

OMRON

E3X-DRT21/SRT21/CIF11

光纤放大器通信单元

使用说明书

感谢您选择欧姆龙产品。使用时，请务必遵守以下内容。使用本品前，请仔细阅读本说明书，充分了解产品。为了您的方便，请妥善保管好本说明书。

请结合以下手册，安全正确地使用本产品。

- 光纤放大器用通信单元 用户手册 (Man. No. Z152-E1)
- DeviceNet用户手册 (Man. No. W267-E1)
- CompoBus/S 用户手册 (Man. No. W266-E1)

欧姆龙公司
1171372-0B

警告 如果不正确使用，有可能导致死亡或重大伤害。

警告

为了确保制品故障或者外部原因引起异常时的安全，务必在外部回路中，追加安全措施，如增加紧急停止回路、内部锁定回路、限制回路以及其他类似的安全措施。使得系统整体在安全的状态下运行。如果不这样，可能会引起重大事故。

- ### 安全上的要点
- 为了确保您的安全，使用时请务必遵守以下条例。
- 请勿擅自拆卸、修理、改造本产品。
 - 请勿在电源接通的状态下进行接线。
 - 请勿对本产品增加异常的振动或冲击，否则会产生故障、误动作。
 - 请使用指定的导线通信线。
 - 请在通信距离的规格范围内使用本产品。
 - 请避免通信导线接近高压、强电流线，或与之平行。
 - 请勿用力弯曲、拉扯导线。
 - 请务必充分确认配线无误后再通电。
 - 请正确配置端子的极性、电源的配线，I/O电压的规格，错误的连接会导致故障。
 - 电源接通的状态下，切勿拆卸接插件，否则会导致故障、误动作。
 - 请在规格所示的电源电压下使用。
 - 切勿将通信中的手持式控制器的电源断开，否则会发生通信错误。
 - 请确认通信中连接器的螺丝拧紧。(0.5~0.6N·m)

使用上的注意

- 使用场所

请勿在以下场所使用。

 - 日光直射的场所
 - 周围温度、相对湿度超过规格范围的场所
 - 温度变化激烈、结露的场所
 - 含腐蚀性、可燃气体的场所。
 - 含尘埃、盐分、铁粉的场所。
 - 含水、油、化学品飞沫的场所。
 - 震动、冲击直接传送到产品本体的场所。

在以下场所使用时，请做好充分的屏蔽对策。

 - 发生静电导致干扰的场所。
 - 强电场、强磁场的场所。
 - 可能会有放射能爆发的场所。
 - 附近有电源线、动力线的场所。
- 清扫

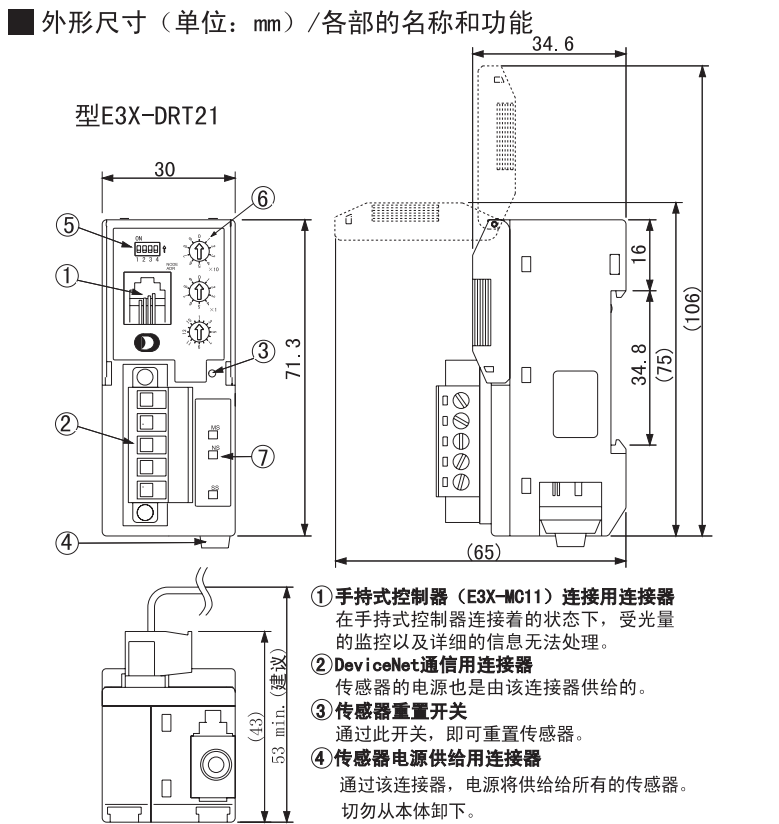
因为稀释剂类会溶化产品表面，使其变色，所以请勿使用。
- 电源供给
 - 在电源情况不稳定的场所，请务必使用能够提供稳定的额定电压的电源，否则可能会引起故障。

