

## MA213-05 (cn\_en) 安装说明

CombiTac unig  
高压模块 2.5 kV, 5 kV

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## MA213-05 (cn\_en) Assembly instructions

CombiTac unig  
High voltage module 2.5 kV, 5 kV

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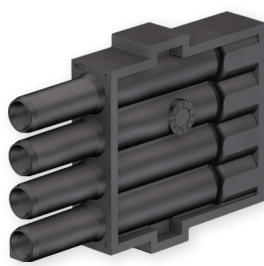
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### 2,5 kV (Ø 1,5 mm)

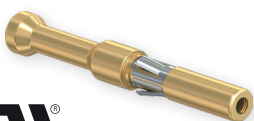
CT-E1,5-4/HV-B



CT-E1,5-4/HV-S



CT-BP1,5/0,5-1,5-HV



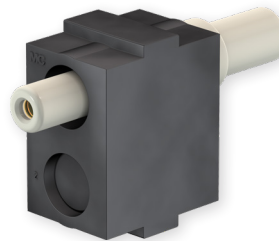
CT-SP1,5/0,5-1,5-HV



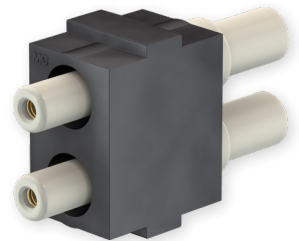
E229145

### 5 kV (Ø 3 mm)

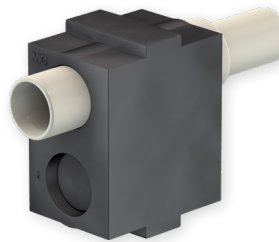
CT-E3-1/HV-B



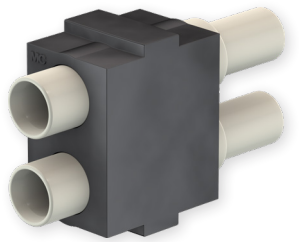
CT-E3-2/HV-B



CT-E3-1/HV-S



CT-E3-2/HV-S



CT-BP3/2,5-HV AU



CT-SP3/2,5-HV AU



E229145

## 安全须知

仅可使用 Stäubli 指定的组件和工具。自行装配时，切勿背离本手册所述的制备及装配说明，否则 Stäubli 无法保证产品安全性或性能达到官方技术参数。请勿以任何方式修改产品。

可与 Stäubli 元件插合的非 Stäubli 原厂制造的连接器的，在某些情况下，某些制造商甚至将其描述为“与 Stäubli 兼容”，但该连接器并不符合长期稳定安全的电连接要求，而且出于安全考虑，不得与 Stäubli 元件插合在一起。因此，Stäubli 对因此类连接器（即未经 Stäubli 批准）与 Stäubli 元件插合而造成的任何损失不承担任何责任。

如您未遵守上述警告，则 Stäubli Electrical Connectors (Stäubli) 不承担任何责任。



**IEC 60417-618**  
安装需电气专业知识

产品可由具备电气技能或受过此方面指导的人员依照适用的安全法规进行装配或安装。



**IEC 60417-6042**  
注意电击风险

请在断电状态下工作  
操作电气装置时，请遵守五项安全规定。  
各电气装置确定后，应按照规定顺序执行以下五项基本要求（除非另有必要理由）：  
- 完全分离；  
- 确保不会重新连接；  
- 确认无工作电压；  
- 进行接地和短路；  
- 针对临近带电部件提供防护。  
任何从事此工作活动的人员均应具备电气技能或受过此方面指导，或者由同等能力的人员监督。  
来源：EN 50110-1:2013

最终应用时，还应检查电击防护。

对于大于 DC 60 V 或大于 AC 30 V 的电压，必须测量以确认金属外壳到保护地 (PE) 的电阻。



**IEC 60417-6070**  
在负载下请勿断开

仅当额定电压不超过 AC 1000 V / DC 1500 V DC 时，连接器才可能在带电压的状态下断开和插合。  
当额定电压超过 AC 1000 V / DC 1500 V 时，仅在连接器插合状态下方可带电，且不允许在负载下进行断开和插合动作。这也适用于在单一型号中同时配置电连接模块与气体和液体模块的情况。

## Safety instructions

Use only the components and tools specified by Stäubli. In case of self-assembly, do not deviate from the preparation and assembly instructions as stated herein, otherwise Stäubli cannot give any guarantee as to safety or conformity with the technical data. Do not modify the product in any way.

