THERMAL PRINTER

TSP400

INSTALLATION MANUAL
GUIDE D'INSTALLATION
AUFSTELLANLEITUNG
MANUALE DI INSTALLAZIONE

TABLE OF CONTENTS

1. UNPACKING AND INSPECTION

ENGLISH

1-1. Unpacking

Check each item in the box against Figure 1-1 to make sure that you have everything (there should be five items).
If any of these items are missing, contact your supplier.

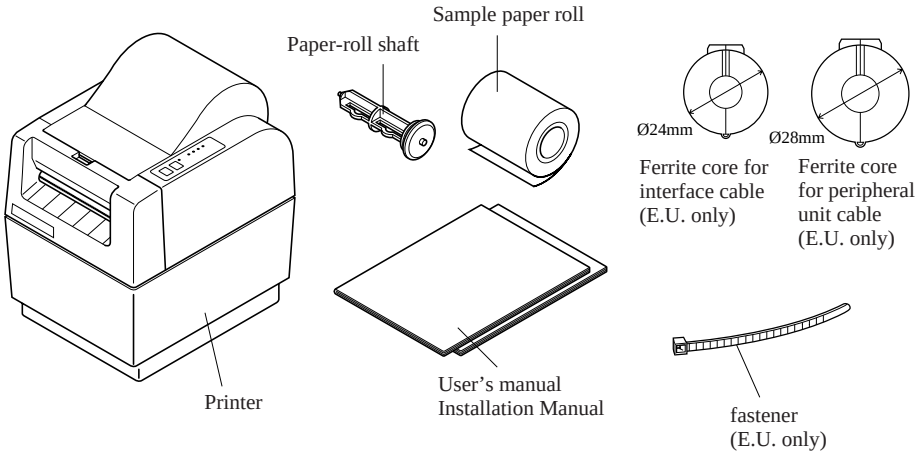


Fig. 1-1

1-2. Handling Notes

Before you start setting up your printer, make sure that you have a suitable place in which to locate it. By "a suitable place", we mean:

- Close to an easily accessible socket-outlet.
- A firm, level surface which is fairly vibration-free
- Away from excessive heat (such as direct sunlight, heaters, etc)
- Away from excessive humidity
- Away from excessive dust
- With access to a steady power supply that is not subject to power surges. For example, do not connect the printer to the same circuit as a large, noise-producing appliance such as a refrigerator or an air conditioner.

NOTE: Make sure that the line voltage is the voltage specified on the printer's identification plate.

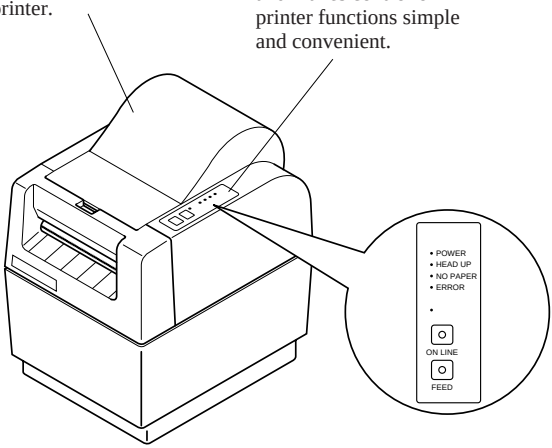
2. PARTS IDENTIFICATION AND NOMENCLATURE

To get acquainted with the printer's components and capabilities, refer to Figure 2-1.

Printer cover
Protects the print head and other internal components of your printer.

Control panel
Indicates printer status and makes control of printer functions simple and convenient.

Automatic paper cutter
(Controlled by command)



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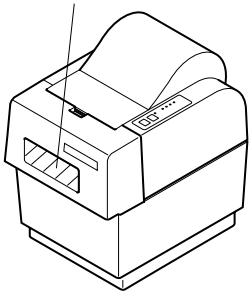
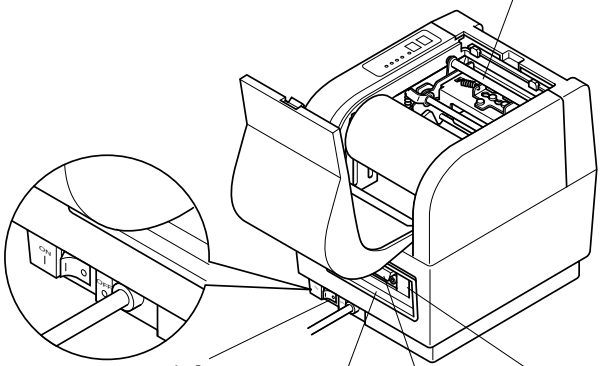


(TSP442)

Release bar
Opens and closes the print head unit which holds the paper against the platen.



Power switch
Switches power on or off.

Connector cover

Peripheral drive connector
Only connects to peripheral units such as each drawers, etc.

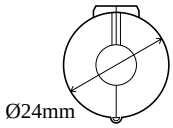
Interface connector
Connects the computer to the printer.

Fig. 2-1

3. FERRITE CORE INSTALLATION *EUROPE ONLY

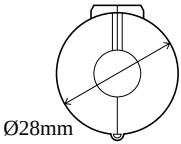
NOTE: Take special care when following the procedures listed below.

■ Two ferrite core noise filters, large and small, come packed with the printer. The small noise filter is for the RS232C serial interface cable, while the larger one is for the cable of peripheral units.



Product Code	09990728
Model Name	Ferrite Core TFC-20-10-10

For Interface Cable



Product Code	09990723
Model Name	Ferrite Core TFC-23-11-14

For Peripheral Unit Cable

■ The ferrite cores are packed so they are open, as shown in Fig. 3-2. If you find that a ferrite core is not open, use a pointed object to pry the plastic lock of the ferrite core apart (Fig. 3-1). When you do, take care not to damage the ferrite core or the plastic lock.

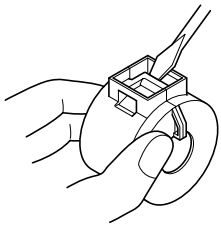


Fig. 3-1

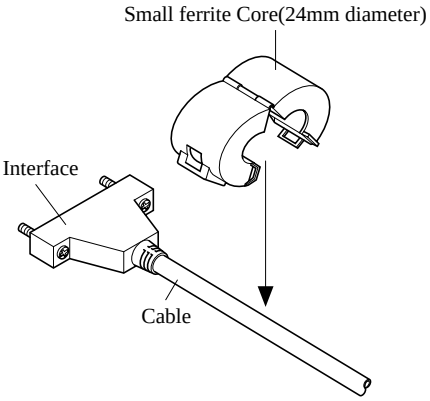
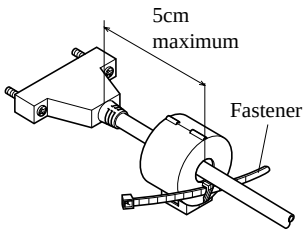
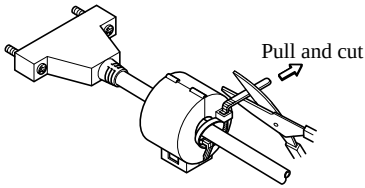


Fig. 3-2



Pass fastener through ferrite core.

Fig. 3-3



Pass fastener around cable and lock it.
Cut off excess with scissors.

Fig. 3-4

Installation of the interface cable ferrite core

■ Clamp the small ferrite core onto the interface cable as shown in Fig. 3-2. Take care to avoid damaging the interface cable when installing the ferrite core. The ferrite core should be anchored firmly in place with the fastener that comes with it, as shown in Fig.3-3 and 3-4.

Installation of the peripheral unit cable ferrite core

■ Clamp the large ferrite core onto the cable of the interface unit using the same procedure as you do for the interface cable ferrite core. With the peripheral unit cable ferrite core, however, you have to loop the cable as shown in Fig. 3-5.

