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本操作手册上给出的信息还会得到进一步地校核，必要的修订将会包含在后续版本中，我们对您提出的任何建议表示感谢。

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<span></span>	<b>注意</b>
<span></span>	装置尺寸图，安装和连接说明，接线图和技术数据都包含在装置用户说明书里。
<span></span>	可以通过网站( <a href="http://www.siemens.com.cn/ea">http://www.siemens.com.cn/ea</a> ) 中的继电保护产品下载区域来下载相应的用户说明书。

#### 安全注意事项

该手册包含了一些与人身安全和避免财产损失有关的注意事项。

但是，这里并不包括对于问题设备(模块,装置)在安装，服务和维护中的完整安全措施。详情请参考用户说明书，这些知识是必须了解的。

<span></span>	<b>警告</b>
<span></span>	<b>会造成严重的人员伤害或者财产损失</b>
<span></span>	在运行过程中，取决于不同的设计 and 应用，可能在装置和模块中产生危险电压。
<span></span>	✦ 请严格遵守下文“合格的电力操作人员”中的介绍

#### 合格的电力操作人员

只有合格的电力操作人员可以对本手册中提到的设备(模块，装置)进行调试和操作。该手册中提到的合格的电力操作人员，指那些可以作为电力技术人员来阐述技术条款的人员。这些人可以根据安全技术的标准，对装置，系统和电路进行调试，停机，接地以及上标签。

#### 按规定使用

该设备(装置，模块)只可用作样册和技术说明中的这些应用，只可与西门子建议或批准和第三方的设备一起使用。

产品的无故障和安全运行基于以下条件：

- 正确的运输
- 正确的储藏，设置和安装
- 正确的运行和维护

<span></span>	<b>警告</b>
<span></span>	<b>会造成死亡，严重的人身伤害或者巨大的财产损失</b>
<span></span>	不遵守如下措施可能会造成死死亡，人身伤害或者巨大的财产损失。
<span></span>	✦ 在开始任何接线之前，设备接地端口必须已接地。
<span></span>	✦ 所有与电源连接的回路元件都会产品危险电压。
<span></span>	✦ 即使是在断开电源后也可能设备里会有危险电压(电容器可能带电)
<span></span>	✦ 有暴露在外 <span></span> 的电流互感器电路的装置不能运行。在设备断开连接前，确保电流互感器的回路是短路的。
<span></span>	✦ 不可以超过用户说明书“技术参数”部分描述 <span></span> 的限值。在测试和调试阶段也要注意这一点。

如果想了解更多信息，或者个别产品出现了一些特殊的问题，无法通过产品说明书的描述程度进行处理，可以向当地西门子公司或代理商寻求帮助。

<span></span>	<b>警告</b>
<span></span>	<b>激光辐射! 会伤害眼睛</b>
<span></span>	该装置可能有一类激光。
<span></span>	✦ 不要直视光线。

<span></span>	<b>小心</b>
<span></span>	<b>由于静电会造成损害</b>
<span></span>	数字式继电器的印刷回路板含有CMOS 电路。在运行状态下，不可以撤出或插入！要小心操作该模块，以防由于静电而产生的任何可能的损害。
<span></span>	✦ 对于单个模块的任何必要的操作，都必须遵守静电危害成分(EEC)中关于操作的建议。
<span></span>	✦ 在安装情况下，该模块没有危险。

<span></span>	<b>注意</b>
<span></span>	<b>旧电池处理</b>
<span></span>	只有相同型号的电池或是由厂家推荐认可的其他电池才可以替换装置内的电池。不规范的替代会引起爆炸危险。请参照本国相关标准 或者国际标准，来处理废旧电池。

只有受过专业培训的技术人员才可以维修带电池的电路和更换锂电池。

只能更换带CR2032的电池。使用另外的电池可能会带来着火或爆炸的风险。详情请参考用户说明书中的安全条例。

控制电路的接线必须要与其它带末端用户需求的电路分开。

类型1 如果是面板表面式安装或者面板嵌入式安装，周围环境温度最高为70 °C (158 °F)，装置正常运行。

输入电压范围上限: 300 V

<span></span>	<b>小心</b>
<span></span>	<b>会有火灾或化学烧伤的危险</b>
<span></span>	如果有误操作，本装置内的电池会有引起火灾或化学烧伤的危险。
<span></span>	✦ 不要反复充电，拆卸，加热高于100 <span> </span> °C (212 <span> </span> °F) 或是焚化。
<span></span>	✦ 快速敏捷的处置使用的电池。
<span></span>	请远离儿童！

<b>电流输入</b>	
导线横截面	AWG 14-12 (2.6 mm <sup>2</sup> 到 3.3 mm <sup>2</sup> )
使用接线头	AWG 14-10 (2.6 mm <sup>2</sup> 到 6.6 mm <sup>2</sup> )
导线剥皮长度 (实心导线)	10 mm (0.39 in) 到 11 mm (0.43 in); 只能使用铜导线.
允许端口螺丝的最大扭矩	1.2 Nm (10.6 lb.in.)

