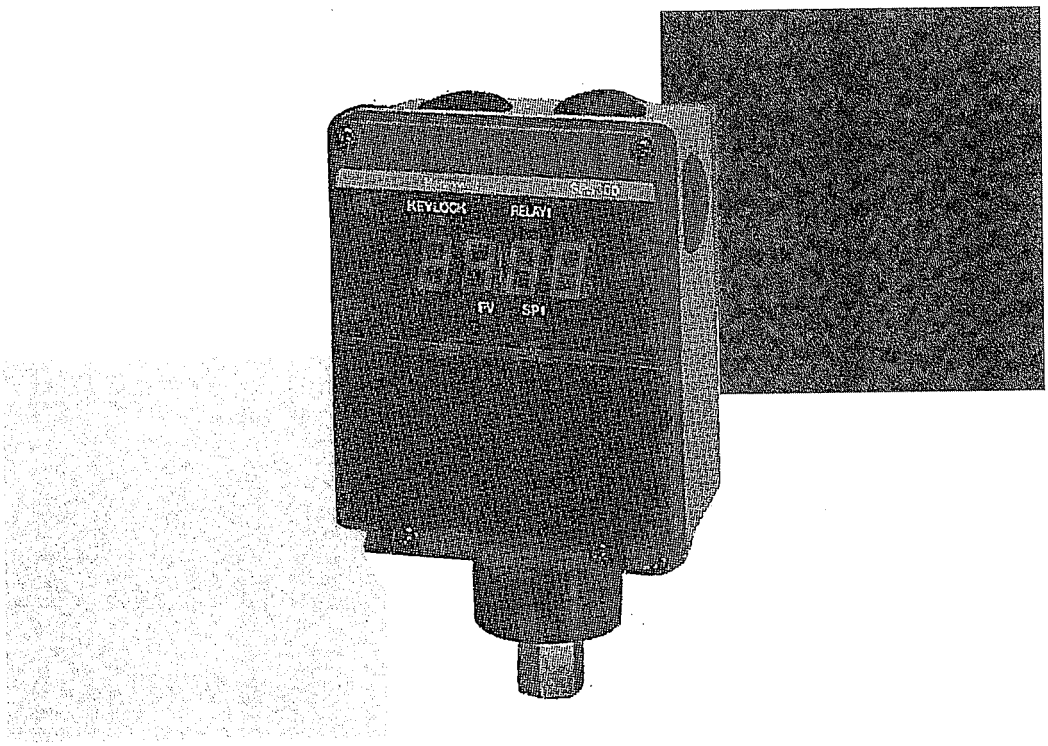
Honeywell

SPS 300 A/B
Pressure Sensor/Switch



EN1I-6123
Issue 8 (07/06)

WARRANTY

The Honeywell device described herein has been manufactured and tested for correct operation and is warranted for a period of one year.

TECHNICAL ASSISTANCE

If you encounter a problem with your unit, please review all the configuration data to verify that your selections are consistent with your application; (i.e. Inputs, Outputs, Alarms, Limits, etc.). If the problem persists after checking the above parameters, you can get technical assistance by contacting your nearest Honeywell Sales Office (see the list at the end of the manual).

SAFETY REQUIREMENTS

EN2I-6027

To reduce risk of electrical shock which could cause personal injury, follow all safety notices in this documentation.

This symbol warms the user of a potential shock hazard where hazardous live voltages may be accessible.

Protective earth terminal. Provided for connection of the protective earth supply system
conductor.

* If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment must be impaired.
* Do not replace any component (or part) not explicitly specified as replaceable by your supplier.
* All wiring must be in accordance with local norms and carried out by authorized experienced personnel.
* The ground terminal must be connected before any other wiring (and disconnect last).
* A switch in the main supply is required near the equipment.
* Mains power supply wiring requires a (F) 100mA, 250V fuse(s) (Supply voltage : 120V~).
* Mains power supply wiring requires a (F) 50mA, 250V fuse(s) (Supply voltage : 240V~).

