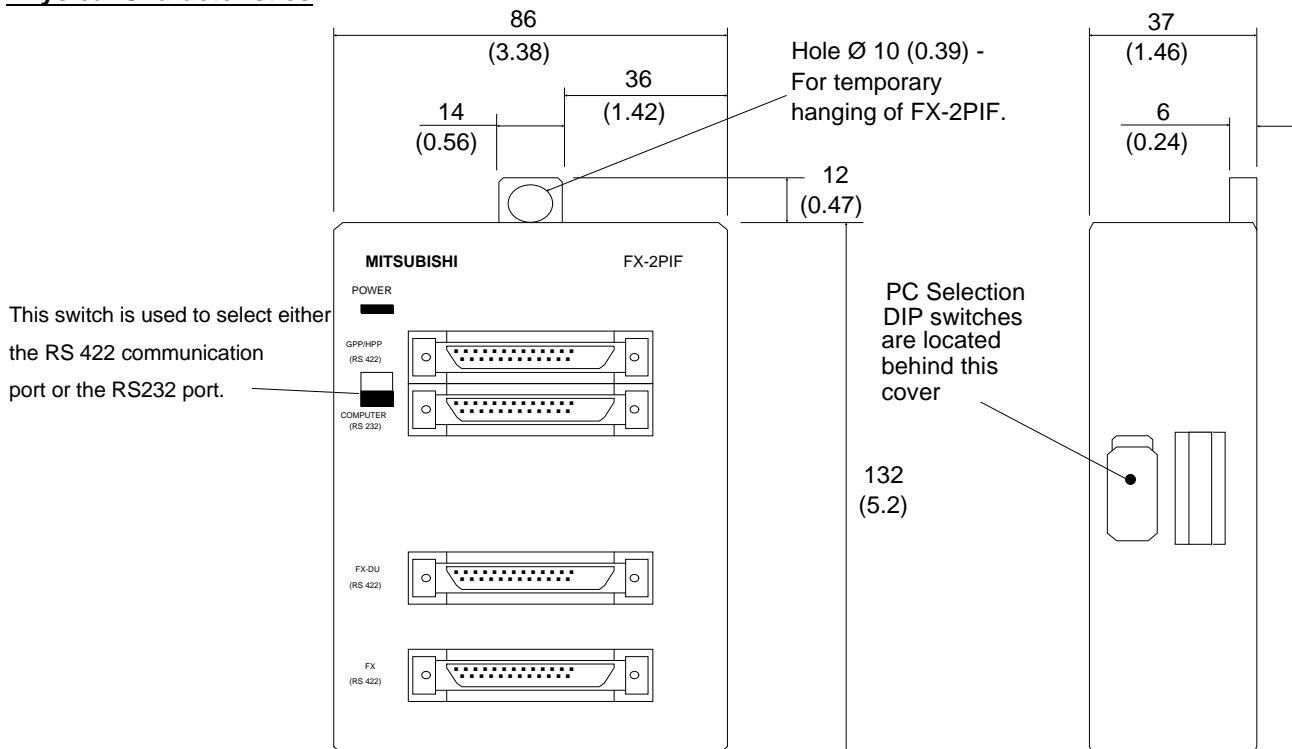
## General Specification

| | |
|---|---|
| Ambient Operating Temperature | 0 - 45 ℃ |
| Ambient Operating Humidity | 35 - 85 % Relative Humidity, no condensation |
| Noise Immunity | Noise Simulation Test: 1000V square pulse, 1μs pulse width, 30 to 100 HZ frequency sweep |
| Maximum Dielectric Voltage Withstood | Programmable Controller I/O and power terminals subjected to 500 V AC for 1 minute |
| Required Operating Environment | No corrosive gases present, minimal dust |
| External Dimensions | $132 \times 86 \times 37$ mm ($5.2 \times 3.38 \times 1.46$ inches) |
| Weight | 0.3 Kg (0.66 lbs) |
| Mounting Facilities Provided | Temporary hanging hook |

## Electrical Specification

| Power | | 5 V DC, supplied by the programmable controller |
|---|---|---|
| Current Drawn From The 5 V DC supply When Using The Following Items With The FX-2PIF | Computer | 310 mA |
| | FX-20P-E | 340 mA |
| | A6-GPP | 180 mA |

## Physical Characteristics



This switch is used to select either the RS 422 communication port or the RS232 port.