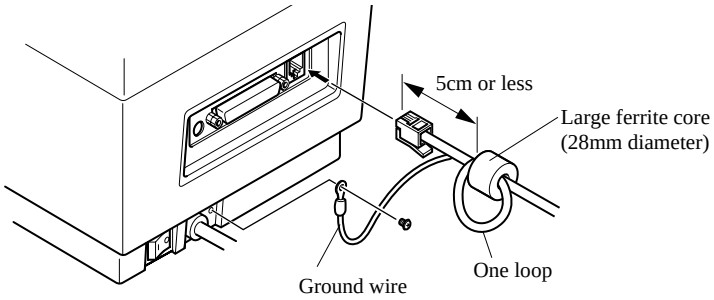


Fig. 3-5

4. CONNECTING THE INTERFACE CABLE

ENGLISH

4-1. RS-232C or RS-422A Serial interface

Follow the procedures below to connect the interface cable:

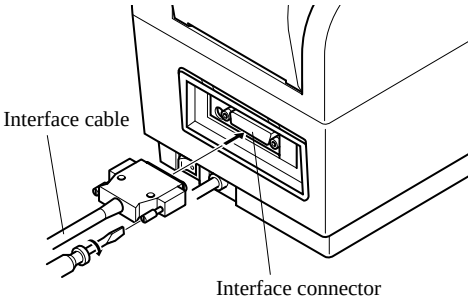


Fig. 4-1

① Switch off the power to the printer and computer.

② Insert the interface cable into the connector. (Be sure that the cable is oriented correctly before inserting it.)

③ Fasten the right and left screws to fix them in place on the connector.

④ Connect the other end of the interface cable to your computer.

NOTE: The data transfer conditions between the computer and the printer must be made compatible with the DIP switch settings on the printer. (Refer to "APPENDIX".)

4-2. Centronics-type Parallel interface

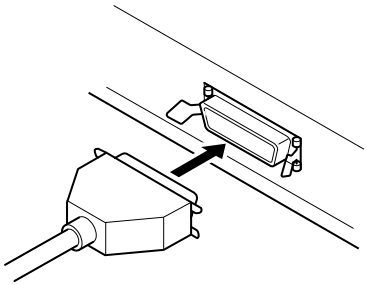


Fig. 4-2

① Switch off the power to the printer and computer.

② Insert the interface cable into the connector. (Be sure that the cable is oriented correctly before inserting it.)

③ Fasten the connector clasps.

④ Connect the other end of the interface cable to your computer.

TABLE DES MATIERES

L'appendice n'est pas traduit.

1. DEBALLAGE ET INSPECTION

1-1. Déballage

Vérifier chaque pièce de la boîte en se référant à la Figure 1 afin de s'assurer qu'on a bien tout reçu (il doit y avoir cinq pièces).
En cas d'absence d'une de ces pièces, contacter le fournisseur.

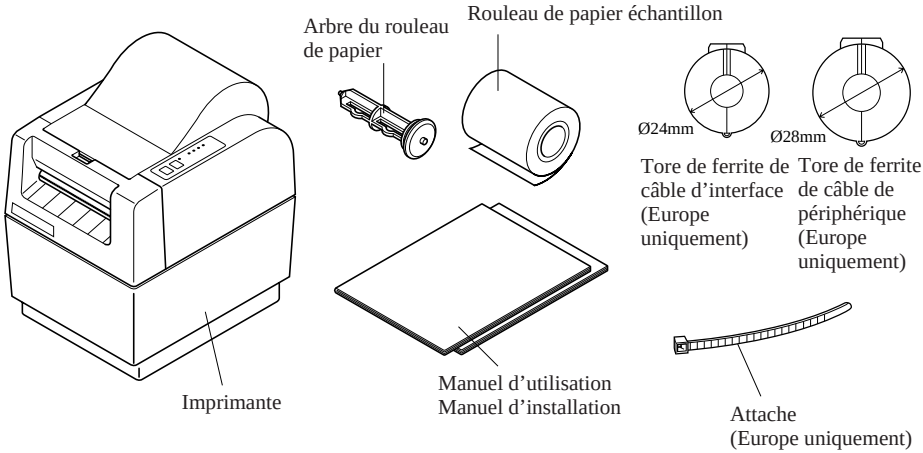


Fig. 1-1

1-2. Remarques sur la manipulation

Avant de commencer l'installation de l'imprimante, s'assurer qu'on dispose bien d'un endroit approprié pour la mettre. Un "endroit approprié" doit satisfaire aux conditions suivantes:

- A proximité d'une prise d'accès facile
- Surface ferme et à niveau pratiquement sans aucunes vibrations
- A distance de toute chaleur excessive (par exemple lumière du soleil directe, radiateurs etc.)
- A distance de toute humidité excessive
- A distance de poussière excessive
- Accès à une source d'alimentation constante ne subissant pas de pointes d'alimentation. Ainsi, par exemple, il ne faut pas relier l'imprimante au même circuit qu'un appareil important bruyant du genre réfrigérateur ou climatiseur.

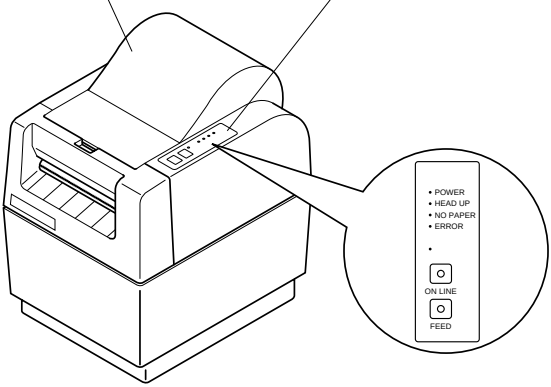
REMARQUE: S'assurer que la tension de ligne correspond à la tension indiquée sur la plaque signalétique de l'imprimante.

2. IDENTIFICATION DES PIECES ET NOMENCLATURE

Se référer à la Figure 2-1 pour se familiariser avec les composants et capacités de l'imprimante.

Couvercle d'imprimante
Protège la tête d'impression ainsi que d'autres composants internes de l'imprimante.

Tableau de commande
Indique l'état de l'imprimante et simplifie les fonctions de commande de l'imprimante tout en facilitant leur exécution.



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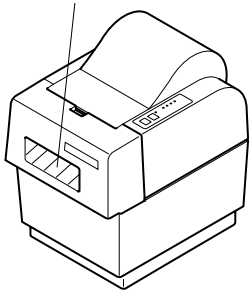
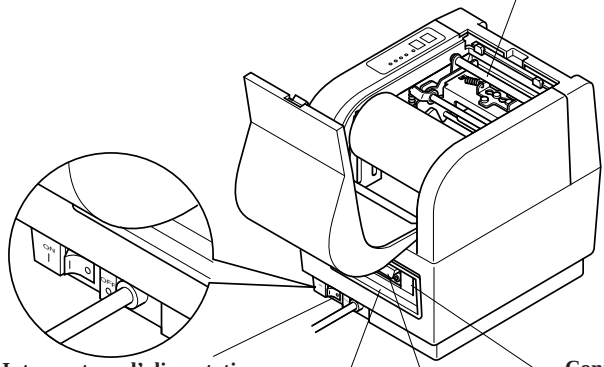
Couteau de papier automatique
(pilotage par commande)



(TSP442)

Barre de déclenchement
Ouvre et ferme la tête d'impression qui retient le papier contre le cylindre.



Interrupteur d'alimentation
Connecte ou coupe l'alimentation

Couvercle du connecteur

Connecteur d'interface
Relie l'ordinateur à l'imprimante

Connecteur d'entraînement de périphérique
Connexion uniquement à des périphériques du genre caisses enregistreuses etc.

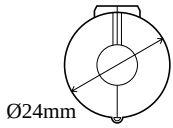
Fig. 2-1

3. INSTALLATION DU TORE DE FERRITE *EUROPE UNIQUEMENT

REMARQUE: Prendre des précautions spéciales en suivant les procédures indiquées ci-dessous:

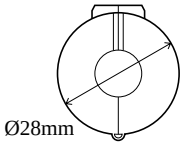
FRANÇAIS

■ Deux filtres antibruit à tore de ferrite, un grand et un petit sont emballés avec l'imprimante. Le petit filtre antibruit est prévu pour le câble d'interface série RS232C et le grand doit être utilisé pour le câble de périphérique.



Code du produit	09990728
Nom du modèle	Tore de ferrite TFC-20-10-10

Pour le câble d'interface



Code du produit	09990723
Nom du modèle	Tore de ferrite TFC-23-11-14

Pour le câble de périphérique

■ Les tores de ferrite sont livrés ouverts comme indiqué à la Fig. 3-2. Si un tore de ferrite n'est pas ouvert, utiliser un objet pointu pour forcer le verrouillage en plastique du tore de ferrite (Fig. 3.1). Lorsque c'est le cas, prendre soin de ne pas endommager le tore de ferrite ni le verrouillage en plastique.

