EF1SRP-01U User's Guide

1. General Description

The EF1SRP-01U serial writing unit is specially designed for the EFP-I and is mounted on the EFP-I. Using the EF1SRP-01U enables you to write and read to/from the Mitsubishi Electric flash memory built-in MCU or PROM built-in MCU by serial I/O mode.

2. Appearance

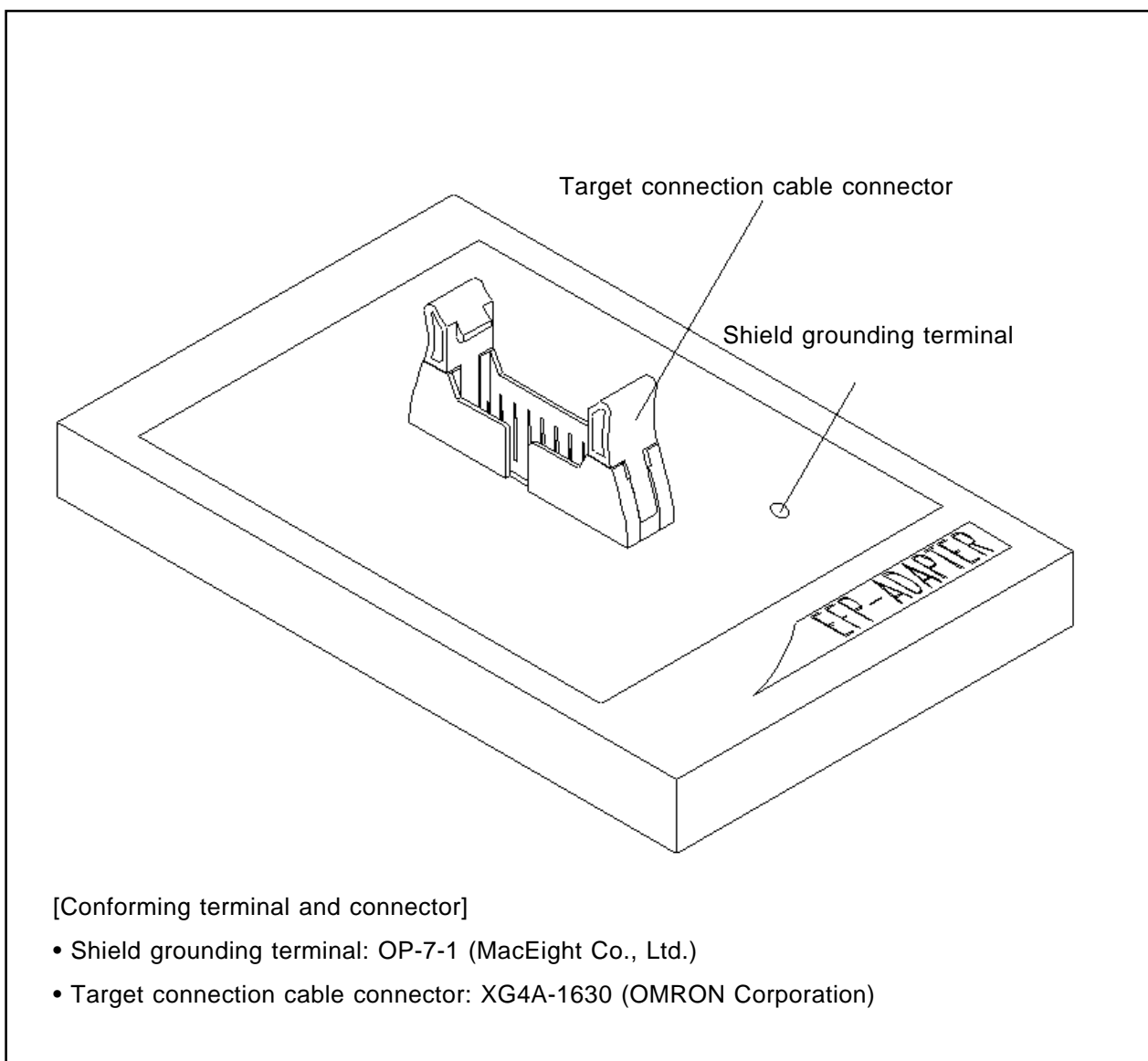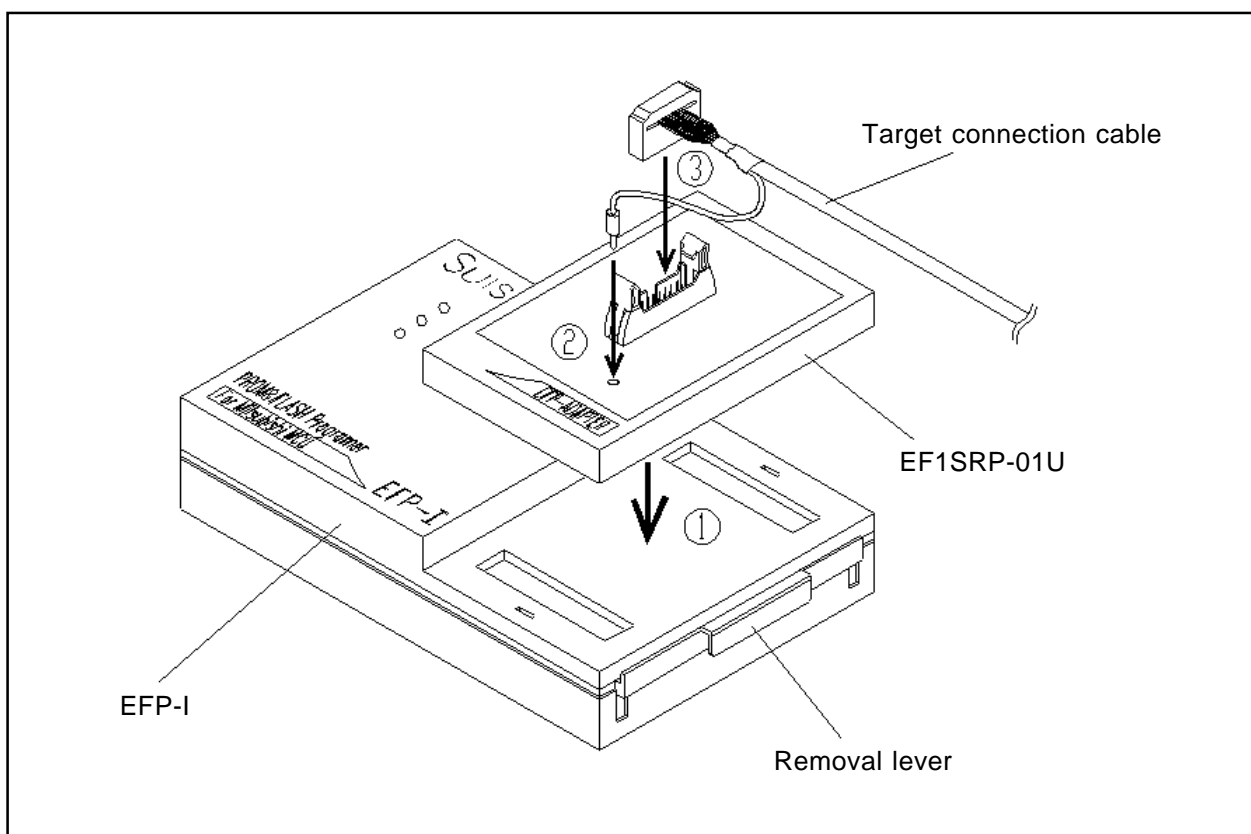The appearance of the EF1SRP-01U is shown in Fig. 2.1.