Connectors not originally manufactured by Stäubli which can be mated with Stäubli elements and in some cases are even described as "Stäubli-compatible" by certain manufacturers do not conform to the requirements for safe electrical connection with long-term stability, and for safety reasons must not be plugged together with Stäubli elements. Stäubli therefore does not accept any liability for any damages resulting from mating such connectors (i.e. lacking Stäubli approval) with Stäubli elements.

Stäubli Electrical Connectors (Stäubli) does not accept any liability in the event of failure to observe these warnings.

### Installation, electrotechnical expertise

The products may be assembled and installed by electrically skilled or instructed persons duly observing all applicable safety regulations.

### Caution, risk of electric shock

Work in a de-energized state  
Follow the five safety rules, when working on electrical installations.  
After the respective electrical installations have been identified, the following five essential requirements shall be undertaken in the specified order unless there are essential reasons for doing otherwise:  
- disconnect completely;  
- secure against re-connection;  
- verify absence of operating voltage;  
- carry out earthing and short-circuiting;  
- provide protection against adjacent live parts.  
Any person engaged in this work activity shall be electrically skilled or instructed, or shall be supervised by such a person.  
Source: EN 50110-1:2013

Protection against electric shock shall be checked in the end-use applications too.

For voltages > DC 60 V or > AC 30 V, protective earthing (PE) measures of metal housings must be taken.

### Do not disconnect under load

Connecting and disconnecting when live is only permitted if the rated voltage does not exceed AC 1000 V / DC 1500 V.  
For rated voltages over AC 1000 V / DC 1500 V, the voltage must only be applied in mated condition, disconnecting under load or connecting when live is not permitted. This also applies for electrical connections in close proximity to fluid and gas connections.

## 安全

## Safety instructions



ISO 7000-0434B  
注意

每次使用连接器前,需提前检查外部是否有缺陷(尤其是绝缘层)如有安全疑虑,必须咨询专业人员或更换连接器。

带外壳应用的连接器的防水功能可参考相关产品的IP保护等级。

未插合的连接器必须防潮防尘。被污染的公母连接器不应插合使用。

**使用高压模块 2.5 kV 最大可达到 30 kHz。**

2.5 kV 高压模块的电气间隙和爬电距离符合 IEC 60664-1。该标准适用于 0 到 30 kHz 的频率。

包含外壳和 3 mm PE 触子 (CT-SP3/2,5-4/PE AU, 订货号 33.0529) 的配置需要一个额外的耦合器罩保护壁。PE 触针和 2.5 kV 模块插座的放置方式,必须能在外壳旋转 180°时,确保 PE 触针和 2.5 kV 模块插座之间无接触。

2.5 kV 高压模块只能与塑料导轨搭配使用 (CT-BS 订货号: 33.5606-...)。



产品使用说明或技巧

欲了解更多技术参数,请参阅产品目录。

## Caution

Each time the connector is used, it should previously be inspected for external defects (particularly the insulation). If there are any doubts as to its safety, a specialist must be consulted or the connector must be replaced.

The plug connectors are watertight in accordance with the product specific IP protection class.

Unmated plug connectors must be protected from moisture and dirt. The male and female parts must not be plugged together when soiled.

**High voltage module 2.5 kV used up to max. 30 kHz.**

Clearance and creepage distances of the 2,5 kV High Voltage module are according to IEC 60664-1. This standard is valid for frequencies from 0 to 30 kHz.

Configurations that include a housing and a 3 mm PE contact (CT-SP3/2,5-4/PE AU, Order No. 33.0529) require an additional protective wall for the coupler hood. The PE contact pin and 2.5 kV module sockets must be positioned in such a way, that no contact between the PE contact pin and 2.5 kV module socket is possible in case the housing is turned 180°.

The 2,5 kV High Voltage module is only to be used with plastic rails (CT-BS Order No.:33.5606-...).

## Useful hint or tip

For further technical data please see the product catalog.