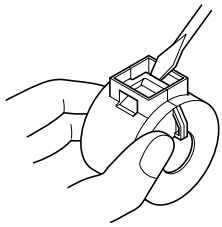


Fig. 3-1

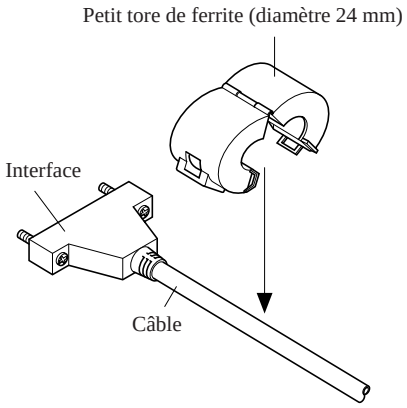
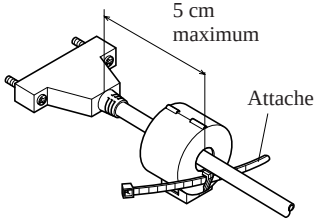
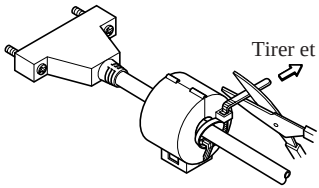


Fig. 3-2



Faire passer l'attache par le tore de ferrite

Fig. 3-3



Faire passer l'attache autour du câble et la bloquer. Couper toute partie qui dépasse avec des ciseaux.

Fig. 3-4

Installation du tore de ferrite de câble d'interface

■ Serrer le petit tore de ferrite au câble d'interface de la manière indiquée à la Fig. 3-2. Prendre les précautions d'usage pour éviter d'endommager le câble d'interface lors de l'installation du tore de ferrite. Il faut bien immobiliser le tore de ferrite au moyen de l'attache fournie, comme indiqué à la Fig. 3-3 et à la Fig. 3-4.

Installation du tore de ferrite de câble de périphérique

■ Serrer le grand tore de ferrite au câble d'interface en suivant la même procédure que celle du tore de ferrite du câble d'interface. Dans le cas du tore de ferrite du câble de périphérique, il faut toutefois faire une boucle avec le câble de la manière indiquée à la Fig. 3-5.

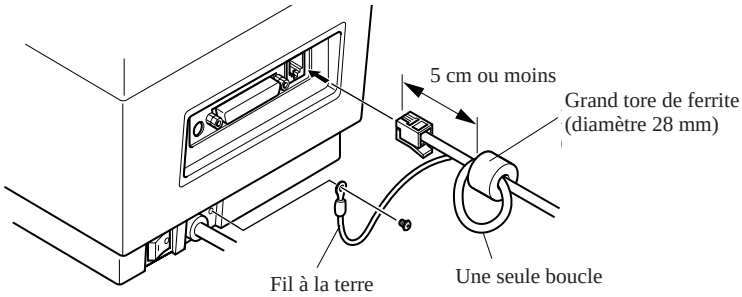


Fig. 3-5

4. Raccordement du câble d'interface

4-1. Interface série RS-232C ou RS-422A

Suivre les procédures indiquées ci-dessous pour relier le câble d'interface

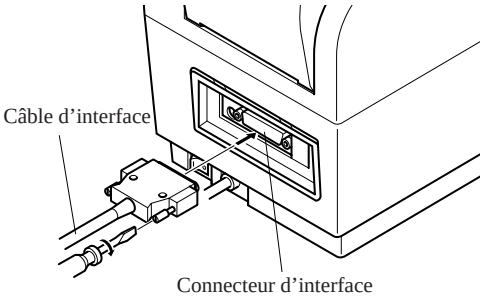


Fig. 4-1

① Couper l'alimentation à l'imprimante et à l'ordinateur.

② Insérer le câble d'interface dans le connecteur. (S'assurer que le câble est orienté correctement avant de l'insérer).

③ Serrer les vis droite et gauche pour les immobiliser sur le connecteur.

④ Relier l'autre extrémité du câble d'interface à l'ordinateur.

REMARQUE: Rendre compatibles les conditions de transfert de données entre l'ordinateur et l'imprimante en réglant les microrupteurs de l'imprimante en conséquence. (Se référer à "ANNEXE").

4-2. Interface parallèle type Centronics

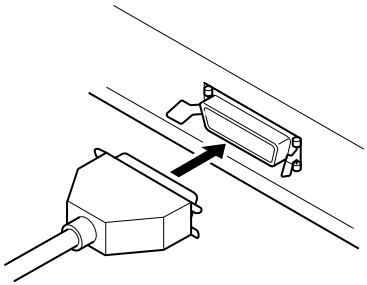


Fig. 4-2

① Couper l'alimentation à l'imprimante et à l'ordinateur.

② Insérer le câble d'interface dans le connecteur. (S'assurer que le câble est orienté correctement avant de l'insérer).

③ Fermer les attaches du connecteur.

④ Relier l'autre extrémité du câble d'interface à l'ordinateur.

INHALTSVERZEICHNIS

Der Anhang erscheint nur im englischen Teil dieser Bedienungsanleitung

1. AUSPACKEN UND KONTROLLE

1-1. Auspacken

Überprüfen Sie an Hand von Abbildung 1 die Teile in der Verpackung, und stellen Sie sicher, daß alle nötigen Positionen geliefert wurden; es sollten fünf sein. Falls eines der Teile fehlen sollte, wenden Sie sich bitte an Ihren Händler.

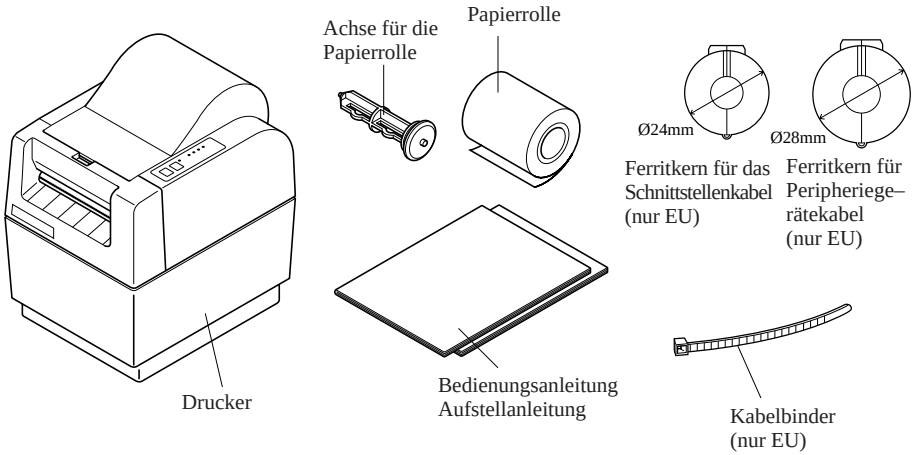


Abb. 1-1

1-2. Hinweise

Wählen Sie für die Aufstellung Ihres Druckers zunächst einen geeigneten Platz aus. Er sollte folgende Merkmale aufweisen:

- Er sollte nahe einer leicht zugänglichen Netzsteckdose sein.
- Er sollte eine stabile, ebene und erschütterungsfreie Oberfläche haben.
- Er sollte nicht übermäßiger Hitze ausgesetzt sein (wie direktem Sonnenlicht, einer Heizung usw.).
- In der Druckerumgebung sollte keine übermäßige Luftfeuchtigkeit herrschen.
- Sie sollte nicht übermäßig staubig sein.
- Die Stromversorgung sollte stabil und nicht anfällig für Störungen sein. Sie sollten den Drucker zum Beispiel nicht an einem Stromkreis zusammen mit großen, eventuell Störungen verursachenden Geräten wie Kühlschrank oder Klimaanlage betreiben.

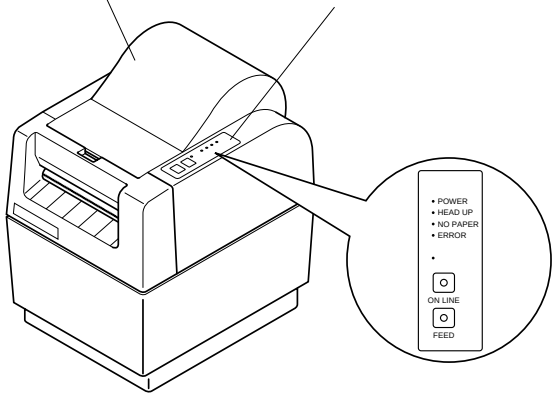
HINWEIS: Stellen Sie sicher, daß die Spannung Ihres Stromnetzes der Betriebsspannung entspricht, die auf dem Typenschild des Druckers angegeben ist.