[Conforming terminal and connector]

• Shield grounding terminal: OP-7-1 (MacEight Co., Ltd.)

• Target connection cable connector: XG4A-1630 (OMRON Corporation)

Fig. 2.1: Appearance of EF1SRP-01U

3. Setup

The EF1SRP-01U unit is mounted as shown in Fig. 3.1.

Fig. 3.1: EF1SRP-01U Unit Mounting

(1) Mount the EF1SRP-01U on the EFP-I. (Pay attention to orientation.)

(2) Insert the ground wire of the target connection cable in the terminal.

(3) Insert the target connection cable in the connector.

(4) Turn on the EFP-I's power.

(5) Insert the ground wire (alligator clip) in the signal GND of the target board.

(6) Connect the target side of the target connection cable.

(7) Turn on the target board's power. (Pay attention to status of peripheral circuits.)

(8) Execute write processing by PC operation.

(9) Disconnect the target side of the target connection cable.

(10) Either turn the target connection board's power on again, or reset and execute the program.

    * When connecting to the target board, connect the signal GND first before connecting other pins.

*Notes

Read the EFP-I's instruction manual before attempting to connect the EFP-I's power and communication cable.

Do not attempt to remove or replace the unit when the EFP-I's power is on.

The target connection cable is live when the EFP-I's device LED (red) is lit. Do not plug or unplug the target connection cable when the LED is lit.

When executing serial writing, power (VDD) is sometimes supplied from the EFP-I, and sometimes supplied from the user target board, depending on the type of MCU. If power is supplied from the user target board, about 400uA of current is consumed by the output buffer circuit and voltage measurement section in the serial unit. When designing the power source, you should therefore consider serial unit current and MCU current demand when writing and clearing data.

Connect the ground wire (alligator clip) of the target connection cable to the signal GND of the target board. However, the connection is not necessary when the signal GND of EFP-I or PC is connected to the signal GND of target board in advance.
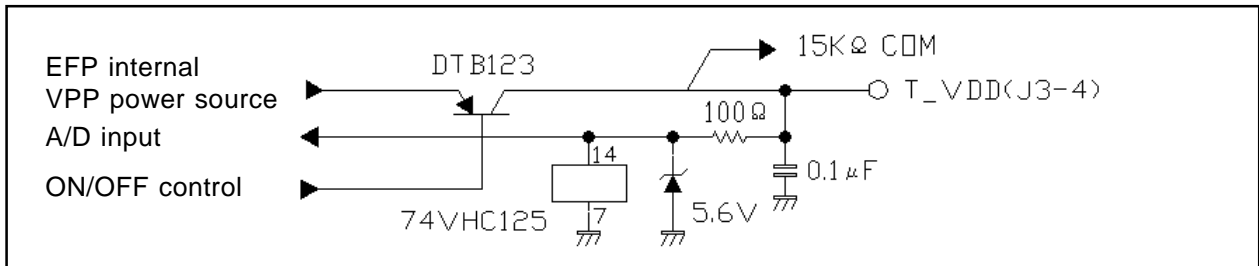
4. Target Interface Circuit