规格

● 额定

型号	E3X-DRT21	E3X-SRT21	E3X-CIF11
通信方式	DeviceNet	CompoBus/S	RS422
电源电压	11~25VDC	14~26.4VDC	11.4~26.4VDC (12VDC-5%~24VDC+10%)
内部消费电流(※1)	70mA 以下	30mA 以下	40mA 以下
使用环境温度范围	-20~55℃		
使用环境湿度范围	35~85% (无结露)		
保存环境温度范围	-30~70℃		
重量(包装状态)	约155克	约150克	约200克
可连接的传感器(※2)	E3X-DA6/8, -DAB6/8, -DAG6/8, -DA6/8TW, -DA6-P, E39-TM1		
传感器最大连接数	16	14	16
可与传感器单元连接的子连接器	E3X-CN02 (无导线)	E3X-CN02 (无导线)	E3X-CN12 (带导线) E3X-CN02 (无导线)

(※1) 此数值不包括传感器的消费电流。
 (※2) 导线引出型(如E3X-DA11/21/41/51-N, E3X-DAB11-N等)、耐水型(E3X-DA14V等)无法连接，请注意。因为连接时，传感器的电源无法重置。
 型E3X-DA6/8, E3X-DAB6/8, E3X-DAG6/8, E3X-DA6/8TW根据不同的型号，有的也无法连接。(仅表面印刷MADE IN CHINA下有下划线的可以连接。)



⑤ DIP开关

ON

MODE0
MODE1
传感器连接台数
预定设置

<动作模式设定>

SW1 (MODE0)	SW2 (MODE1)	动作模式	传感器可连接台数
OFF	OFF	远程I/O通信 1CH模式	最大13台
ON	OFF	远程I/O通信 2CH模式	最大16台
OFF	ON	远程I/O通信 2CH+检测量监测	最大16台
ON	ON	不可设定	-

<传感器连接台数的设定方法>

可以将传感器连接台数的登录设定为：
用旋钮式开关进行或使用配置程序、详细信息设定

<系统预设>

请务必在OFF下使用。

SW3	设定方法
OFF	用旋钮开关登录
ON	用配置程序或详细信息通信进行登录

⑥ 旋钮式开关

DeviceNet节点设定

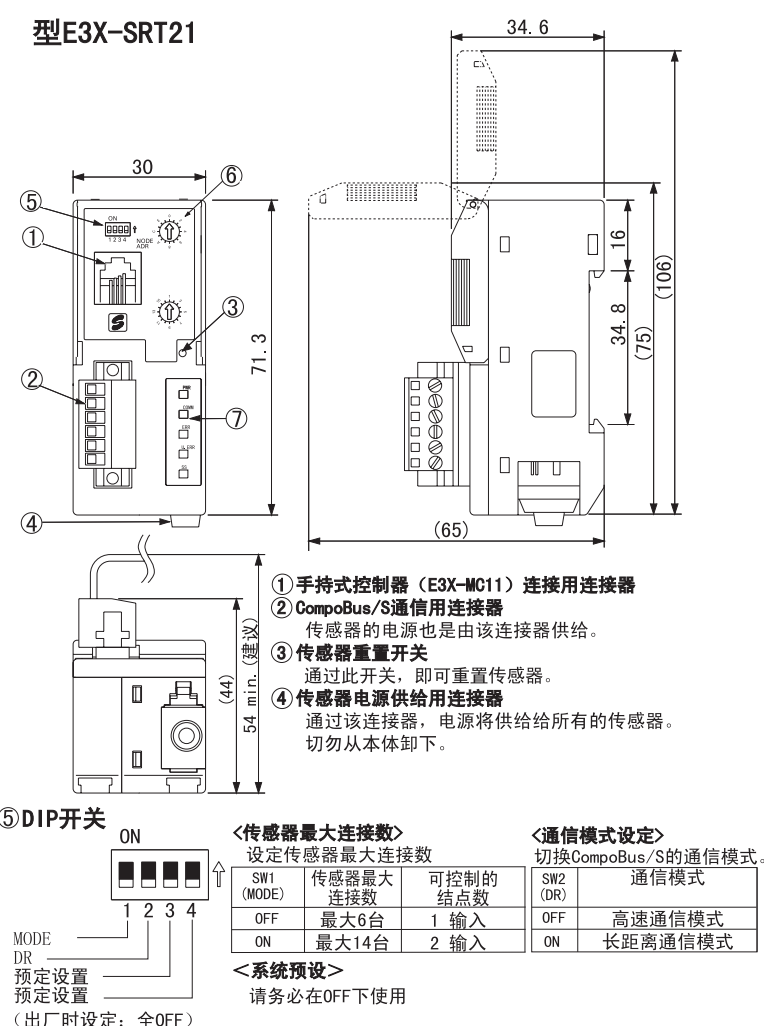
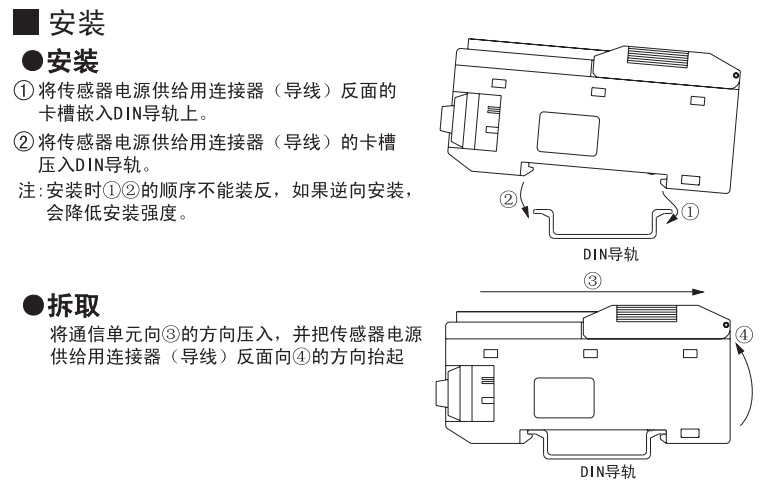
设定范围00~63
(64~99不可设定)
(出厂时设定: 00)