2. FUNKTION UND BEZEICHNUNG DER EINZELNEN BAUTEILE

Machen Sie sich in Abbildung 2-1 mit den Bestandteilen des Druckers und seinen Funktionen vertraut.

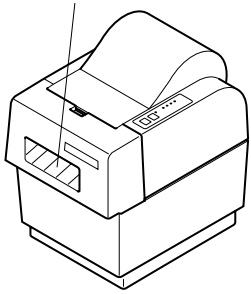
Druckerklappe
Sie schützt den Druckkopf und andere Bauteile im Inneres Ihres Druckers.

Bedienfeld
Es zeigt den Druckerstatus an, und mit ihm lassen sich die Druckerfunktionen bequem und einfach steuern.



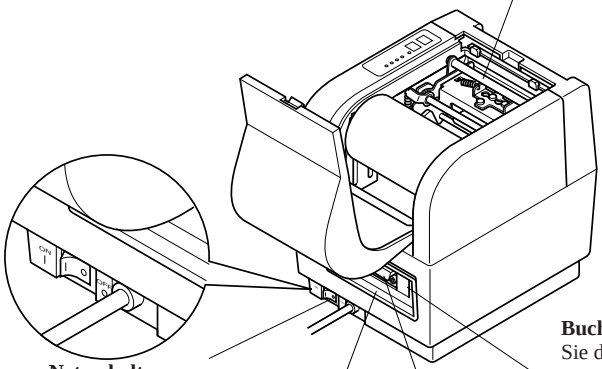
(TSP412)

Automatischer Papierschneider
(befehlsgesteuert)



(TSP442)

Entriegelungshebel
Mit ihm wird die Druckkopfeinheit entlastet und angepreßt, mit der das Papier an die Walze gedrückt wird.



Buchse für Peripheriegeräte
Sie dient zum Anschluß von Peripheriegeräten wie etwa Geldladen, etc.

Netzschalter
Mit ihm wird das Gerät an- und ausgeschaltet.

Abdeckung für die Schnittstellenbuchse

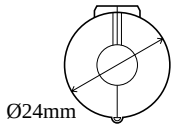
Schnittstellenbuchse
An ihr wird der Computer an den Drucker angeschlossen.

Abb. 2-1

3. INSTALLATION DER FERRITKERNE *NUR EUROPA

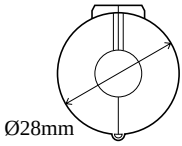
HINWEIS: Beachten Sie die folgenden Schritte besonders sorgfältig.

■ Zwei Ferritkerne zum Filtern von Störungen – ein großer und ein kleiner – werden mit dem Drucker geliefert. Der kleine Entstörungsfilter findet am Kabel für die serielle RS232C-Schnittstelle Verwendung, das große am Kabel für Peripheriegeräte.



Produkt-nummer	09990728
Modell	Ferritkern TFC-20-10-10

für das Schnittstellenkabel



Produkt-nummer	09990723
Modell	Ferritkern TFC-23-11-14

für das Peripheriegerätekabel

■ Die Ferritkerne werden in der offenen Stellung geliefert, siehe Abbildung 3-2. Sollte ein Ferritkern nicht offen sein, öffnen Sie den Plastikverschluß des Ferritkerns mit einem spitzen Gegenstand (Abbildung 3-1). Achten Sie dabei darauf, daß Sie weder Ferritkern noch Plastikverschluß beschädigen.

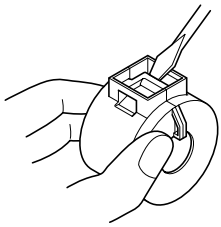


Abb. 3-1

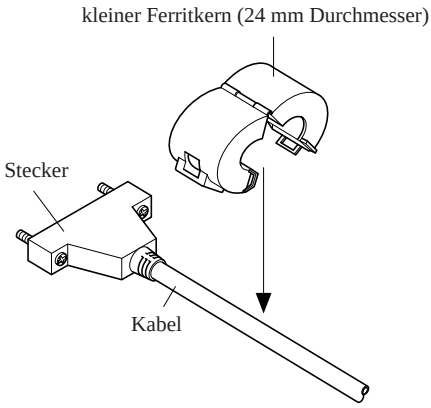
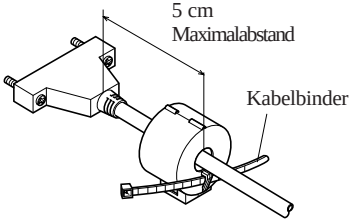
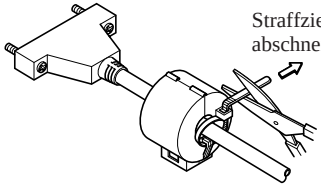


Abb. 3-2



Führen Sie den Kabelbinder durch die Öse am Ferritkern.

Abb. 3-3



Führen Sie den Kabelbinder um das Kabel, und ziehen Sie ihn fest. Schneiden Sie das überstehende Ende mit einer Schere ab.

Abb. 3-4

Installation des Ferritkerns für das Schnittstellenkabel

■ Klemmen Sie den kleinen Ferritkern auf das Schnittstellenkabel, siehe Abbildung 3-2. Achten Sie darauf, daß bei der Installation des Ferritkerns das Kabel nicht beschädigt wird. Der Ferritkern sollte mit dem mitgelieferten Kabelbinder sicher an seinem Platz befestigt werden. Siehe Abbildungen 3-3 und 3-4.

Installation des Ferritkerns für das Peripheriegerätekabel

■ Klemmen Sie den großen Ferritkern auf das Kabel für die Peripheriegeräte. Gehen Sie dabei genauso vor wie oben beim Schnittstellenkabel beschrieben. Bei diesem Ferritkern allerdings müssen Sie das Kabel in einer Schlaufe laufen lassen, wie in Abbildung 3-5 gezeigt.

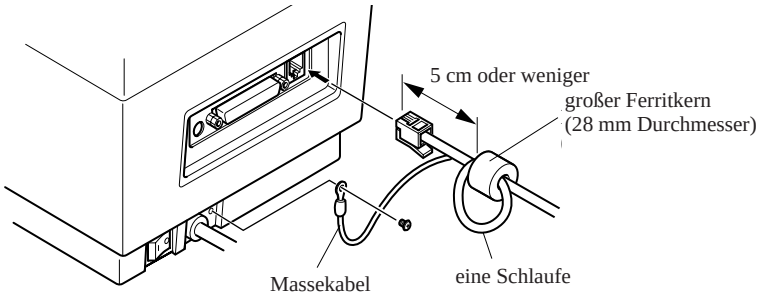


Abb. 3-5

4. ANSCHLUSS DES SCHNITTSTELLENKABELS

4-1. Serielle Schnittstellen RS-232C oder RS-422A

Gehen Sie zum Anschluß des Schnittstellenkabels vor wie unten beschrieben.

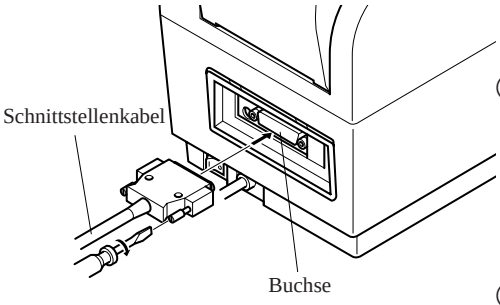


Abb. 4-1

① Schalten Sie Drucker und Computer aus.

② Stecken Sie das Schnittstellenkabel in die Buchse. (Vergewissern Sie sich, daß das Kabel korrekt ausgerichtet ist, bevor Sie den Stecker einstecken.)

③ Ziehen Sie die beiden Schrauben links und rechts fest, so daß der Stecker sicher an der Buchse befestigt ist.

④ Verbinden Sie das andere Ende des Kabels mit Ihrem Computer.

HINWEIS: Die Datenübertragungsparameter von Computer und Drucker müssen übereinstimmen. Sie werden mit den DIP-Schaltern des Druckers eingestellt (siehe »Anhang«).