2.5 kV 模块

2.5 kV module

工具准备

Tools required

(ill. 1)  
退针工具 CT-AWZ-2,5HV,  
订货号 33.3006  
S - 插针 触子 拔出一侧

(ill. 1)  
Extraction tool CT-AWZ-2,5HV,  
Order No. 33.3006  
S - Side for pin contact extraction

B - 插座触子拔出一侧

B - Side for socket contact extraction

D - 用于推出触子

D - For pushing out the contacts

(ill. 2)  
压接钳 CT-M-CZ,  
订货号: 33.3800  
定位器 MES-CZ-CT1,5-HV,  
订货号: 18.3810

(ill. 2)  
Crimping pliers CT-M-CZ,  
Order No.: 33.3800  
Locator MES-CZ-CT1,5-HV,  
Order No.: 18.3810

**i 注意事项:**  
操作说明 MA079  
[www.staubli.com/electrical](http://www.staubli.com/electrical)

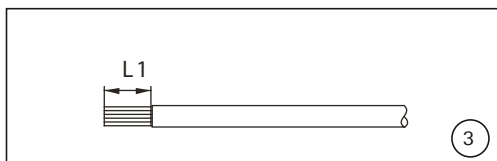
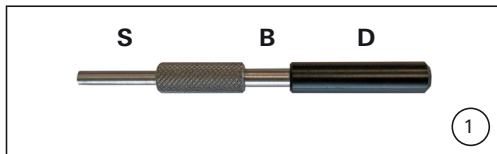
**i Note:**  
Operating instructions MA079  
[www.staubli.com/electrical](http://www.staubli.com/electrical)

电缆准备

Cable preparation

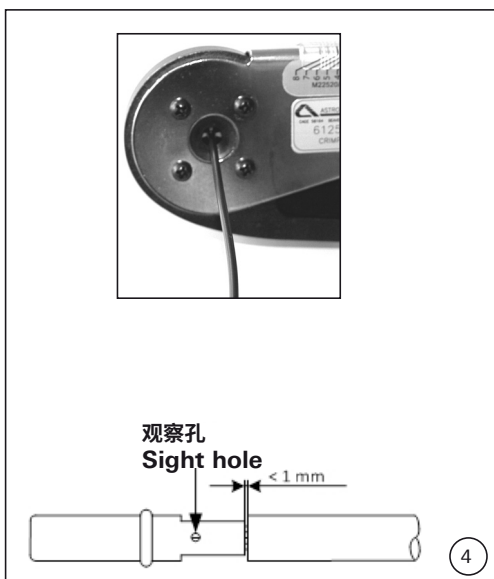
(ill. 3)  
将配件(例如格兰头)放置在电缆上。  
剥线处理。  
外壳应用时,多芯电缆的外层绝缘剥线  
长度请参考安装说明 MA213。  
单芯电缆(多芯电缆的内层绝缘)的剥线  
长度 L1 参考表 1。

(ill. 3)  
Place accessories (e.g. cable gland) on  
the cable.  
Strip cable and single conductors.  
The cable for installation in housing  
has to be adapted from case to case,  
see assembly instructions MA213.  
Dimension L1 for single conductors,  
see Tab. 1.



Tab. 1

插针/插座的标称直径 Nominal Ø pin/socket	导体横截面 Conductor cross section	压接钳 CT-M-CZ Crimping pliers CT-M-CZ		尺寸 L1 Dimension L1
		AWG-No.	Selector-No.	
1,5	0,5	20	4	9
	0,75	18	5	
	1,0	-	5	
	1,5	16	6	



## 电缆组装

### 线缆压接

#### (ill. 4)

将电缆芯体尽可能深地插入触子压接套筒。

#### ❗ 注意事项:

压接之前, 请确保电线绝缘层在压接套筒处终止。

压接前后, 必须能在压接套筒观察孔中看到连接导线。压接后, 压接套筒和电线绝缘层之间的间隙必须小于 1 mm, 且线芯不能被折弯。

## Cable assembly

### Crimp connection

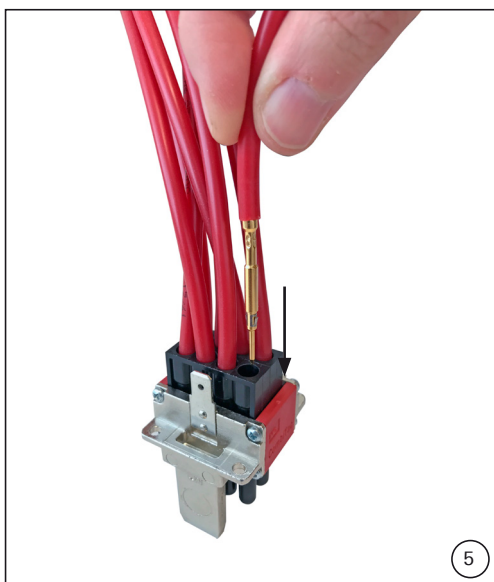
#### (ill. 4)

Insert wire into the contact crimping sleeve as far as it will go.