PC Selection DIP switches are located behind this cover

DIMENSIONS : mm (inches)

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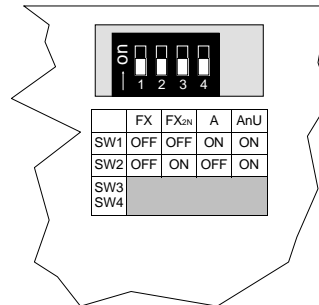# USER'S GUIDE

## Selection of PC Type

The FX-2PIF can work with all FX series and A series programmable controllers. However, the FX-2PIF must first be configured for use with the desired controller. This is done be setting the DIP switches located behind the removable cover on the side of the unit.

When setting a switch to ON the switch is moved up. When OFF the switch is in the down position.
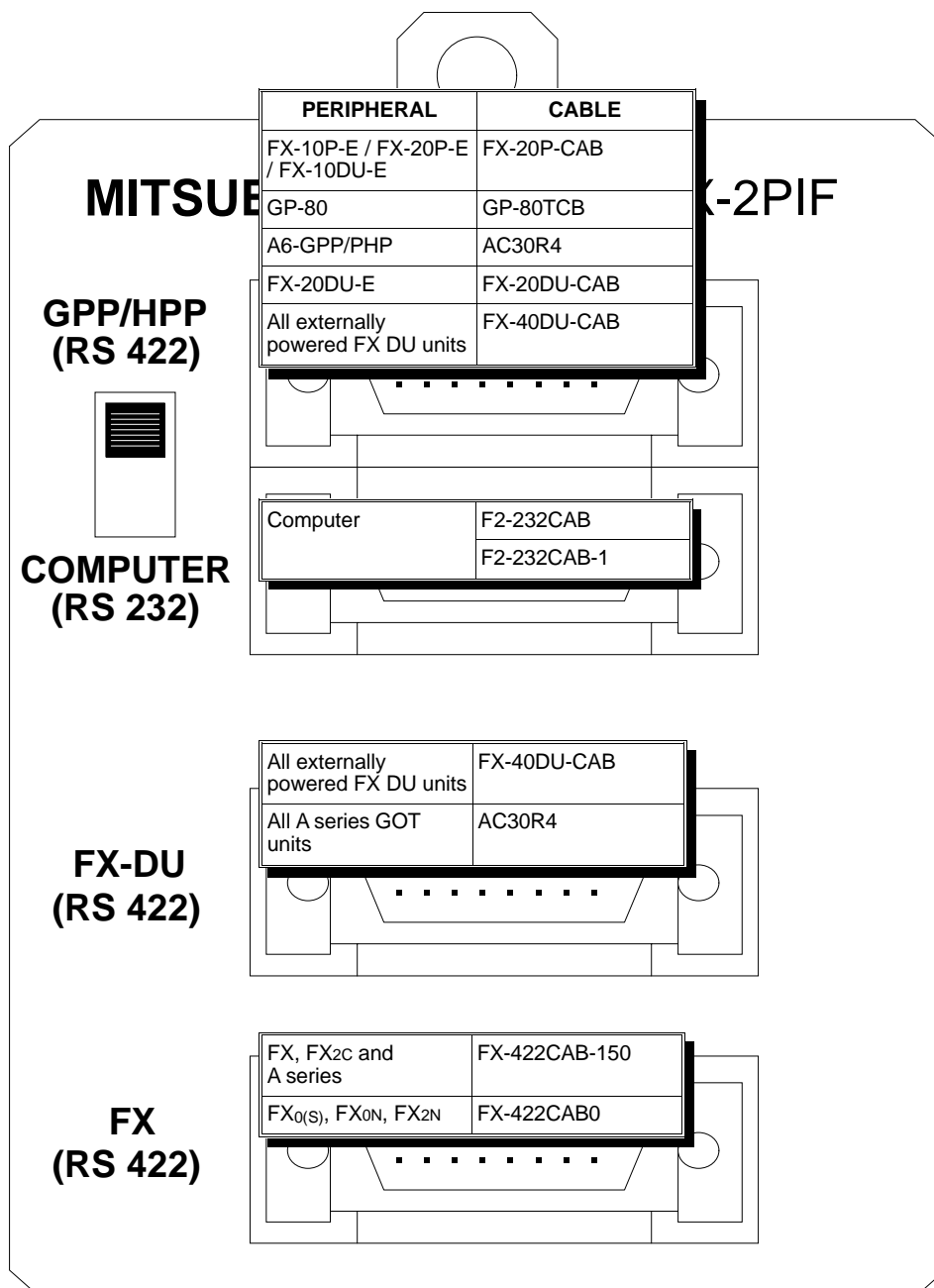
FX = All FX series except FX2N; A = All A series except AnU