Over-voltage category : Category II (IEC 60364-4-443, IEC 60664-1)
Specifications of common mode voltage : The common mode voltages of 4 to 20mA output is less than 33Vrms, 46.7Vpeak and 70Vdc.

EQUIPMENT RATINGS

Supply voltage	120 / 240 V~
Frequency	50/60Hz
Power or current ratings	7W maximum

EQUIPMENT CONDITIONS

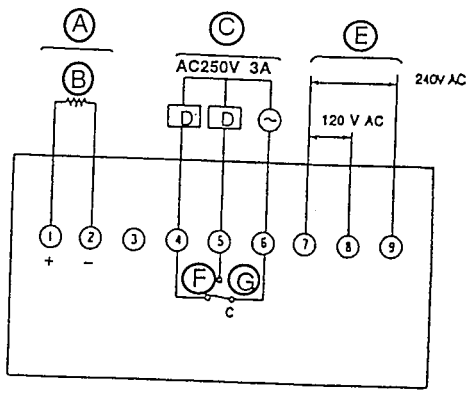
Do not operate the instrument in the presence of flammable liquids or vapors. Operation of any electrical instrument in such an environment constitutes a safety hazard.

Temperature	-20 to +60°C	
Humidity	0 to 90% RH / 40℃	
Vibration	Frequency	10 to 60Hz
	Acceleration	4.9 m/s^2 maximum

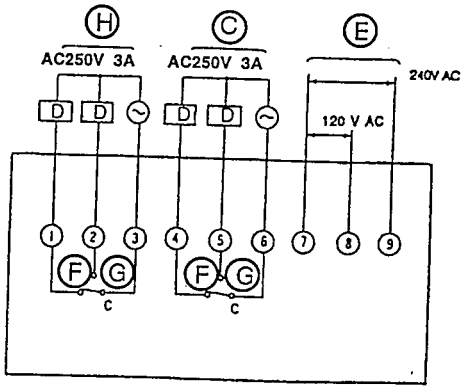
EQUIPMENT INSTALLATION

The equipment must be mounted into a panel to limit operator access to the rear terminals.

SPS300A



SPS300B



Ⓐ	Current output
Ⓑ	4 to 20mA / resistance of load : 300 Ω maximum
Ⓒ	Relay output 1
Ⓓ	Load
Ⓔ	Instrument power supply
Ⓕ	Normaly close
Ⓖ	Normaly open
Ⓗ	Relay output 2

CONSIGNES DE SÉCURITÉ

FR2I-6027

Pour réduire tout risque de décharge électrique qui pourrait provoquer une lésion corporelle, respectez toutes les consignes de sécurité de cette documentation.

Ce symbole avertit l'utilisateur d'un risque électrique potentiel lorsqu'il peut avoir accès à des éléments sous tension.

Borne de mise à la terre. Destinée au raccordement du conducteur de mise à la terre de l'alimentation.

* Si l'équipement est utilisé dans un but non spécifié par le constructeur, la protection fournie avec cet équipement peut être affectée.
* Aucun composant (ou pièce) ne doit être remplacé s'il n'est pas explicitement spécifié comme tel par le constructeur.
* Tous les câblages doivent être conformes aux normes locales et doivent être réalisés par un personnel autorisé et expérimenté.
* La borne de masse doit être raccordée avant tout autre câblage (et débranchée en dernier).
* Il est obligatoire de connecter cet appareil sur une ligne possédant un moyen de coupure près de l'appareil, d'un accès facile pour l'utilisateur.
* Le câblage de l'alimentation principale nécessite un ou des fusible(s)100mA,250V(Tension d'alimentation:120V~).
* Le câblage de l'alimentation principale nécessite un ou des fusible(s)50mA,250V(Tension d'alimentation:240V~).

Catégorie d'installation : Catégorie II (IEC 60364-4-443, IEC 60664-1)
Spécification de tension en mode commun : La tension en mode commun de la sortie 4-20 mA est inférieure à 33 V eff., 46.7 V en crête et 70 Vcc.