传感器连接台数登录

登录连接的传感器台数
DIP开关SW3 ON时，设定无效
(出厂时设定: 1台)

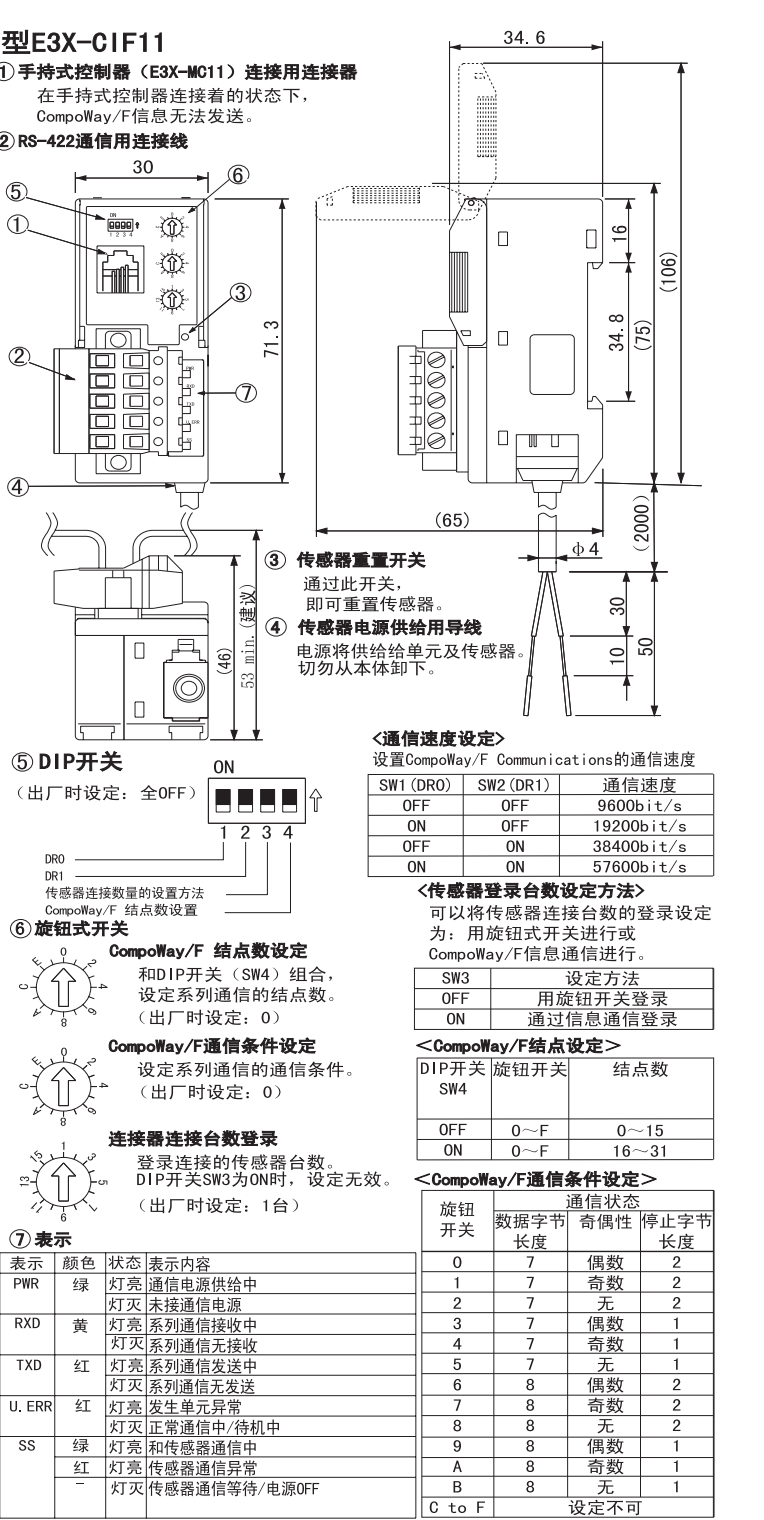
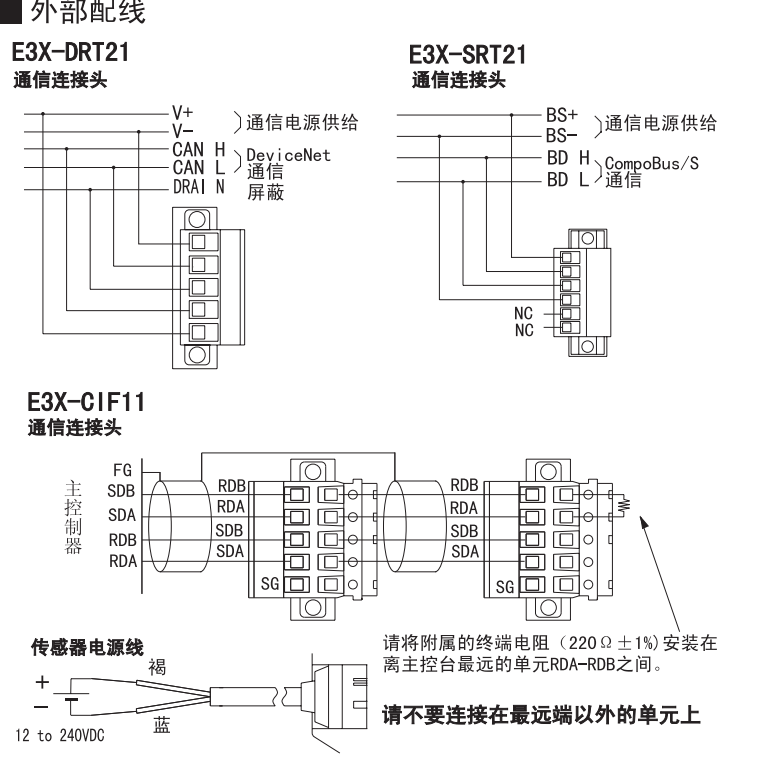
⑦ 表示部

表示	颜色	状态	表示内容
MS	绿	灯亮	正常状态
		闪烁	未设定状态
	红	灯亮	致命性故障
-	闪烁	轻微故障	
	灯灭	电源OFF状态	
NS	绿	灯亮	DeviceNet Online通信连接完
	闪烁	DeviceNet Online通信未连接	
SS	红	灯亮	DeviceNet为致命的通信异常
		闪烁	DeviceNet为轻微的通信异常
	-	灯灭	DeviceNet Offline/电源OFF状态
SS	绿	灯亮	和传感器通信中
		灯亮	和传感器间的通信异常
	-	灯灭	等待和传感器间的通信/电源OFF



⑦ 表示部

表示	颜色	状态	表示内容
PWR	绿	灯亮	通信电源供给中
		灯灭	未接通信电源
COMM	黄	灯亮	CompoBus/S正常通信中
		灯灭	CompoBus/S通信异常/待机中
ERR	红	灯亮	CompoBus/S通信发生异常
		灯灭	CompoBus/S正常通信中/待机中
U. ERR	红	灯亮	发生单元异常
		灯灭	正常通信中/待机中
SS	绿	灯亮	和传感器通信中
		灯亮	传感器通信异常
	-	灯灭	传感器通信等待/电源OFF