<b>电压、开入、开出、直流输入输出</b>	
导线横截面	AWG 18-15 (0.8 mm <sup>2</sup> 到 1.5 mm <sup>2</sup> )
导线剥皮长度	10 mm

<span></span>	<b>注意</b>
<span></span>	装置出厂时可插拔式端子已经与箱体 <span></span> 紧固。该端子建议使用截面积为0.8 mm <sup>2</sup> 到1.5 mm <sup>2</sup> 多股导线压接长度大于10 mm的冷压端子来连接。

<b>装置开箱</b>	
在出厂前，会对装置进行测试。装置在现场按照ISO 2248n <span></span> 标准的要求进行装箱。	
<span></span>	✦ 厂外运输前检查外包装。若外包装有损害，可能意味内部的装置也受到了损害。
<span></span>	✦ 请小心打开装置外包装; 不要太过用力。
<span></span>	✦ 目测该装置是否处于完善的机械状态。
<span></span>	✦ 根据交货通知单来检查随装置封装的附件，以确保所有的附件都完整。
<span></span>	✦ 保持外包装以防装置必须被储藏或运输到别的地方。
<span></span>	✦ 将损坏的装置退还给厂商，并注明损坏缺陷。使用符合ISO 2248n <span></span> 标准要求的原始包装或运输包装。

#### 装置重新包装

- 如果在进货检验后要储藏装置，用适合存库的包装进行打包。
- 若要运输装置，要用运输包装进行打包。
- 将附件、测试证和装置打包在一起。

初次上电或储藏后重新使用前，必须保护装置在运行现场放置至少2小时，以 确保装置内外温度一致，避免湿度和凝露的影响。

<b>储藏装置</b>	
<span></span>	✦ 只存储接受过进货检验的装置，这样可以确保相关证书都有效。在操作说明书上有关于进货检验的描述。
<span></span>	✦ SIPROTEC <span></span> 保护装置应储藏 <span></span> 在干燥干净 <span></span> 的房间内。装置及其他相关 <span></span> 备件储藏 <span></span> 温度范围应在−25 <span> </span> °C 至 +55 <span> </span> °C (-13 <span> </span> °F 至 131 <span> </span> °F)。
<span></span>	✦ 室内湿度不能太大以致会发生凝露或结冰。
<span></span>	✦ 西门子建议储藏 <span></span> 温度保持在+10 <span> </span> °C 至 +35 <span> </span> °C (50 <span> </span> °F 至 95 <span> </span> °F)，可避免装置中电源模块内的电解电容过早老化。
<span></span>	✦ 如果装置已储藏2年以上，连接到辅助电源充电1到2天。这样会使印刷电路板上的电解电容的电气特性再次恢复。
<span></span>	✦ 若装置需要 <span></span> 发货到外地，包装可以重复使用。但如果采用其它包装方式来代替，请参考ISO 2248 <span></span> 的运输规定。储藏时使用的包装不适用于运输。
<span></span>	✦ 装置中的锂电池的运输必须遵守危险物品运输条例 <span></span> 的国际需求（联合国推荐的特别条款188 <span></span> 条和国际航空运输协会的 <span></span> 危险物品运输条例规定的特别条款A45，以及国际民间航空组织的技术指令）。以上只适用于原装 <span></span> 电池和原装备用 <span></span> 电池。

#### 额定值

请观察在装置标牌上显示的额定值。

#### 运行温度

长期运行允许温度范围: - 25 °C 至 + 55 °C(+ 23 °F 至 + 131 °F)

#### 防护等级 (根据 IEC 60529)

环境污染等级 2	
嵌入式安装	前面IP 51
	背面IP 10

<b>运行前提条件</b>	
对于大多数的功能投入时，都需要输入密码。密码在装置所有运行部分都需要，例如配置，设定功能参数，或者启用测试程序。如果装置可以控制开关，则装置在发出控制开 <span></span> 关命令前，也需要密码验证。	
当从装置读出报警信息，运行数据或故障数据和装置 <span></span> 定时时，不需要密码验证。	
以下操作需要授 权，即需要密码验证：	