CARACTÉRISTIQUES DE L'ÉQUIPEMENT

Tension d'alimentation	120 / 240 V~
Fréquence	50/60 Hz
Puissance ou courant	7W maximum

CONDITIONS AMBIANTES

Ne jamais utiliser cet équipement en présence de liquides ou de vapeurs inflammables. L'utilisation de tout instrument électrique dans un tel environnement pourrait présenter un risque pour la sécurité.

Température	-20 à +60°C	
Humidité	0 à 90 %RH / 40℃	
Vibration	Fréquence	10 à 60 Hz
	Accélération	4.9 m/s^2

INSTALLATION DE L'ÉQUIPEMENT

Le contrôleur doit être monté dans un panneau pour limiter l'accès aux bornes arrières par l'opérateur.

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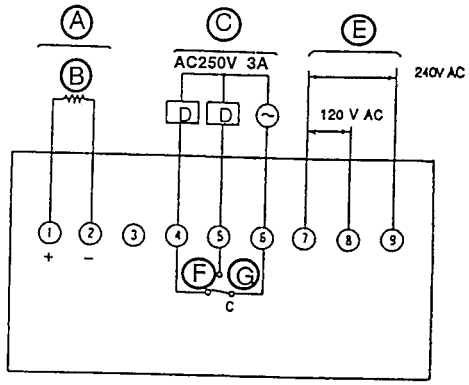

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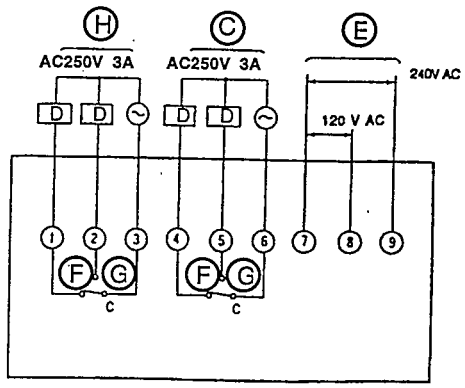


Ⓐ	Sortie courant
Ⓑ	4 à 20 mA / résistance de charge : 300 Ω maximum
Ⓒ	Sortie relais 1
Ⓓ	Charge
Ⓔ	Alimentation
Ⓕ	Normalement fermé
Ⓖ	Normalement ouvert
Ⓗ	Sortie relais 2

Befolgen Sie alle Sicherheitshinweise in diesen Unterlagen, um das Risiko eines Stromschlags zu verringern, der zu Körperverletzung führen kann.

Dieses Symbol warnt den Benutzer vor eventueller Berührungsgefahr, wo lebensgefährliche Spannungen zugänglich sein können.

Schützende Erdung. Für den Anschluß der schützenden Erdung der Versorgungssystemleitung.

* Bei Benutzung der Ausrüstungen auf nicht vom Hersteller angegebene Art und Weise kann der von der Ausrüstung gewährleistete Schutz beeinträchtigt werden.
* Ersetzen Sie keine Komponente (oder Teil), die/das nicht ausdrücklich vom Lieferanten als ersetzbar angegeben ist.
* Die gesamte Verkabelung muß den örtlichen Normen entsprechen und von zugelassenem, erfahrenem Personal durchgeführt werden.
* Die Erde muß vor allen anderen Kabeln angeschlossen (und zuletzt abgeklemmt) werden.
* In der Nähe der Ausrüstung muß ein Schalter in der Hauptstromversorgung vorhanden sein. (vom Bediener leicht zu erreichen)
* Für die Hauptstromversorgung sind 100mA, 250V Sicherungen notwendig (Netzspannung : 120V~).
* Für die Hauptstromversorgung sind 50mA, 250V Sicherungen notwendig (Netzspannung : 240V~).

Installationskategorie : Kategorie II (IEC 60364-4-443, IEC 60664-1)
Spezifikation für Gleichaktspannung : Die Gleichaktspannung des 4 bis 20 mA Ausgangs soll 33 V eff bzw, 46.7 V Spitzenspannung und 70 VGS nicht überschreiten.