使用时的承诺事项

在以下条件、环境中使用时，请注意对额定、机能保持一定的余裕度，并考虑自动安全装置等安全对策，同时和我公司营业担当者联系。

1. 在使用说明书上没有记载的条件、环境下使用。
2. 原子力控制设备、焚烧设备、铁道·航空·车辆设备、医用设备、娱乐机械、安全装置及行政机关及根据个别业界的规定制造的设备。
3. 可能危及生命、财产，在安全性上有要求的地方。

■ 制造商

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■ 技术咨询

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 技术咨询热线: 800-820-4535
 网址: <http://www.fa.omron.com.cn>

OMRON Corporation

**E3X-DRT21/SRT21/CIF11
SENSOR COMMUNICATION UNIT**

INSTRUCTION MANUAL

Thank you for purchasing this OMRON product. This manual primarily describes precautions required in installing and operating the digital controller. Before operating the product, read this manual through to acquire sufficient knowledge of the product. Keep this manual for future reference.

To ensure safe and correct use of this product, also read the following manuals:
 • SENSOR COMMUNICATION UNIT Operation Manual (Man. No. Z152-E1)
 • CompoBus/D(DeviceNet) Operation Manual (Man. No. W267-E1)
 • CompoBus/S Operation Manual (Man. No. W266-E1)

TRACEABILITY INFORMATION:
 Representative in EU: Omron Europe B.V., Wegalaan 67-69, 2132 JD Hoofddorp, The Netherlands
 Manufacturer: Omron Corporation, Shiohji Horikawa, Shimogyo-ku, Kyoto 600-8530 JAPAN
 Shanghai Factory: No.789 Jinli Road, Jinjiao Export Processing District, Pudong New Area, Shanghai, 201206 CHINA

The following notice applies only to products that carry the CE mark:
 Notice: This is a class A product. In residential areas it may cause radio interference, in which case the user may be required to take adequate measures to reduce interference.

OMRON Corporation

WARNING A potentially hazardous situation by misuse, could result in death or serious injury, or minor or moderate injury.

WARNING Provide safety measures in external circuits. (i.e., not in the product) (emergency stop circuits, interlock circuits, limit circuits, and similar safety measures), in order to ensure safety in the system if an abnormality occurs due to malfunction of the product or another external factor affecting the product operation. Not doing so may result in serious accidents.

NOTICE

- Items shown below are necessary for safe usage. Please note them carefully.
- Do not attempt to disassemble, repair or modify any Units.
 - Do not wire the product with the power ON.
 - Do not submit the product to abnormal shock. Doing so might result in faulty operation.
 - Use the appointed communications cable.
 - Use the product within communications distance of specifications.
 - Use the communications cable that is separate from the one used for high-tension lines.
 - Do not pull on or bend the cable beyond their natural limit.
 - Double-check all the wiring before turning on the power supply.
 - Be sure that terminal polarity and power supply wiring, and I/O voltage specifications are correct, incorrect connections may cause failures.
 - Never connect or disconnect connector with the power ON.
 - Use correct specification voltage.
 - Do not turning off or on the power of the Mobile console in communication. Doing so might result in communication error.
 - Mount screws of communications connector correctly. (0.5~0.6 N · m)

CORRECT USAGE

1. Installation place

- Do not install the unit in any of the following locations. Installing the Unit in the following locations may result in malfunction, electric shock, or burning.
- Locations subject to direct sunlight.
 - Locations subject to temperatures or humidities outside the range specified in the specifications.
 - Locations subject to corrosive or flammable gases.
 - Locations subject to dust (especially iron dust) or salts.
 - Locations subject to condensation as the result of severe changes in temperature.
 - Locations subject to shock or vibration.
- Take appropriate and sufficient countermeasures when installing systems in the following locations. Inappropriate and insufficient measures may result in malfunction.
- Locations subject to static electricity or other forms of noise.
 - Locations subject to strong electromagnetic fields.
 - Locations subject to possible exposure to radioactivity.
 - Locations close to power supplies.

2. Cleaning

Never use paint thinner to clean the product. Doing so might metal discolor the surface.

3 Power supply

Take appropriate measures to ensure that the specified power with the rated voltage and frequency is supplied. Be particularly careful in places where the power supply is unstable. An incorrect power supply may result in malfunction.