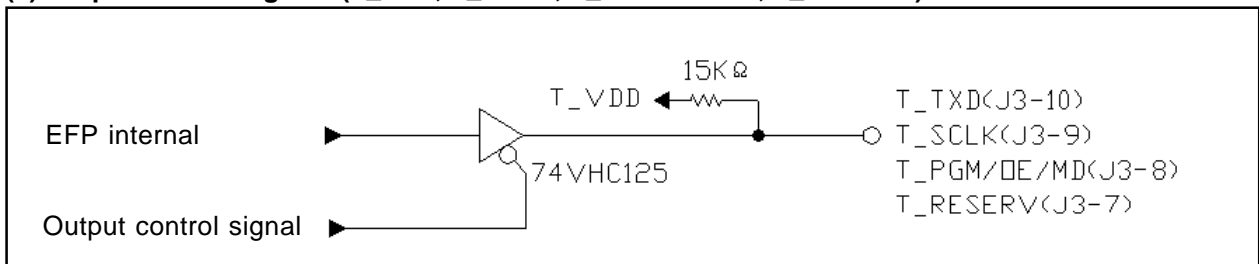The signal I/O circuit connected to the target board from serial writing unit EF1SRP-01U is as follows.
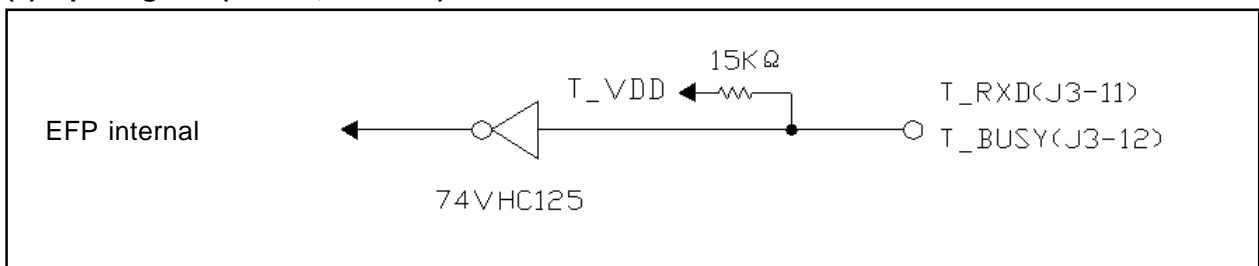
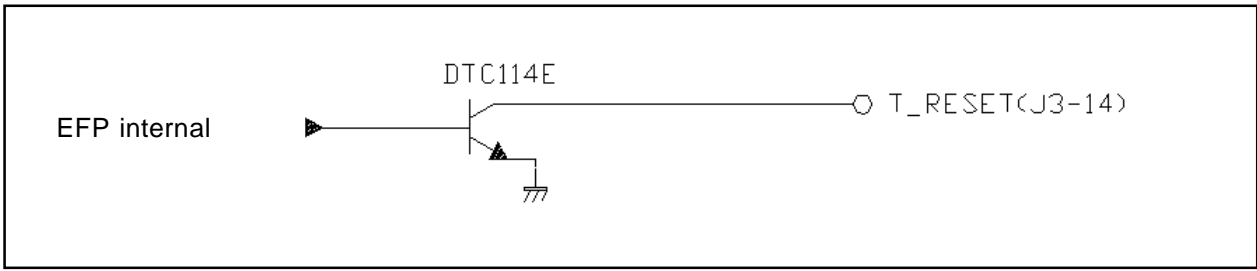**(1) Power source for writing (T_VPP)**
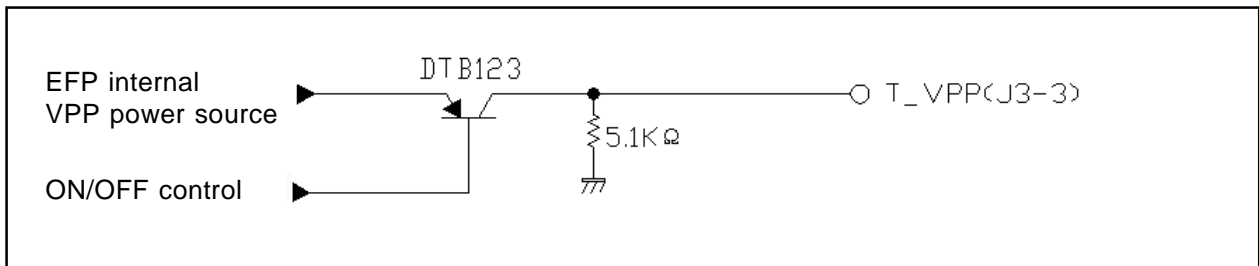
(2) MCU power source (T_VDD)

(3) Output control signals (T_TXD, T_SCLK, T_PGM/OE/MD, T_RESERV)

**(4) Input signals (T_RXD, T_BUSY)**

(5) Reset signal (T_RESET)

5. Target Connection Cable Specifications

The standard target connection cable that comes with the equipment is a frayed end type, but a 3-wire type (8-pin: MSP-I, II interchangeable) and 4-wire type (10-pin) are optionally available.