AUSRÜSTUNGSDATEN

Netzspannung	120 / 240 V~
Frequenz	50/60 Hz
Nennleistung	7W maximal

UMGEBUNGSBEDINGUNGEN

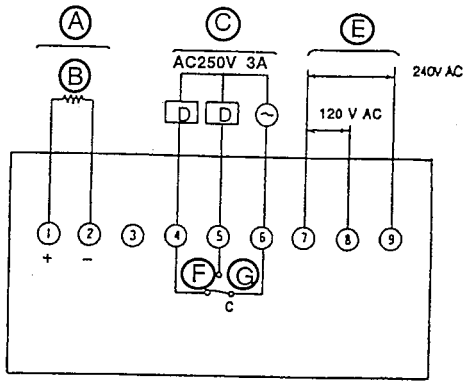
Betreiben Sie das Gerät nicht in Gegenwart entflammbarer Flüssigkeiten oder Dämpfe. Der Betrieb elektrischer Geräte in solchen Umgebungen stellt ein Sicherheitsrisiko dar.

Temperatur	-20 bis +60°C	
Feuchtigkeit	0 bis 90 %RH / 40℃	
Vibration	Frequenz	10 bis 60 Hz
	Beschleunigung	4.9 m/s²

ANBRINGUNG DER AUSRÜSTUNGEN

Der Regler muß in ein Pult eingebaut sein, damit der Bediener nicht zu oft auf die hinteren Anschlüsse zugreifen muß.

SPS300A



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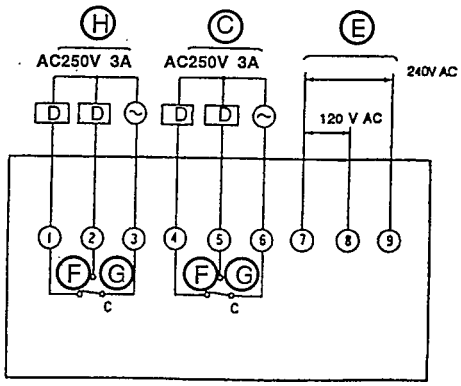

Ⓐ	Stromausgang
Ⓑ	4 bis 20 mA / Lastwiderstand: maximal 300 Ω
Ⓒ	Ausgang Relais 1
Ⓓ	Last
Ⓔ	Stromversorgung
Ⓕ	Normal geschlossen
Ⓖ	Normal offen
Ⓗ	Ausgang Relais 2

Per ridurre il rischio di scossa elettrica con conseguente danno alle persone, seguire le norme di sicurezza indicate nella presente documentazione.

Questo simbolo avverte del pericolo di scossa elettrica nelle aree in cui sono accessibili conduttori sotto tensione.

Terminale di terra di sicurezza fornito per il collegamento del conduttore del sistema di alimentazione di terra.

* Se si utilizza l'apparecchio in modo diverso da quello specificato dalla ditta produttrice, è possibile che venga danneggiata la protezione fornita dall'apparecchio stesso.
* Non sostituire alcun componente, o parte, che non sia stato espressamente definito "sostituibile" dal fornitore.
* Tutti i collegamenti elettrici devono essere conformi alle norme locali ed effettuati da personale autorizzato.
* Il terminale di terra deve essere collegato prima degli altri cavi e scollegato per ultimo.
* È necessario che sia presente un interruttore nell'alimentazione principale accanto all'apparecchio, a portata dell'operatore.
* Il cablaggio di alimentazione rete richiede (F) 100mA, fusibili 250V (Voltaggio : 120V~).
* Il cablaggio di alimentazione rete richiede (F) 50mA, fusibili 250V (Voltaggio : 240V~).

Categoria de installazione : Categoria II (IEC 60364-4-443, IEC 60664-1)
Specificazione del voltaggio nel modo comune : El voltaggio nel modo comune della uscita de 4 a 20 mA è inferiore a 33 V eff., 46.7 V picco e 70 Vdc.

DATI NOMINALI

Voltaggio	120 / 240 V~
Frequenza	50/60 Hz
Potenza o potenza nominale corrente	7W massimo

CONDIZIONI AMBIENTALI

Non far funzionare l'apparecchio in presenza di liquidi o gas infiammabili, in quanto questo potrebbe essere estremamente pericoloso.