#### ❗ Note:

Before crimping, ensure that the wire insulation terminates at the crimping sleeve.

Attached conductors must be visible in the sight hole of the crimping sleeve both before and after crimping. After crimping, the gap between crimping sleeve and wire insulation must be less than 1 mm with no buckling of the wire.



## 触子装配

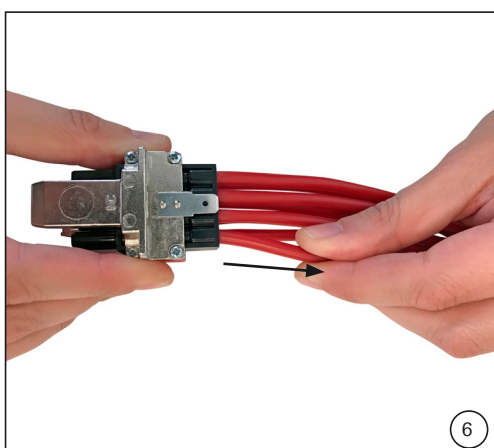
#### (ill. 5)

从背面将带有连接导线的触子压入触子支撑块, 直到夹子卡入到位。

## Contact assembly

#### (ill. 5)

From the back side, press contacts with attached leads into the contact inserts until the clip snaps into place.



## 检查触子装配

#### (ill. 6)

必须检查触子是否正确啮合: 轻轻拉动线缆以检查接触子是否在恰当的位置。

#### ❗ 注意事项:

确保没有因为装配的原因在线缆上额外施加了应力。

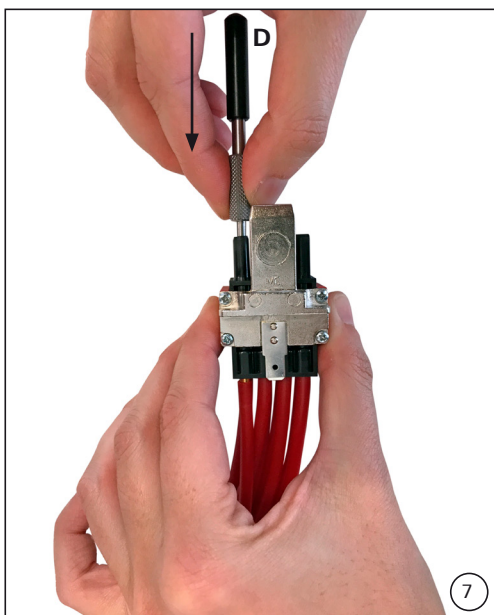
## Checking the contact assembly

#### (ill. 6)

The correct engagement of the contacts must be checked: Pull gently on the lead to check that the contact is in place.

#### ❗ Note:

Make sure that no pulling forces are exerted on the contacts via assembled leads.



### 触子拆卸

为了进行维修或因位置错位需修改, 请使用适配的退针工具将触子推出支撑块安装孔, 然后重新安装。

#### (ill. 7)

从正面(插接面)将退针工具插入支撑块安装孔位, 直到听到咔哒声。如有需要, 可以使用退针工具 D 侧将触子从孔位中辅助推出来。

#### **i** 注意事项:

为确保触子稳妥固定, 触子插入次数不得超过 3 次, 再次拔出次数不得超过 2 次。

### Contact disassembly

For repairs or in case of misplaced contacts, push contacts out of the contact base from the female side using the appropriate extraction tools, then reinsert.

#### (ill. 7)

Insert extraction tool into the contact insert from the front until you hear a click. If necessary, the pin **D** can then be used to push the contact out of the contact carrier.

#### **i** Note:

To ensure that the contacts hold securely, the contacts may be inserted no more than 3 times and extracted again no more than 2 times.