SPECIFICATIONS

● Ratings

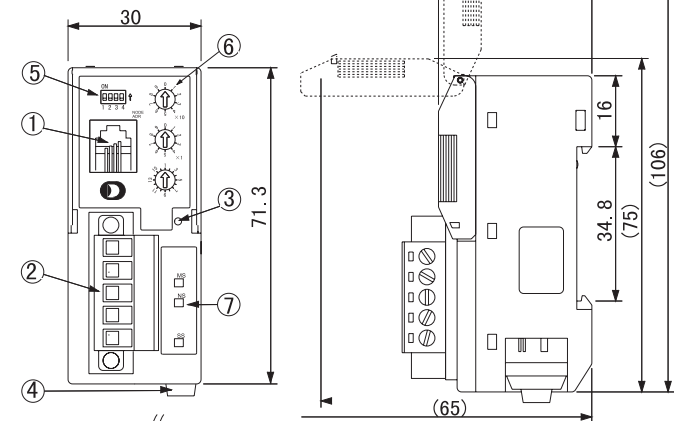
Type	E3X-DRT21	E3X-SRT21	E3X-CIF11
Communication Type	DeviceNet	CompoBus/S	RS422
Power supply voltage (Internal power)	11 to 25VDC	14 to 26.4VDC	11.4 to 26.4VDC (12VDC-5% to 24VDC+10%)
Current consumption(※1)	70mA max	30mA max	40mA max
Ambient temperature	-20 to 55°C		
Ambient Humidity	35 to 85% (with no condensation)		
Storage temperature	-30 to 70°C		
Weight in packing case	155g typ.	150g typ.	200g typ.
Applicable Sensor (※2)	E3X-DA6/8, -DAB6/8, -DAG6/8, -DA6/8TW, -DA6-P, E39-TM1		
Max number of Sensor	16	14	16
Applicable extension connector for sensor	E3X-CN02 (Codeless)	E3X-CN02 (Codeless)	E3X-CN12(with Code) E3X-CN02(Codeless)

(※1) This value is not included the current consumption of sensors.

(※2) Prewire type (E3X-DA11/21/41/51-N, -DAB11-N etc.) and Waterproof Type (E3X-DA14V etc.) are not applicable because sensor power can not reset. The type(E3X-DA6/8, -DAB6/8, -DAG6/8, -DA6/8TW) according to the different Lot No.(the printed word "MADE IN CHINA" on the cover without underline) will maybe not applicable.

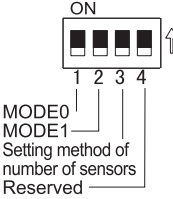
NOMENCLATURE AND FUNCTION / DIMENSIONS (UNIT:mm)

E3X-DRT21



- Mobile Console (E3X-MC11) Connector
In connecting with Mobile Console, monitoring of the incident light amount and explicit messaging are not allowed.
- DeviceNet Communication Connector
Sensor power is supplied from this connector.
- Sensor Reset Switch
Sensor is reset by pushing switch.
- Sensor Power Connector
Power is supplied to all sensors through this connector. Never remove connector from the Unit.

⑤ DIP switch



(All switches are factory-set to OFF)

<PC word allocation>

Set the PC word allocation(IN area) and the type of data.

SW1 (MODE0)	SW2 (MODE1)	PC word allocation	Max number of sensor
OFF	OFF	Remote I/O communications 1 word	13
ON	OFF	Remote I/O communications 2 words	16
OFF	ON	Remote I/O communications 2 words and monitoring of incident light amount	16
ON	ON	Not allowed	—

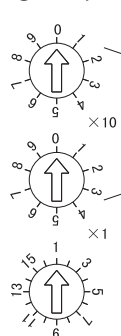
<Setting method of number of sensors>

SW3	Setting method
OFF	Rotary switch
ON	Configurator or Explicit messaging

<Reserved>

Always OFF.

⑥ Rotary switch



DeviceNet Node Number
Setting range 00 to 63 (64 to 99 is not allowed.)
(The switch is factory-set to 00)

Number of Sensors
Set the number of sensors. When SW3 is ON, the setting is invalid.
(The switch is factory-set to 1)

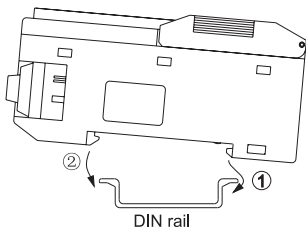
⑦ Indicators

Indicator	Color	State	Description
MS	Green	ON	Normal
		Flashing	No setting yet
		ON	Critical trouble
NS	Green	ON	DeviceNet On-line
		Flashing	DeviceNet On-line Communication not ready
		ON	DeviceNet critical trouble
SS	Green	ON	Communicating with sensors
		Red	Communications error with sensors
		OFF	Waiting for sensor communications / No power supply

MOUNTING

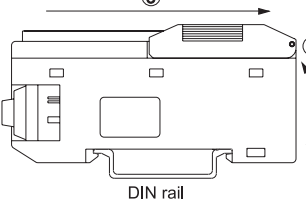
● Mounting

- Engage hook (the opposite side of sensor power connector(cable)) on the DIN rail.
 - Push hook(the side of sensor power connector(cable)) on to the DIN rail.
- Note: Engage the hook ① first, otherwise it may cause deterioration of mechanical strength.