A scrap view showing the PC selection DIP switches

|  | FX | FX2N | A | AnU |
|---|---|---|---|---|
| SW1 | OFF | OFF | ON | ON |
| SW2 | OFF | ON | OFF | ON |
| SW3 |  |  |  |  |
| SW4 |  |  |  |  |

## Connection Diagram

The Peripherals and cables that can be connected to each port are identified below;

**MITSUBISHI FX-2PIF**

### GPP/HPP (RS 422)

| PERIPHERAL | CABLE |
|---|---|
| FX-10P-E / FX-20P-E / FX-10DU-E | FX-20P-CAB |
| GP-80 | GP-80TCB |
| A6-GPP/PHP | AC30R4 |
| FX-20DU-E | FX-20DU-CAB |
| All externally powered FX DU units | FX-40DU-CAB |

### COMPUTER (RS 232)

| | |
|---|---|
| Computer | F2-232CAB |
| | F2-232CAB-1 |

### FX-DU (RS 422)

| | |
|---|---|
| All externally powered FX DU units | FX-40DU-CAB |
| All A series GOT units | AC30R4 |

### FX (RS 422)

| | |
|---|---|
| FX, FX2C and A series | FX-422CAB-150 |
| FX0(S), FX0N, FX2N | FX-422CAB0 |

# FX

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### Caution:- PC Power Supply Overload

When using the FX-2PIF with peripherals that draw power from the PC, care should be taken not to overload the PC.
If this happens, the normal operation of part or all of the system will be affected; the worst case being the PC shuts down.

The FX PC can supply 5V DC 290mA, in addition to which is the power required by a programmer (150 mA).
Hence, the total available 5V DC supply from an FX PC is 290 + 150 = 440 mA.

Take care to note the supply required by special function blocks as well. If necessary add an extension unit to power the special blocks.

### Points For Use Of The FX-2PIF

1)  For FX2N series either FX or FX2N support is possible but all peripherals must also conform to this setting.
    When the FX2N setting is used all of the connecting peripherals must fully support FX2N.
    Otherwise, set the FX-2PIF for use as for FX and ensure that none of the peripherals are set for FX2N support.

2)  The following combinations of PC and FX-2PIF can be used;

| PC SERIES | FX-2PIF ver 2.0 | FX-2PIF ver 2.1 | FX-2PIF ver 2.2 | FX-2PIF ver 3.0 |
|---|---|---|---|---|
| FX0, FX0S, FX0N, FX, FX2C | ✔ | ✔ | ✔ | ✔ |
| FX2N | ✘ | ✘ | ✘ | |
| AnN, AnA, A2C | ✔ | ✔ | ✔ | ✔ |
| A1S, A0J2H | ✘ | | | |
| AnU | | ✘ | | |

3)  When using the FX-2PIF with an A series PC and an FX-40DU-(TK) the following restrictions are imposed by the FX-2PIF on the quantity of data being monitored. The sum total of active devices at any one time must be equal to or less than 34. The number of devices are calculated using the following tables, summing the total of each section, then summing the complete total, i.e.

Monitoring Contact Statuses;

| A SERIES PC | INPUT CONTACT 'X' | STATUS CONTACTS 'Y, M, T and C' |
|---|---|---|
| AnN, A2C, A1S, A0J2H | Number of items used ✘ 2 = ① | Number of items used ✘ 1 = ② |
| AnA | Number of items used ✘ 1 = ① | |

Monitoring Actual Data Values

| A SERIES PC | DATA DEVICES | |
|---|---|---|
| | T, C, D, Z, V - 16 bit | C, D, Z, V - 32 bit |
| AnN, AnA, A2C, A1S, A0J2H | Number of items used ✘ 2 = ③ | Number of items used ✘ 4 = ④ |

$$① + ② + ③ + ④ \leq 34$$

Example:                                                     Solution

    Situation:          PC = A1S                  Number of devices allocated:

            Contacts            X = 3                   ①      3 ✘ 2 = 6

                                C = 4                   ②      4 ✘ 1 = 4

                                M = 1                   ②      1 ✘ 1 = 1

            Data values 16 bit  D = 2                   ③      2 ✘ 2 = 4

                                V = 1                   ③      1 ✘ 2 = 2

            Data values 32 bit  D = 4                   ④      4 ✘ 4 = 16

                    Total devices used ( ① + ② + ③ + ④)          33  OK!

                                                                (less than 34)

4)  When using the FX-2PIF with an A series PC and either a personal computer or an A6-GPP/PHP care should be taken not to monitor more than 103 devices at any one time.

5)  AnU series programmable controllers can not be used with FX DU units.

6)  When using the FX-2PIF with an AnU series PC, a GOT and an associated programming tool, the AnU programming mode can be used.