5 kV 模块

5 kV module

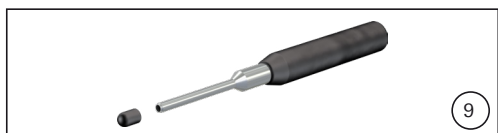
工具准备

Tools required



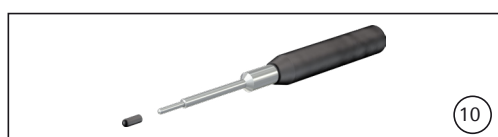
(ill. 8)  
用于插针/插座的插入工具 ME-WZ3,  
订货号:18.3010

(ill. 8)  
Insertion tool pin/socket ME-WZ3,  
Order No.: 18.3010



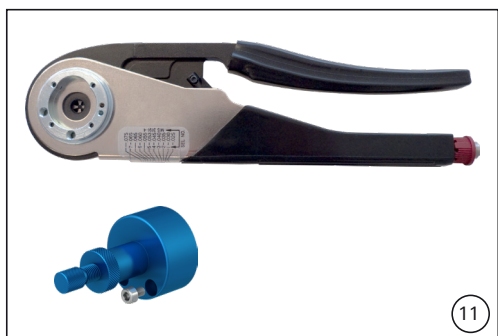
(ill. 9)  
用于插针的拔出工具 MSA-WZ3,  
订货号:18.3012

(ill. 9)  
Extraction tool pin MSA-WZ3,  
Order No.: 18.3012



(ill. 10)  
用于插座的拔出工具 MBA-WZ3  
订货号:18.3011

(ill. 10)  
Extraction tool socket MbA-WZ3  
Order No.: 18.3011



(ill. 11)  
压接钳 CT-M-CZ,  
订货号:33.3800  
定位器 MES-CZ,  
订货号:18.3801

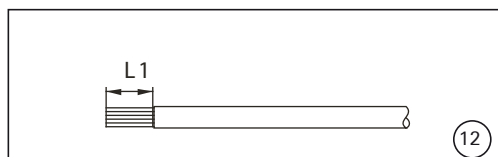
(ill. 11)  
Crimping pliers CT-M-CZ,  
Order No.: 33.3800  
Locator MES-CZ,  
Order No.: 18.3801

**注意事项:**  
i 操作说明 MA079  
[www.staubli.com/electrical](http://www.staubli.com/electrical)

**Note:**  
i Operating instructions MA079  
[www.staubli.com/electrical](http://www.staubli.com/electrical)

电缆准备

Cable preparation



(ill. 12)  
先将配件 (例如格兰头等) 穿过线缆。然  
后再将热缩套管 (33.5666) 穿过线缆, 套  
在线缆绝缘层上。

(ill. 12)  
Place accessories (e.g. cable gland,  
shrink sleeves) on the cable. Push  
shrink sleeve (33.5666) over the cable  
and part of the insulation.

剥线处理。  
外壳应用时, 多芯电缆的外层绝缘剥线  
长度请参考安装说明MA213。  
单芯电缆 (多芯电缆的内层绝缘) 的剥线  
长度 **L1** 参考表 2。

Strip cable and single conductors.  
The cable for installation in housing  
has to be adapted from case to case,  
see assembly instructions MA213.  
Dimension **L1** for single conductors,  
see Tab. 2.

Tab. 2

插针/插座的标称直径 Nominal Ø pin/socket	导体横截面 Conductor cross section	压接钳 CT-M-CZ Crimping pliers CT-M-CZ		尺寸 L1 Dimension L1
		AWG-No.	Selector-No.	
mm	mm <sup>2</sup>			mm
3	2,5	14	8	8
	4	12	8	