4-2. Parallele Centronics-Schnittstelle

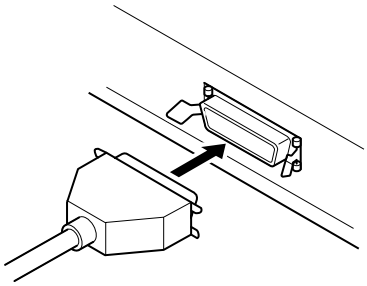


Abb. 4-2

① Schalten Sie Drucker und Computer aus.

② Stecken Sie das Schnittstellenkabel in die Buchse. (Vergewissern Sie sich, daß das Kabel korrekt ausgerichtet ist, bevor Sie den Stecker einstecken.)

③ Klammern Sie den Stecker an der Buchse fest.

④ Verbinden Sie das andere Ende des Kabels mit Ihrem Computer.

INDICE

L'Appendice appare solo nella sezione in inglese di questo manuale.

1. APERTURA E CONTROLLO DELLA CONFEZIONE

1-1. Apertura della confezione

Confrontare il contenuto della confezione con i componenti mostrati nella Figura 1-1 per controllare di aver ricevuto tutto (nella scatola dovrebbero esserci cinque componenti).
Nel caso mancasse qualcuna di queste parti, contattare il fornitore presso cui si è effettuato l'acquisto.

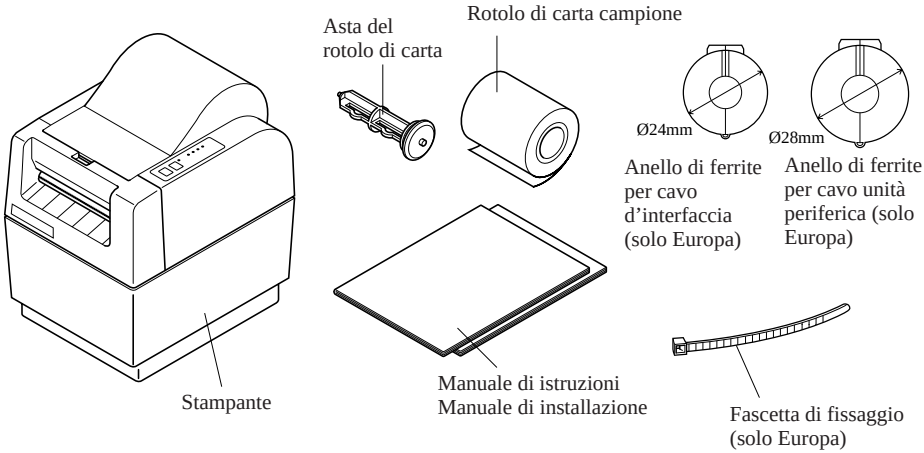


Fig. 1-1

1-2. Avvertenze

Prima dell'installazione della stampante, assicurarsi di disporre di un luogo adatto in cui collocarla. Per "luogo adatto", intendiamo un luogo:

- vicino ad una presa elettrica facilmente accessibile
- su una superficie solida e piana che non subisca vibrazioni
- lontano da fonti di calore eccessivo (come luce diretta del sole, apparecchi di riscaldamento, ecc.)
- lontano da umidità eccessiva
- lontano da polvere eccessiva
- con la possibilità di accedere ad una fonte di alimentazione elettrica stabile non soggetta a sbalzi improvvisi di tensione. Ad esempio, non collegare la stampante sullo stesso circuito elettrico di grossi apparecchi che producono disturbi come frigoriferi o condizionatori d'aria.

NOTA: Assicurarsi che la tensione del proprio impianto elettrico corrisponda a quella specificata sulla piastrina di identificazione della stampante.

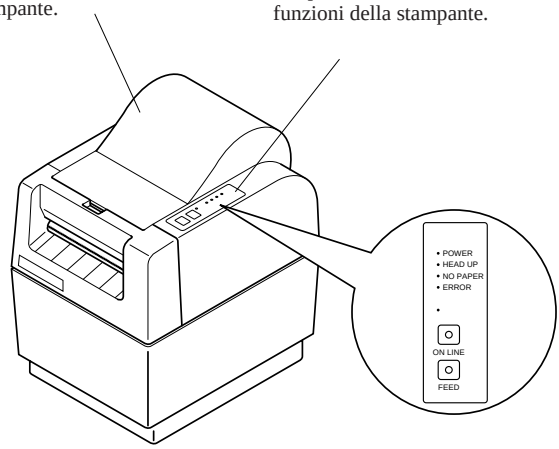
2. IDENTIFICAZIONE E NOMENCLATURA DELLE PARTI

Esaminare la Figura 2-1 per conoscere i componenti e le funzionalità della stampante.

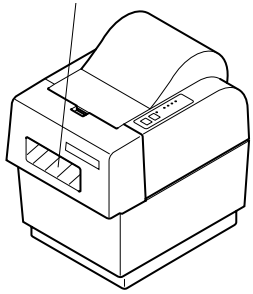
Coperchio della stampante
Protegge la testina di stampa e gli altri componenti interni della stampante.

Pannello di controllo
Indica lo stato della stampante e semplifica il controllo delle funzioni della stampante.

Taglierina della carta automatica
(Controllata tramite comando)

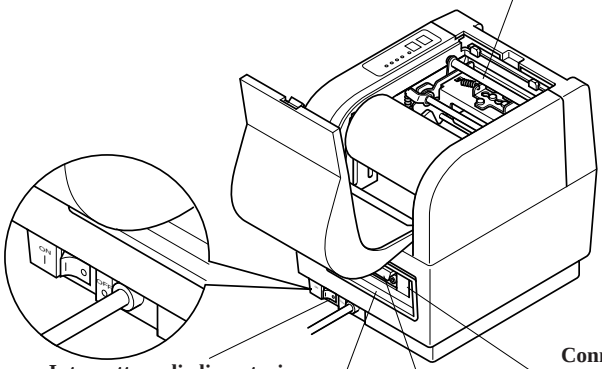


(TSP412)



(TSP442)

Barra di apertura
Serve per aprire e chiudere l'unità della testina di stampa che mantiene premuta la carta contro il rullo.



Interruttore di alimentazione
Serve ad accendere e spegnere la stampante.

Coperchio del connettore

Connettore unità periferica
Serve per collegare la stampante ad unità periferiche, come registratori di cassa, ecc.

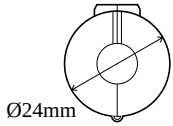
Connettore d'interfaccia
Serve per collegare la stampante al computer.

Fig. 2-1

3. INSTALLAZIONE DEGLI ANELLI DI FERRITE *SOLO EUROPA

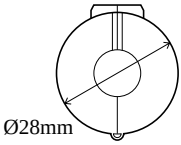
NOTA: Prestare particolare attenzione durante l'esecuzione delle procedure indicate di seguito.

■ Insieme alla stampante vengono forniti in dotazione due anelli di ferrite, uno grande e uno piccolo, da utilizzare come filtri per la soppressione di eventuali disturbi. Il filtro antidisturbi piccolo va fissato sul cavo d'interfaccia seriale RS232C, mentre quello grande serve per il cavo di collegamento di unità periferiche.



Codice prodotto	09990728
Modello	Anello di ferrite TFC-20-10-10

Per il cavo d'interfaccia



Codice prodotto	09990723
Modello	Anello di ferrite TFC-23-11-14

Per il cavo dell'unità periferica

■ Gli anelli di ferrite sono confezionati aperti, come mostrato in Fig. 3-2. Se si trova uno degli anelli di ferrite chiuso, aprirlo utilizzando un oggetto appuntito per far leva sul dispositivo di chiusura di plastica dell'anello di ferrite (Fig. 3-1). Fare attenzione a non danneggiare il nucleo di ferrite o il dispositivo di chiusura di plastica.