- 切换/标示/匹配
- 无连锁切换
- 测试和诊断
- 个别定值修改
- 硬件测试
- 定值组切换

根据装置具体功能范围，可以省略一个或多个密码验证。

通过DIGSI运行或从装置前面板操作时，也需要输入密码。配置参数，如功能范围，分配和逻辑功能配置，都只能通过DIGSI来修改。

<span></span>	<b>注意</b>
<span></span>	所有的预置密码都是6个数字000000。

为了防止密码误修改或非受授权用户操作，请务必在装置调试完成后修改密码。只能通过DIGSI程序来修改密码。

Disclaimer of Liability

Although we have carefully checked the contents of this publication for conformity with the hardware and software described, we cannot guarantee complete conformity since errors cannot be excluded.

The information provided in this document is checked at regular intervals and any corrections that might become necessary are included in the next releases. Any suggestions for improvement are welcome.

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NOTE

Dimensions, Installation and Connection Notes, General Diagrams, and Technical Data are part of the device manuals.

The device manuals are available in the SIPROTEC Download Area on the Internet (<http://www.siemens.com.cn/ea>).

Notes on Safety

This manual contains notes that must be adhered to for your own personal safety and to avoid damage to property.

However, it does not constitute a complete description of all safety measures required for installation, service, and maintenance of the equipment (module, device) in question. Details are to be taken from the device manual and those are mandatory.



WARNING

Danger of severe personal injury or substantial damage to property

Hazardous voltages may occur in devices and modules during operation depending on the design and application.

- Always observe the instructions given in "Qualified Electrical Engineering Personnel" below.

Qualified Electrical Engineering Personnel

Only qualified electrical engineering personnel may commission and operate the equipment (module, device) described in this document. Qualified electrical engineering personnel in the sense of this document are people who can demonstrate technical qualifications as electrical technicians. These persons may commission, isolate, ground and label devices, systems and circuits according to the standards of safety engineering.

Use as Prescribed

The equipment (device, module) may only be used for such applications as set out in the catalogs and the technical description, and only in combination with third-party equipment recommended and approved by Siemens.

Problem-free and safe operation of the product depends on the following:

- Proper transport
- Proper storage, setup, and installation
- Proper operation and maintenance



WARNING

Danger of death, personal injury or substantial property damage

Non-observance of the following measures can result in death, personal injury or substantial property damage.

- The equipment must be grounded at the grounding terminal before any connections are made.
- All circuit components connected to the power supply may be subject to hazardous voltages.
- Hazardous voltages may be present in equipment even after the supply voltage has been disconnected (capacitors can still be charged).
- Equipment with exposed current-transformer circuits must not be operated. Before disconnecting the equipment, ensure that the current-transformer circuits are shortcircuited.
- The limit values stated under "Technical Data" in the corresponding device manuals may not be exceeded. This must also be considered during testing and commissioning.

If you require further information, or if particular problems occur that are not handled in sufficient depth in the instructions of the respective product, you can request help through your local Siemens Office or representative.



WARNING

Laser radiation! Danger of eye injury

This device may contain a class 1 laser.

- Do not look directly into the beam.



CAUTION

Danger of damage due to static electrical charges

The printed circuit boards of numerical relays contain CMOS circuits. These shall not be withdrawn or inserted under live conditions! The modules must be so handled that any possibility of damage due to static electrical charges is excluded.

- During any necessary handling of individual modules the recommendations relating to the handling of electrostatically endangered components (EEC) must be observed.
- In installed conditions, the modules are in no danger.



NOTE

Battery disposal

The batteries must only be replaced with the same type or another type recommended by the manufacturer. Improper replacement involves explosion hazard. For disposing the batteries it is necessary to observe the local national/international directives.

Servicing of the circuitry involving the batteries and replacement of the lithium batteries shall be done by a trained technician.

Replace battery with CR2032 only. Use of another Battery may present a risk of fire or explosion. See device manual for safety instructions.

Field wires of control circuits shall be separated from other circuits with respect to the end use requirements.

Type 1 if mounted into a door or front cover of an enclosure. Surrounding air temperature tsurr: max. 70 °C (158 °F), normal operation.

Input voltage range UL: 300 V



CAUTION

Danger of fire or chemical burn hazard

The battery used in this device may present a fire or chemical burn hazard if mistreated.

- Do not recharge, disassemble, heat above 100 °C (212 °F) or incinerate.
- Dispose the used battery promptly.
- Keep away from children!