## 电缆组装

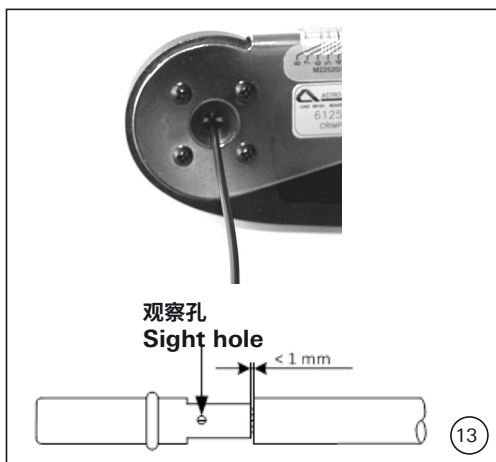
### 线缆压接

#### (ill. 13)

将电线尽可能深地插入触子压接套筒。

#### ⓘ 注意事项:

压接之前, 请确保电线绝缘层在压接套筒处终止。压接前后, 必须能在压接套筒观察孔中看到连接导线。压接后, 压接套筒和电线绝缘层之间的间隙必须小于 1 mm, 且线芯不能被折弯。



## Cable assembly

### Crimp connection

#### (ill. 13)

Insert wire into the contact crimping sleeve as far as it will go.

#### ⓘ Note:

Before crimping, ensure that the wire insulation terminates at the crimping sleeve. Attached conductors must be visible in the sight hole of the crimping sleeve both before and after crimping. After crimping, the gap between crimping sleeve and wire insulation must be less than 1 mm with no buckling of the wire.

## 触子装配

#### (ill. 14)

从背面将带有连接导线的触子压入触子支撑块, 直到止动位卡入到位。

热缩套管 (33.5666) 套在电缆及部分绝缘层处并收缩 (参见第 8 页, 图 14)。用热风枪加热热缩套管, 直到其内部胶液液化, 并且少量的胶从热缩套管中泄漏。



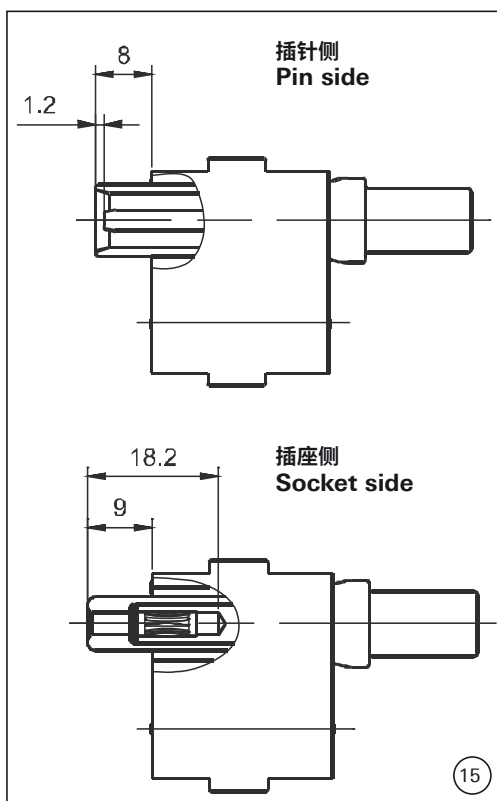
## Contact assembly

#### (ill. 14)

From the back side, press contacts with attached leads into the contact inserts until the clip snaps into place.

The shrink sleeve (33.5666) is placed over the cable and part of the insulation and shrunk (see ill. 14, page 8). Warm up the the crimping sleeve with a hot air gun until the glue inside the crimping sleeve liquefies and a small amount of glue leaks from the shrinking sleeve.





### 检查触子装配

(ill. 15)

必须检查触子是否正确啮合:轻轻拉动线缆以检查接触子是否在恰当的位置。

**注意事项:**

**i** 确保没有因为装配的原因在线缆上额外施加了应力。

### Checking the contact assembly

(ill. 15)

The correct engagement of the contacts must be checked: Pull gently on the lead to check that the contact is in place.

**Note:**

**i** To ensure that the contacts hold securely, the contacts may be inserted no more than 3 times and extracted again no more than 2 times.



### 触子拆卸

(ill. 16)

从正面将拔出工具 MSA-WZ3 插入触子安装孔位,然后将触子推出。

**注意事项:**

**i** 为确保触子稳妥固定,触子插入次数不得超过 3 次,再次拔出次数不得超过 2 次。

### Contact disassembly

(ill. 16)

Insert extraction tool MSA-WZ3 into the contact insert from the front and push the contacts out.

**Note:**

**i** To ensure that the contacts hold securely, the contacts may be inserted no more than 3 times and extracted again no more than 2 times.

注意事项 / Notes:

注意事项 / Notes:

注意事项 / Notes:

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