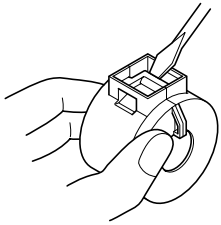


Abb. 3-1

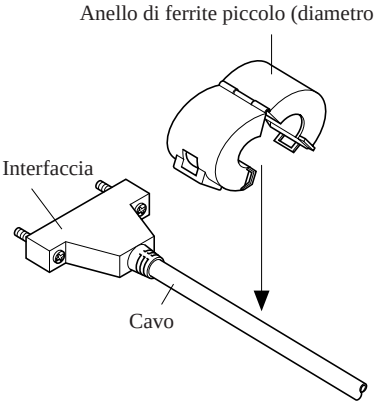
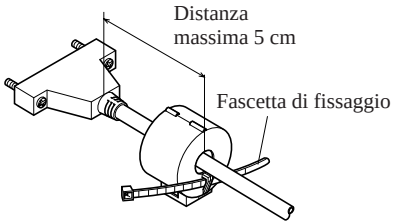
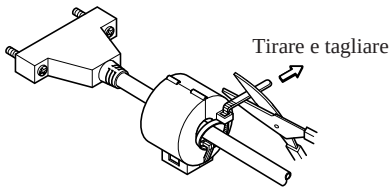


Fig. 3-2



Far passare la fascetta di fissaggio attraverso l'anello di ferrite.

Fig. 3-3



Far passare la fascetta di fissaggio intorno al cavo e bloccarla. Tagliare la parte in eccesso con delle forbici.

Fig. 3-4

Installazione dell’anello di ferrite del cavo d’interfaccia

■ Fissare l’anello di ferrite piccolo sul cavo d’interfaccia come mostrato in Fig. 3-2, facendo attenzione a non danneggiare il cavo d’interfaccia. L’anello di ferrite va saldamente bloccato in posizione con la fascetta di fissaggio fornita in dotazione, come mostrato nelle Fig. 3-3 e 3-4.

Installazione dell’anello di ferrite del cavo dell’unità periferica

■ Fissare l’anello di ferrite grande sul cavo dell’unità periferica eseguendo la stessa procedura vista per l’anello di ferrite del cavo d’interfaccia. Tuttavia, quando si applica l’anello di ferrite sul cavo dell’unità periferica, è necessario fare un cappio al cavo come mostrato in Fig. 3-5.

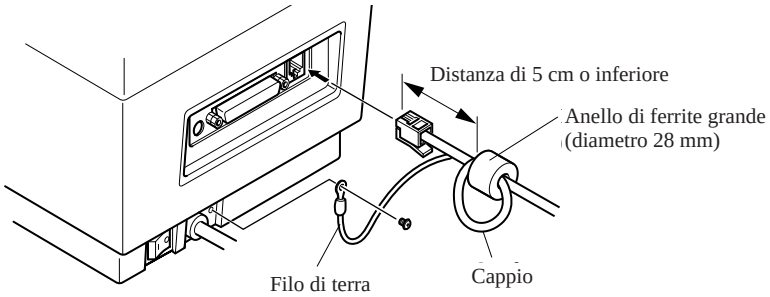


Fig. 3-5

4. COLLEGAMENTO DEL CAVO D'INTERFACCIA

4-1. Interfaccia seriale RS-232C o RS-422A

Per collegare il cavo d'interfaccia, eseguire le procedure indicate di seguito:

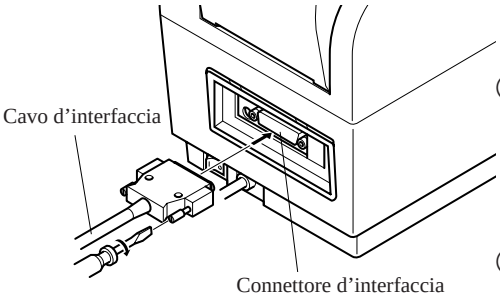


Fig. 4-1

① Spegnere sia la stampante che il computer.

② Inserire il cavo d'interfaccia nel connettore (assicurarsi che il cavo sia orientato nel senso corretto prima di inserirlo).

③ Stringere le due viti di destra e sinistra per fissare il connettore.

④ Collegare l'altra estremità del cavo d'interfaccia al computer.

ITALIANO

NOTA: Le caratteristiche di trasferimento dati tra il computer e la stampante devono essere rese compatibili attraverso le impostazioni degli interruttori DIP della stampante (vedere l'"APPENDICE").

4-2. Interfaccia parallela tipo Centronics

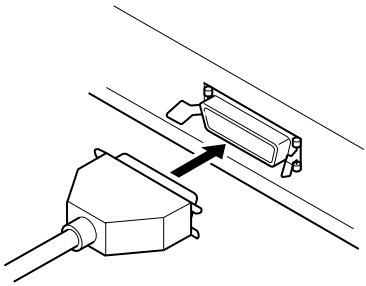


Fig. 4-2

① Spegnere sia la stampante che il computer.

② Inserire il cavo d'interfaccia nel connettore (assicurarsi che il cavo sia orientato nel senso corretto prima di inserirlo).

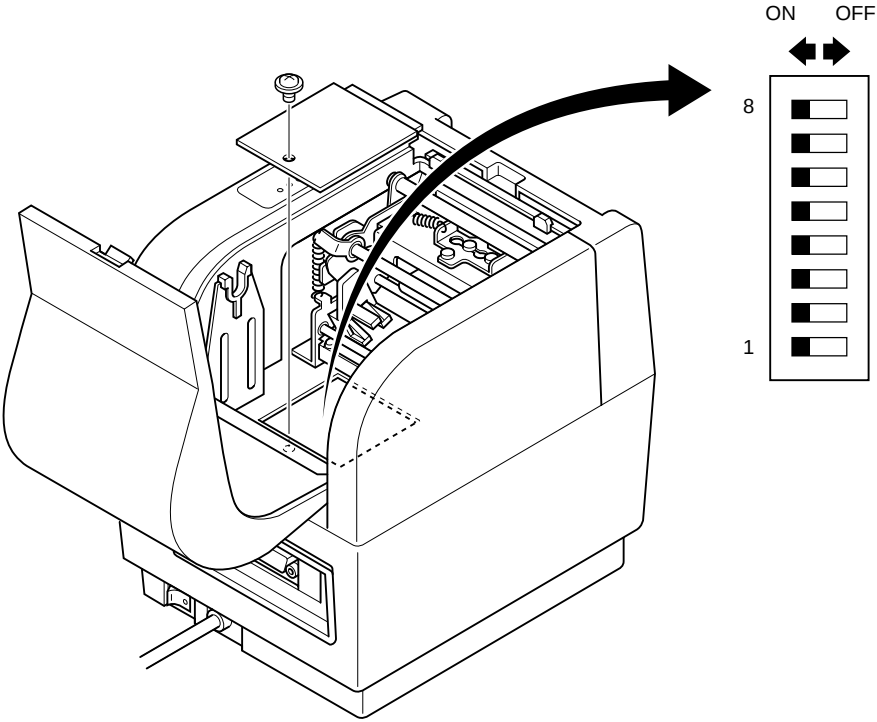
③ Bloccare i fermagli del connettore.

④ Collegare l'altra estremità del cavo d'interfaccia al computer.

DIP SWITCHES

DIP switches are located on the interface board. The number of switches varies according to the board, as follows.

Centronics	No DIP switches
RS-232C	One 8-bit DIP switch
RS-422A	One 8-bit DIP switch and one 4-bit DIP switch



DIP-switch settings

a) DIP switch #1 (RS-232C, RS-422A)

Switch	Setting	ON	OFF
1-1	Baud		
1-2	Baud		
1-3	Handshaking	DTR	X-ON/X-OFF
1-4	Data bits	8 bits	7 bits
1-5	Parity type	Not used	Used
1-6	Parity type	Odd	Even
1-7	DCI/DC3	Invalid	Valid (RS-232C only)
1-8	When turning power ON	* Refer to the table below.	

Baud	1-1	1-2
2400BPS	OFF	OFF
4800BPS	OFF	ON
9600BPS	ON	ON
19200BPS	ON	OFF

Factory settings : ALL ON

* When the printer's power is ON.