5.1 Target Connection Cable Specifications

Fig. 5.1 shows the pin layout of the EF1SRP-01U side target connection cable connector. Table 5.1 lists the target connection connector pins.
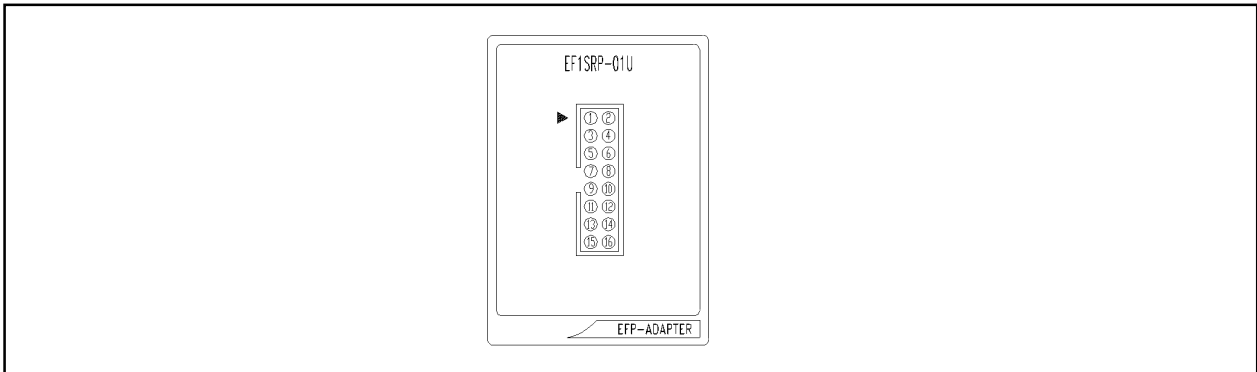
Fig. 5.1: Target Connection Connector Pin Layout (EF1SRP-01U Side)

Table 5.1: Target Connection Connector Pins

Pin No. (EF1SRP-01U Side)	Signal	Wire Color	MCU Connection Method	
			3-Wire	4-Wire
1	GND	Orange/red dotted 1	GND	GND
2	GND	Orange/black dotted 1		
3	T_VPP	Gray/red dotted 1	VPP	See data book
4	T_VDD	Gray/black dotted 1	MCU VCC	MCU VCC
5	(N.C.)	–	–	–
6	(N.C.)	–	–	–
7	T_RESERVE	White/red dotted 1	(Not currently used)	(Not currently used)
8	T_PGM/OE/MD	White/black dotted 1	PGM or OE	Mode pin (CNVSS)
9	T_SCLK	Yellow /red dotted 1	SCL	SCL
10	T_TXD	Yellow/black dotted 1	SDA	TXD
11	T_RXD	Pink/red dotted 1		RXD
12	T_BUSY	Pink/black dotted 1	BUSY	BUSY
13	(N.C.)	Orange/red dotted 2	–	–
14	T_RESET	Orange/black dotted 2	$\overline{\text{RESET}}$	$\overline{\text{RESET}}$
15	GND	Gray/red dotted 2	GND	GND
16	GND	Gray/black dotted 2		

NOTE: 3 and 4-wire indicates the type of serial writing.