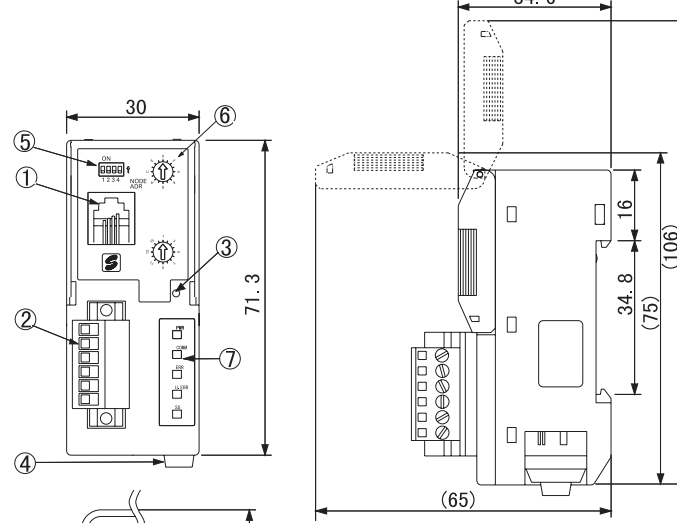


● Removing

Push forward ③ and raise hook ④ (the opposite side of sensor power connector(cable)).

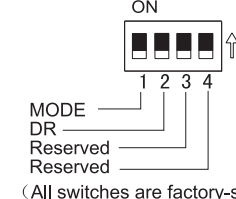


E3X-SRT21



- Mobile Console (E3X-MC11) Connector
Sensor power is supplied from this connector.
- CompoBus/S Communication Connector
Sensor power is supplied from this connector.
- Sensor Reset Switch
Sensor is reset by pushing switch.
- Sensor Power Connector
Power is supplied to all sensors through this connector. Never remove connector from the Unit.

⑤ DIP switch



(All switches are factory-set to OFF)

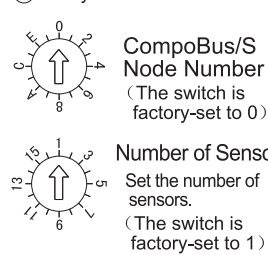
<Max number of sensor>

SW1 (MODE)	Max number of sensor	Number of allocated node
OFF	6	1 input
ON	14	2 input

<Reserved>

Always OFF.

⑥ Rotary switch



CompoBus/S Node Number
(The switch is factory-set to 0)

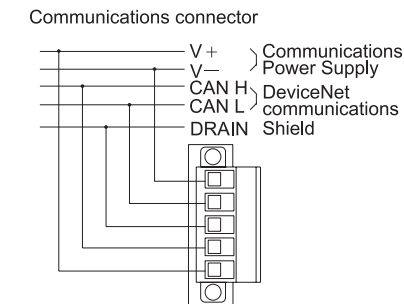
Number of Sensors
Set the number of sensors.
(The switch is factory-set to 1)

<Communications Mode>

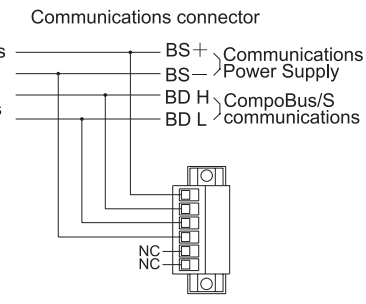
SW2 (DR)	Communications mode
OFF	High-speed mode
ON	Long-distance mode