	ON	OFF
DC1/DC3 valid mode	Select	Deselect
Adressable mode	Deselect	Select
DC1/DC3 invalid mode	Select	Select

(RS-422A only)

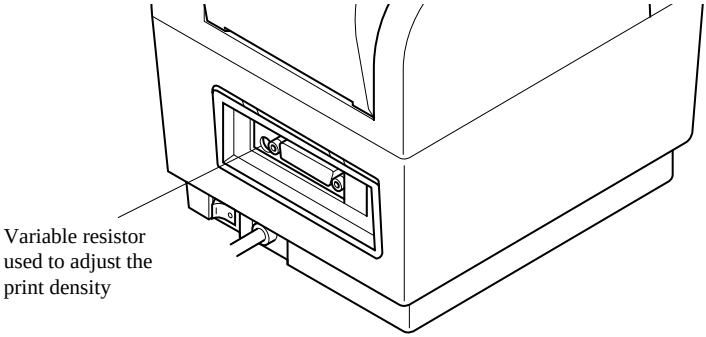
b) DIP switch #2 (RS-422A only)

■ DIP SW 2 (RS-422A only)

Function / Switch	DC1/DC3 invalid mode	Addressable mode *2														DC1/DC3 valid mode
		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	
2-1	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
2-2	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF
2-3	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF
2-4	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Print Density Adjustment

Since the sensitivity of different types of heat-sensitive paper varies, you can adjust the print density by varying the current supplied to the thermal head.



The print density can be adjusted using the variable resistor inside the hole beside the interface connector on the back of the printer.

1. To adjust the density turn the resistor roughly two times using a small cross-head screwdriver.

2. Turn the resistor to the right (clockwise) for a darker print density or to the left (counterclockwise) for a lighter density.

NOTE: If the density is increased to a higher level than necessary when printing on highly sensitive heat-sensitive paper, the dots may be too large and the print quality may decrease.
Excessively high energy adjustment may reduce head life.

Sensor Adjustment

■ Sensor levels are adjusted at the factory. If necessary, you can readjust the levels as described below.

1) Remove the ROM cover located beneath the paper-roll holding area.

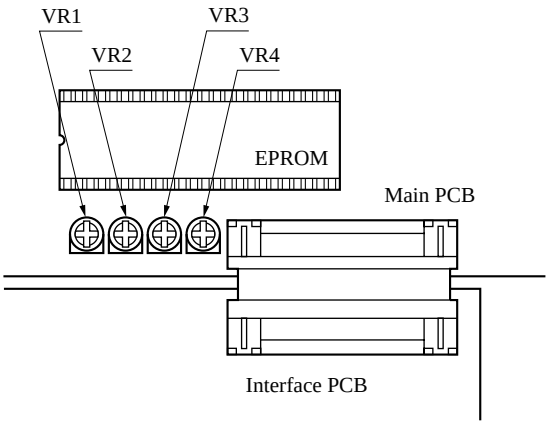
2) Hold down the FEED and ON LINE switches while switching on the power, and continue to hold them down until you hear a triple beep. (This will take about five seconds.) When you hear the triple beep, release the buttons to enter sensor-adjustment mode.

a) Reflective Sensor
- Insert a non-black area of paper into the mechanism's sensor area.
- Rotate the main PCB's sensor adjustment knob (VR4) to the point where the HEAD UP indicator comes on.

b) Paper-Out Sensor
- Insert a non-black area of paper into the mechanism's sensor area.
- Rotate the main PCB's sensor adjustment knob (VR3) to the point where the NO PAPER indicator comes on.

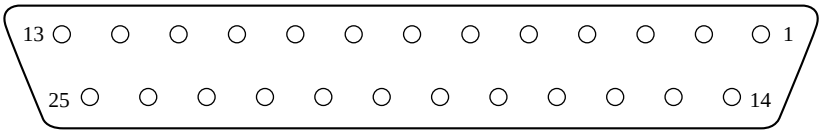
c) Transmissive Sensor
- Insert the backing portion of a label sheet into the mechanism's transmissive sensor area. (Insert the backing part only, not the label itself.)
- Adjust the main PCB's coarse (VR1) and fine (VR2) adjustment knobs to the point where the ERROR indicator comes on.

NOTE: When inserting paper, be sure to lower the head so that it is close to its normal fixed position.



Variable Resistances (Sensor Adjustment Knobs)

Connectors and Signal Names (Serial Interface)



RS-232C Interface

Pin no	Signal name	Direction	Function
1	F-GND	–	Frame ground
2	TXD	OUT	Outgoing data
3	RXD	IN	Incoming data
4	RTS	OUT	Request To Send: The printer sets this signal to “SPACE” when it is ready to send.
5	CTS	IN	The host sets this signal to “SPACE” when it is ready to send. NOTE: The printer does not monitor this signal.
6	N/C		Not used
7	S-GND	–	Signal ground
8	N/C		Not used
9 ~ 10	N/C		Not used
11	RCH	OUT	The printer sets this signal to “SPACE” when it is ready to receive. This pin outputs the same signal as pin 20, to which it is connected.
12	N/C		Not used
13	S-GND	–	Signal ground.
14	FAULT	OUT	The printer sets this signal to “MARK” to indicate an error condition (machine error, no paper, etc.).
15	Multi-Printer TXD	OUT	Diode gate TXD
16	Multi-Printer DTR	OUT	Diode gate DTR
17 ~ 19	N/C		Not used
20	DTR	OUT	Data Terminal Ready: The printer sets this signal to “SPACE” when it is ready to receive.
21 ~ 22	N/C		Not used
23 ~ 25	N/C		Not used

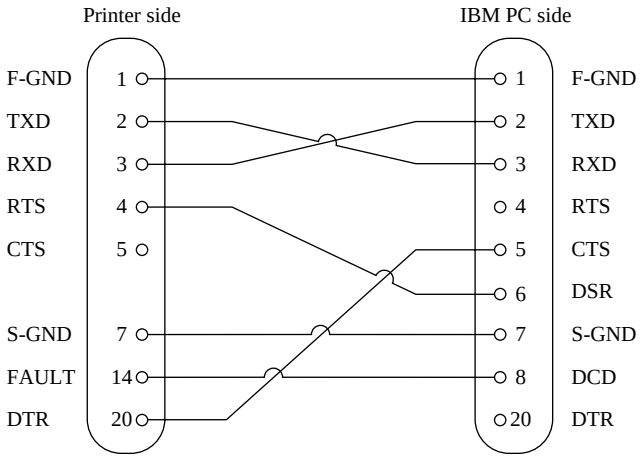
RS-422A Interface

Pin no	Signal name	Direction	Function
9	SD(+)	OUT	These pins carry data from the printer.
10	SD(–)	OUT	
17	RD(+)	IN	These pins carry data to the printer.
18	RD(–)	IN	
19	CS(+)	IN	The host sets this signal to "SPACE" when it is ready to send. NOTE: The printer does not monitor this signal.
23	CS(–)	IN	The host sets this signal to "SPACE" when it is ready to receive. NOTE: The printer does not monitor this signal.
24	RS(+)	OUT	The printer sets this signal to "SPACE" when it is ready to receive.
25	RS(–)	OUT	The printer sets this signal to "SPACE" when it is ready to receive.

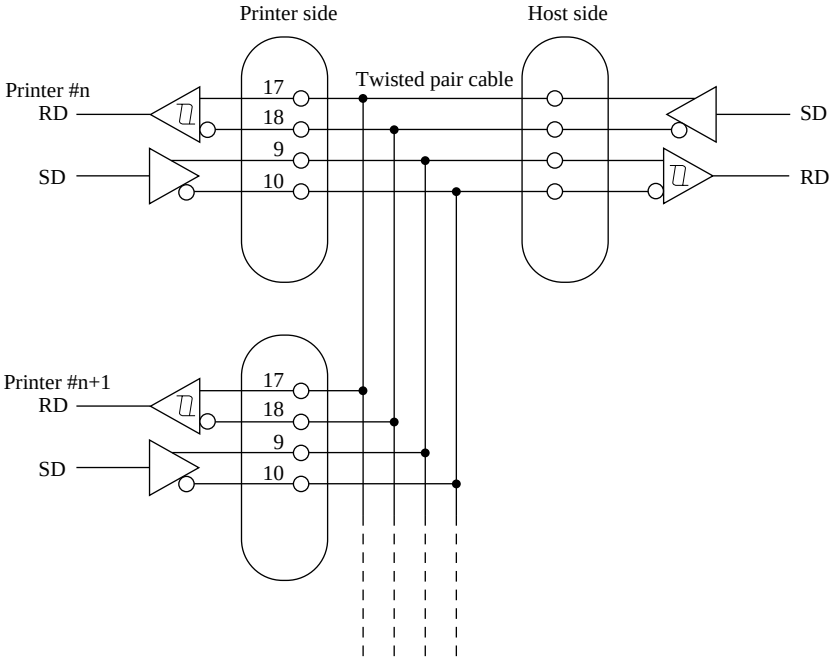
Interface Connections

Refer to the host computer's interface specifications for details of how to connect the interface. The following illustrations show typical connection configurations.