- T_VPP is not required for the built-in DINOR flash memory. For details, see the supplement and MCU data book. Maximum T_VPP output current is 100mA.
- T_VDD connection differs according to MCU Type and whether or not you are equipped with a user power source. For details, see the supplement. Maximum T_VDD output current is 100mA.
- If T_PGM/OE/MD is 4-wire type, "H" is used for serial writing.
- If T_TXD and T_RXD are 3-wire type, connect to both SDA terminals of the MCU.
- The signal GND has 4 pins (No. 1, 2, 15 and 16). When connecting to the target board, there is no problem for connecting only one pin, but it is recommended to connect more than 2 pins.
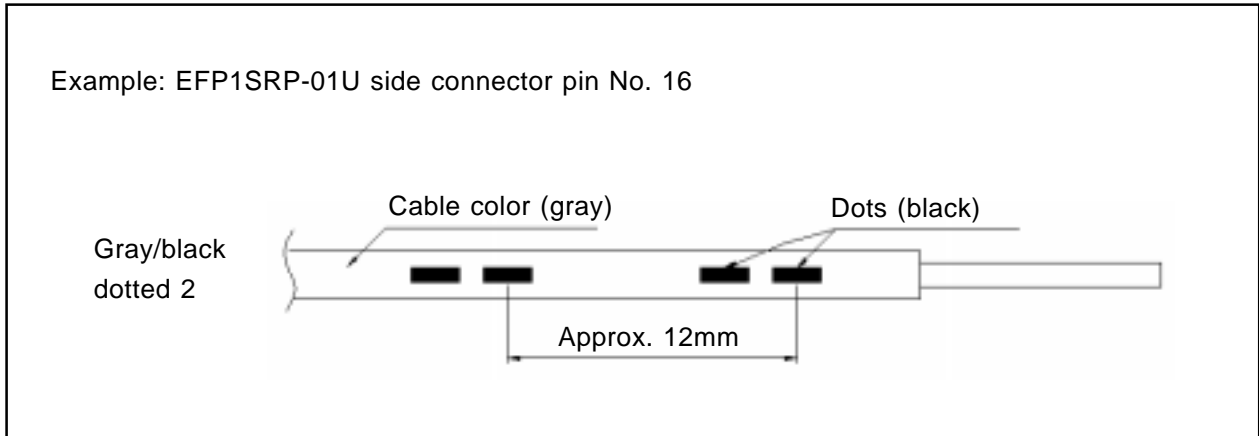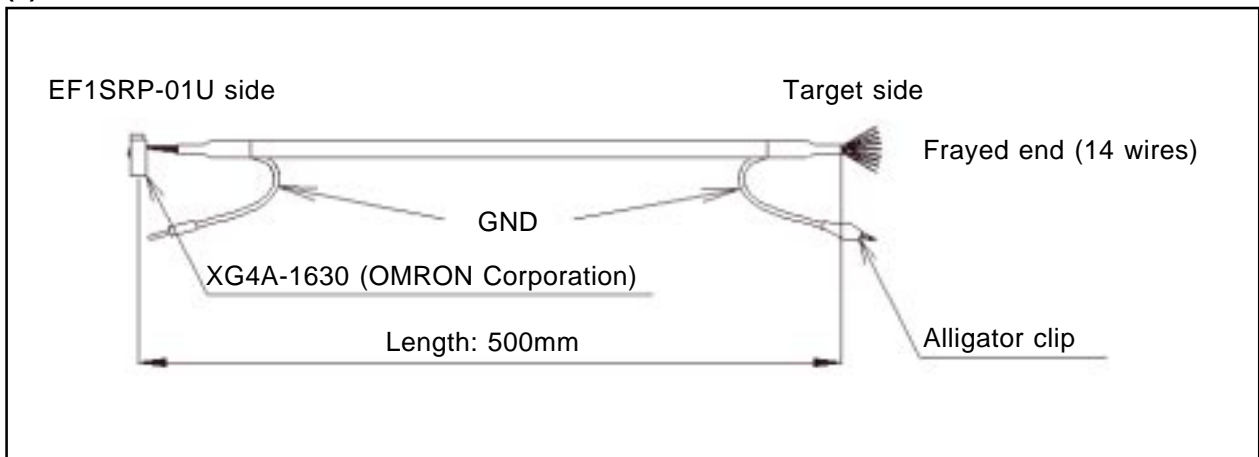
Example: EFP1SRP-01U side connector pin No. 16

Cable color (gray)   Dots (black)