Temperatura	da -20 a +60°C	
Umidità	da 0 a 90 %RH / 40°C	
Vibrazioni	Frequenza	10 a 60 Hz
	Accelerazione	4.9 m/s^2

INSTALLAZIONE DELL'APPARECCHIO

Il dispositivo di controllo deve essere montato su un pannello per limitare l'accesso ai terminali posteriori.

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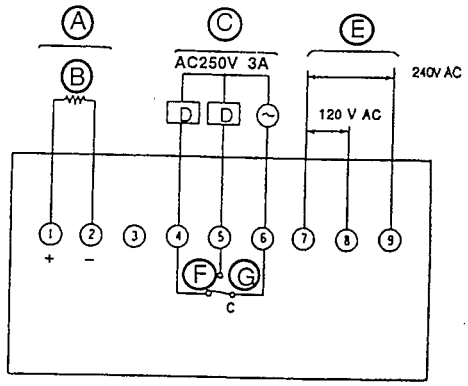

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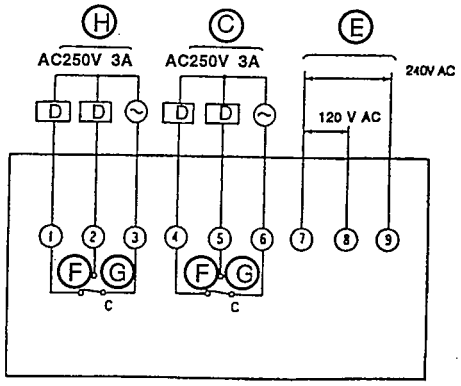


Ⓐ	Uscita corrente
Ⓑ	4-20 mA / Resistenza di carico: 300 Ω max.
Ⓒ	Uscita 1 relè
Ⓓ	Carico
Ⓔ	Alimentazione
Ⓕ	Normalmente chiuso
Ⓖ	Normalmente aperto
Ⓗ	Uscita 2 relè

VEILIGHEIDSVEREISTEN

NL2I-6027

Teneinde het gevaar voor elektrische schokken die verwondingen kunnen veroorzaken te verminderen, alle instructies van deze documentatie navolgen.

Dit symbool waarschuwt de gebruiker voor een potentieel schokgevaar wanneer toegang bestaat tot onderdelen die onder gevaarlijke spanning staan.

Aansluitklem voor de beveiligingsbeaarding. Voorzien voor de verbinding van de geleider van het systeem voor beveiligingsbeaarding.

* Wanneer de apparatuur op een manier wordt gebruikt die niet door de fabrikant is aanbevolen kan de beveiliging van de apparatuur haar doeltreffendheid verliezen.
* Geen onderdelen vervangen die niet als vervangbaar zijn aangeduid door onze leverancier.
* Alle bedrading dient conform te zijn aan lokale normen en te worden aangelegd door bevoegd ervaren personeel.
* De beaarding dient vóór elke andere bedrading te worden aangesloten (en als laatste te worden ontkoppeld).
* Een hoofdnetschakelaar, gemakkelijk bereikbaar door de operateur, is in de nabijheid van deze apparatuur vereist.
* Een zekering(F)100mA,250V(Voedingsspanning:120V~),is vereist voor de bedrading van het voedingsnet.
* Een zekering(F)50mA,250V(Voedingsspanning:120V~),is vereist voor de bedrading van het voedingsnet.

Installatie Categorie : categorie II (IEC 60364-4-443, IEC 60664-1)
Specificatie van de spanningen in algemene mode : De algemene mode spanning van 4 tot 20 mA output is minder als 33V r.m.s., 46.7V spanningspiek en 70V gelijkstroom.