Current Terminals

Wire cross-section	AWG 14-12 (2.6 mm <sup>2</sup> to 3.3 mm <sup>2</sup> )
When using lugs	AWG 14-10 (2.6 mm <sup>2</sup> to 6.6 mm <sup>2</sup> )
Stripping length (for solid conductor)	10 mm (0.39 in) to 11 mm (0.43 in); only solid copper wires may be used.

Permissible tightening torque at the terminal screw	1.2 Nm (10.6 lb.in.)
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Voltage Terminals

Wire cross-section	AWG 18-15 (0.8 mm <sup>2</sup> to 1.5 mm <sup>2</sup> )
Stripping length	7 mm (0.28 in)



NOTE

The plug terminal is screwed tightly with the housing. The multi-conductor with cross-section 0.8 mm<sup>2</sup> to 1.5 mm<sup>2</sup> and the cold-pressed terminal with 10mm length are recommended.

Unpacking a Device

Devices are tested prior to delivery. Devices are packed on site in a way that meets the requirements of standard ISO 2248n.

- Check the packing for external transport damage. Damaged packing may indicate that the devices inside have also sustained damage.
- Unpack devices carefully; do not use force.
- Visually check the devices to ensure that they are in perfect mechanical condition.
- Check the enclosed accessories against the delivery note to make sure that everything is complete.
- Keep the packing in case the devices must be stored or transported elsewhere.
- Return damaged devices to the manufacturer, stating the defect. Use the original packaging or transport packaging that meets the requirements of standard ISO 2248.

Repacking a Device

- If you store devices after incoming inspection, pack them in suitable storage packaging.
- If devices are to be transported, pack them in transport packing.
- Put the accessories supplied and the test certificate in the packing with the device.

Before initial energization with supply voltage, or after storage, the relay shall be situated in the operating area for at least two hours in order to ensure temperature equalization and to avoid humidity influences and condensation.

Storing a Device

- Only store devices on which you have carried out an incoming inspection, thus ensuring that the warranty remains valid. The incoming inspection is described in the Operating manual.
- SIPROTEC devices must be stored in rooms, which are clean and dry. Devices or associated replacement modules must be stored at a temperature of -25 °C to +55 °C (-13 °F to 131 °F).
- The relative humidity must be at a level where condensate and ice is prevented from forming.
- Siemens recommends that you observe a restricted storage temperature range of +10 °C to +35 °C (50 °F to 95 °F), in order to prevent the electrolytic capacitors used in the power supply from aging prematurely.
- If the device has been in storage for more than 2 years, connect it to an auxiliary voltage for 1 to 2 days. This will cause the electrolytic capacitors to form on the printed circuit board assemblies again.
- If devices are to be shipped elsewhere, you can reuse their transport packaging. If using other packaging, ensure that the transport requirements according to ISO 2248 are met. Storage packaging for individual devices is not adequate for transport purposes.
- The lithium batteries contained in SIPROTEC devices meet all international requirements of the hazardous goods specifications for the various carriers (Special Provision 188 of the UN Recommendations on the Transport of Dangerous Goods, Special Provision A45 of the IATA Dangerous Goods Regulations, and the ICAO Technical Instructions). This only applies to the original battery or genuine replacement batteries.

Nominal Values

The nominal values shown on the name plate of the device have to be observed.

Operating Temperature

Permissible temperature range for permanent operation: -25 °C to +55 °C (+23 °F to +131 °F)

Degree of Protection (acc. to IEC 60529)

For use in environment with degree of pollution 2.

For the device		
	Panel flush mounting	Front IP 51 Rear IP 10

Operating Preconditions

For most of the operational functions, the input of passwords is necessary. This applies for all entries which concern the operation of the device, for example configuration, setting of functional parameters, or initiation of test procedures. If the device provides control functions which allow operation of the switch gear, passwords are equally required before any switching commands be carried out.

Password input is not required for read-out of annunciations, operating data or fault data, or for read-out of setting parameters.

The following ranges of access authorization are defined:

- switching/markings/matching
- non-interlocked switching
- tests and diagnosis
- individual parameters
- hardware tests
- parameter groups

Depending on the scope of functions of the device, one or the other access authorization may be omitted.

Input of the password is requested, if applicable, during operation with DIGSI or from the front of the device. Configuration parameters, e.g. functional scope, allocation, and configuration of the logical functions, can only be changed with DIGSI.



NOTE

All passwords are preset with the 6-figure code 000000.

You should change the passwords at last after completion of commissioning in order to prevent the device from unintentional alterations or from unauthorized operation. Passwords can be changed only by means of the program DIGSI.