Gray/black
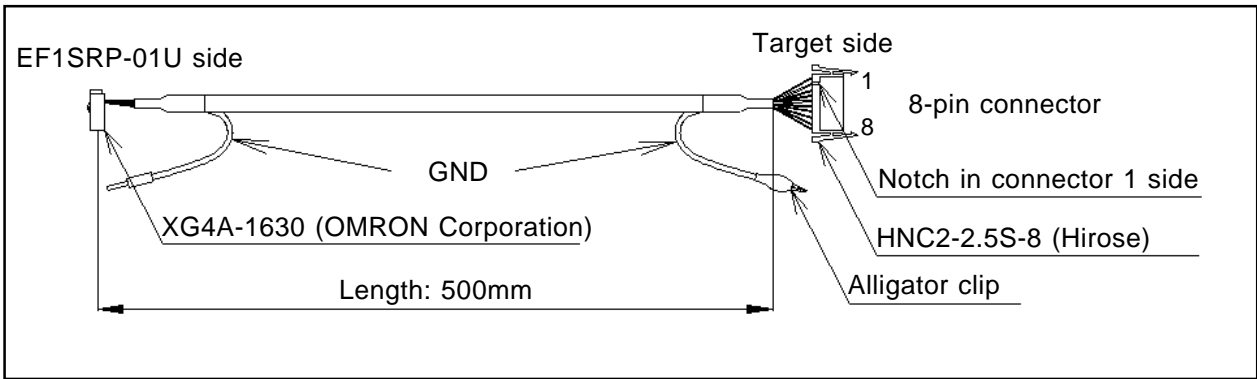dotted 2

Approx. 12mm

Fig. 5.2: How to Read the Color Code

5.2 Target Connection Cable Appearance

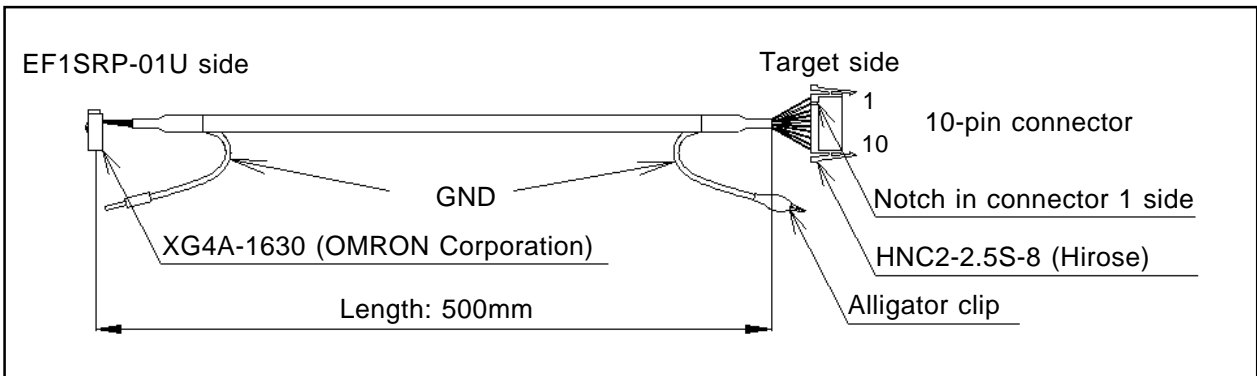Target cables are as shown below. Fig. 5.3 is a target cable connection diagram.

(1) Standard cable

EF1SRP-01U side   Target side

Frayed end (14 wires)

GND

XG4A-1630 (OMRON Corporation)

Length: 500mm

Alligator clip

(2) 4-wire cable (optional)

EF1SRP-01U side

Target side

8-pin connector

GND

Notch in connector 1 side

XG4A-1630 (OMRON Corporation)

HNC2-2.5S-8 (Hirose)

Length: 500mm

Alligator clip

(3) 3-wire cable (optional)

EF1SRP-01U side

Target side

10-pin connector

GND

Notch in connector 1 side

XG4A-1630 (OMRON Corporation)

HNC2-2.5S-8 (Hirose)

Length: 500mm

Alligator clip

EFP pin No.	Signal	Fray wire color	4-wire cable (10P)	3-wire cable (8P)
1	GND	Orange/red dotted 1		
2	GND	Orange/black dotted 1	1	
11	T_RXD	Pink/red dotted 1	2	
12	T_BUSY	Pink/black dotted 1	3	1
3	T_VPP	Gray/red dotted 1	4	2
4	T_VDD	Gray/black dotted 1	5	3
9	T_SCLK	Yellow /red dotted 1	6	4
10	T_TXD(SDA)	Yellow/black dotted 1	7	5
8	T_PGM/OE/MD	White/black dotted 1	8	6
14	T_RESET	Orange/black dotted 2	9	7
15	GND	Gray/red dotted 2	10	8
16	GND	Gray/black dotted 2		
7	T_RESERVE	White/red dotted 1		
13	(N.C.)	Orange/red dotted 2		

* EFP Pin No. 5 and 6 are not connected.

Fig. 5.3: Target Side End Signal Array