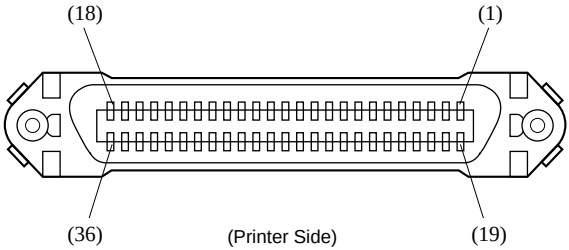
[RS-232C]



[RS-422A]


Printer side
Host side
Twisted pair cable
Printer #n
RD
SD
17
18
9
10
SD
RD
Printer #n+1
RD
SD
17
18
9
10

Connectors and Signal Names (Parallel Interface)



Conforms to Amphenol connector 57-30360

	Signal Name	Sample Circuit
Input	DATA 1 ~ DATA 8	4.7kΩ, 74LS-equivalent
Input	$\overline{\text{STROBE}}$	1kΩ, 100Ω, 1000pF, 74LS-equivalent
Output	BUSY $\overline{\text{ACK}}$	1.8kΩ, 74LS-equivalent

Pin no	Signal name	Direction	Function
1	$\overline{\text{STROBE}}$	IN	Strobe pulse for data read. Usually HIGH; goes LOW to trigger data read.
2-9	DATA 1~8	IN	Parallel data lines for eight-bit data. HIGH is “1”; LOW is “0”.
10	$\overline{\text{ACK}}$	OUT	Printer outputs this pulse for approximately 9μs to indicate that data read is completed. Printer becomes ready to receive new data at the moment the ACK pulse ends.
11	BUSY	OUT	DC-level signal indicating printer’s current status. LOW indicates that printer is ready to receive the next data; HIGH indicates that printer is unable to receive. The printer holds this signal “HIGH” during any of the following conditions. ① While data entry is in progress ② While printer is offline ③ While error condition exists
12	PAPER OUT	OUT	DC-level signal indicating whether printer has paper. The signal stays LOW while paper is present; it goes HIGH to indicate that paper has run out.
13	SELECTED	OUT	DC-level signal; stays HIGH while printer is online.
14-15	N/C		Not used
16	SIGNAL GND		Signal ground
17	CHASSIS GND		Printer-frame ground
18	+5V		Outputs +5V (Max. 50mA)
19-30	TWISTED PAIR RETURN		Return pins for various signals. Each pin is connected to the corresponding signal line by twisted pair line.
31	$\overline{\text{RESET}}$	IN	LOW level causes printer to reset its control circuitry and return to its initial state.
32	$\overline{\text{ERROR}}$	OUT	Goes LOW to indicate that printer is unable to print.
33	EXT GND		Ground terminal for external connection
34-35	N/C		Not used
36	–	–	Fixed “HIGH” at printer side

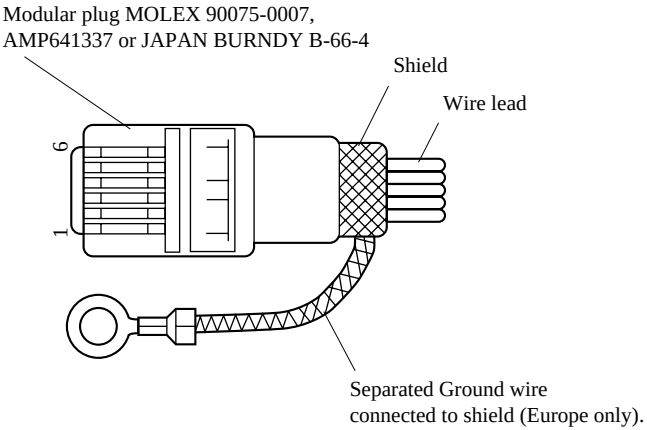
Peripheral Unit Drive Circuit

A drive circuit for driving peripheral units (such as cash drawers) is featured on the main logic board of this printer. A modular connector for driving peripheral units is featured on the output side on the drive circuit. When using this circuit, connect the cable for the peripheral unit. (Cables must be prepared by the user.) Note that Page Mode does not support external-device drive commands. Drive commands are available only in Line Mode.

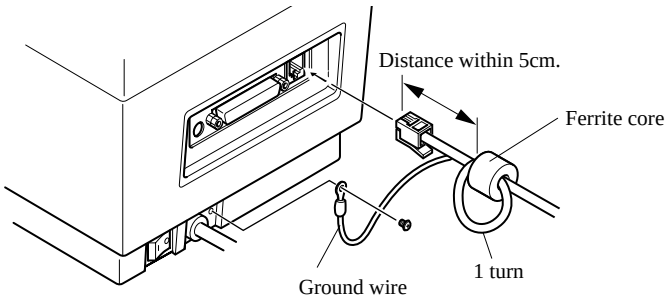
Use cables which meet the following specifications.

1. Use the modular plug as shown in Figure 17.
2. Separate ground wire is required for Europe only.
3. Use if the printer is to be used in Europe, the Ferrite core and the cable should be separate, as shown in Figure 18.

CAUTION: DO NOT connect any other plug to the peripheral unit connector.



Cable specifications for peripheral unit.

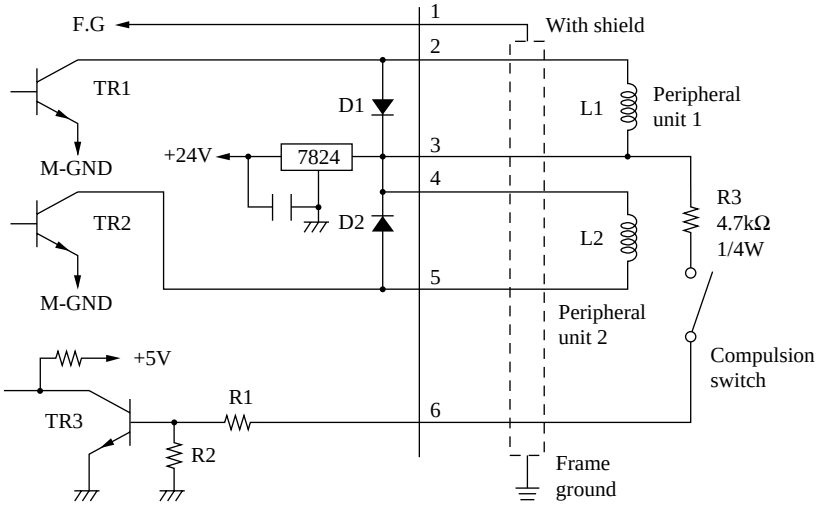


Separate ground wire and noise filter are required for Europe.

■ Drive circuit

The recommended drive circuit is shown.

[Drive output 24V, max. 1.0 A]



NOTES:

1. Peripheral units #1 and #2 cannot be driven simultaneously.
   When driving a device continuously, do not use drive duty above 20%.
2. Compulsion switch status is available as status data.
3. Resistance for coils L1 and L2 is not less than 24 ohms.
4. Absolute maximum ratings for diodes D1 and D2 (at Ta=25˚C):
   Average rectified current Io = 1A
   Maximum forward surge current (60Hz,1-cycle sine wave) I_{FSM}=40A
5. Absolute maximum rating for transistors TR1 and TR2 (at Ta = 25˚C):
   Collector current Ic = 2A

HEAD OFFICE
STAR MICRONICS CO., LTD.
20-10 Nakayoshida, Shizuoka, 422 Japan
Tel: (054) 263-1115, Telefax: (054) 263-8714

OVERSEAS SUBSIDIARY COMPANIES
STAR MICRONICS AMERICA, INC.
70-D Ethel Road West, Piscataway, NJ 08854 U.S.A
Tel: (908) 572-9512, Telefax: (908) 572-5095,
Telex: 299766 STAR UR

STAR MICRONICS DEUTSCHLAND GMBH
Westerbachstraße 59, D-60489 Frankfurt/Main 90, Germany
Tel: 0697-89990, Telefax: 0697-81006, Telex: 417 5825 STAR D

STAR MICRONICS U.K. LTD.
Star House, Peregrine Business Park, Gomm Road,
High Wycombe, Bucks, HP13 7DL, UK
Tel: 01494-471111, Telefax: 0494-473333

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