WIRING

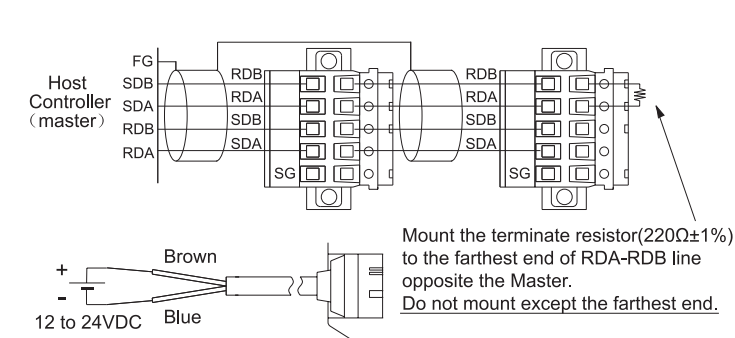
E3X-DRT21



E3X-SRT21



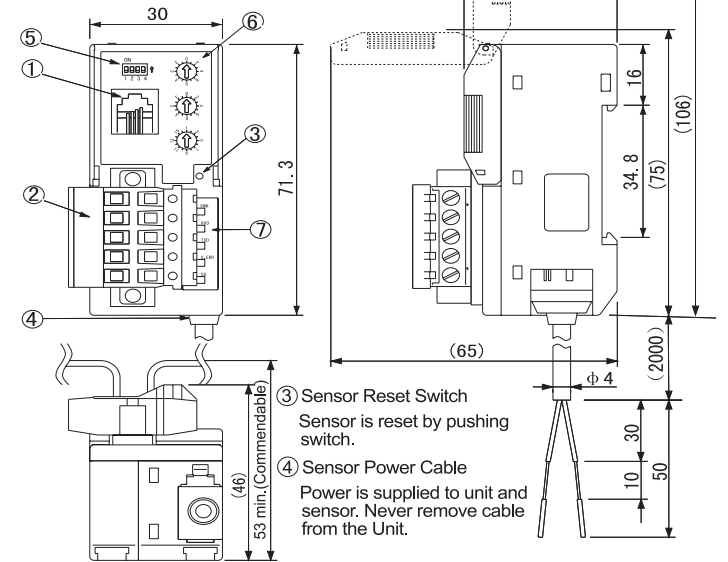
E3X-CIF11



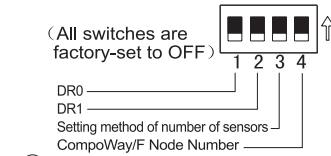
Mount the terminate resistor(220Ω±1%) to the farthest end of RDA-RDB line opposite the Master. Do not mount except the farthest end.

E3X-CIF11

- Mobile Console (E3X-MC11) Connector
In connecting with mobile console, CompoWay/F message is not transmitted.
- RS-422 Communications Connector

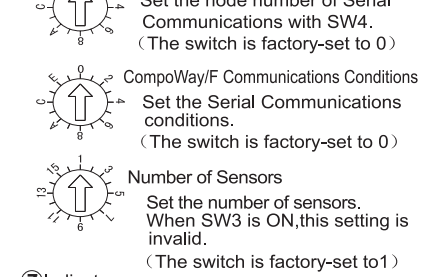


⑤ DIP switch



(All switches are factory-set to OFF)

⑥ Rotary switch



CompoWay/F Node Number
Set the node number of Serial Communications with SW4.
(The switch is factory-set to 0)

CompoWay/F Communications Conditions
Set the Serial Communications conditions.
(The switch is factory-set to 0)

Number of Sensors
Set the number of sensors. When SW3 is ON, this setting is invalid.
(The switch is factory-set to 1)

<Communications Baud rate>

Set CompoWay/F Communications Baud rate.

SW1 (DR0)	SW2 (DR1)	Baud rate
OFF	OFF	9600bit/s
ON	OFF	19200bit/s
OFF	ON	38400bit/s
ON	ON	57600bit/s

<Setting method of number of sensors>

Change the method setting the number of sensors.

SW3	Setting method
OFF	Rotary switch
ON	CompoWay/F messaging

<CompoWay/F Node Number>

DIP Switch SW4	Rotary switch	Node Number
OFF	0~F	0~15
ON	0~F	16~31

<CompoWay/F Communications Conditions>

Rotary switch	Communications Conditions	Data bit length	Parity	Stop bit length
0	7	Even	2	
1	7	Odd	2	
2	7	None	2	
3	7	Even	1	
4	7	Odd	1	
5	7	None	1	
6	8	Even	2	
7	8	Odd	2	
8	8	None	2	
9	8	Even	1	
A	8	Odd	1	
B	8	None	1	
C to F	Not allowed			

PRECAUTIONS IN USING THE PRODUCT

When the product is used under the circumstances or environment below, ensure adherence to limitations of the ratings and functions. Also, take countermeasures for safety precautions such as fail-safe installations.

- Use under circumstances or environment which are not described in the instruction manual.
- Use for nuclear power control, railway, aircraft, vehicle, incinerator, medical equipment, entertainment equipment, safety device etc...
- Use for applications where death or serious property damages is possible and extensive safety precautions are required.

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