TECHNISCHE GEGEVENS

Voedingsspanning	120/240 V~
Frequentie	50/60 Hz
Vermogen of stroomvermogen	max. 7W

OMGEVING

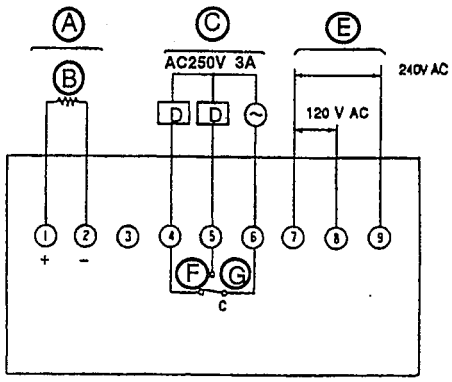
Gebruik het apparaat niet bij brandbare vloeistoffen of dampen. Het gebruik van elektrische apparatuur in zo'n omgeving is gevaarlijk.

Omgevingstemperatuur	-20 tot +60°C	
Vochtigheidsgraad	0 tot 90 %RH / 40℃	
Trilling	Frequentie	10 tot 60 Hz
	Acceleratie	4.9 m/s^2

INSTALLATIE VAN DE APPARATUUR

De controle-eenheid dient op een paneel te worden gemonteerd om toegang door de operateur tot de achteraansluitklemmen te verhinderen.

SPS300A



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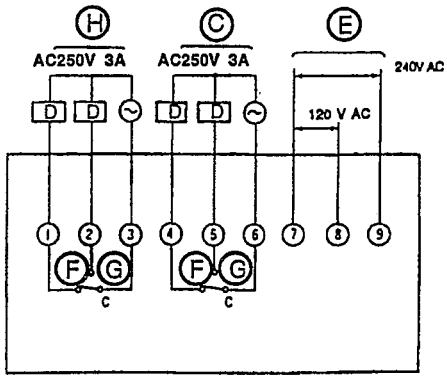

Ⓐ	Stroom-output
Ⓑ	4 t/m 20 mA / Belastingsweerstand: 30 Ω maximum
Ⓒ	Relais 1 output
Ⓓ	Belasting
Ⓔ	Stroomtoevoer
Ⓕ	Normaal gesloten
Ⓖ	Normaal open
Ⓗ	Relais 2 output

Para reducir el riesgo de una descarga eléctrica que podría ocasionar daños personales siga atentamente las instrucciones de esta documentación.

Este símbolo previene al usuario de un riesgo potencial de descarga cuando se puede acceder a corrientes de tensión peligrosas.

Borne de toma de tierra. Suministrado para conexión del sistema protector de toma de tierra.

* Si el equipo se utiliza de manera distinta a la especificada por el fabricante, la protección procurada por el equipo puede verse perturbada.
* No sustituya ningún componente (o parte de él) que no esté señalado como reemplazable de manera específica por su proveedor.
* Todos los cables deben estar en conformidad con las normas locales y ser instalados por un personal autorizado y competente.
* El borne de tierra debe conectarse antes que cualquier otro cable (y ser desconectado en último lugar).
* Debe haber un interruptor en la red principal cerca del equipo. (Fácil acceso para el operador)
* Los cables de suministro de la red eléctrica requieren fusibles(F)100mA, 250V(Tensión de suministro:120V~).
* Los cables de suministro de la red eléctrica requieren fusibles(F)50mA, 250V(Tensión de suministro:240V~).

Categoría de instalacíon : Categoría II (IEC 60364-4-443, IEC 60664-1)
Especificacíon del voltaje en el modo común : El voltaje en el modo común de la salida de 4 a 20 mA es inferior a 33 V eff., 46.7 V pico y 70 Vcc.

CONDICIONES DE FUNCIONAMIENTO DEL EQUIPO

Tensión de suministro :	120 / 240 V~
Frecuencia	50/60 HZ
Potencia o corriente:	7W máximo

CONDICIONES DEL ENTORNO

No utilice el instrumento en presencia de líquidos o gases inflamables. La utilización de cualquier instrumento eléctrico en tal entorno constituye un riesgo para la seguridad.

Temperatura:	-20 a +60°C	
Humedad :	0 a 90 %RH / 40℃	
Vibración	frecuencia	10 a 60 Hz
	aceleración	4.9 m/s^2

INSTALACIÓN DEL EQUIPO

El controlador debe ser montado en un tablero, para limitar el acceso del operador a los bornes traseros.

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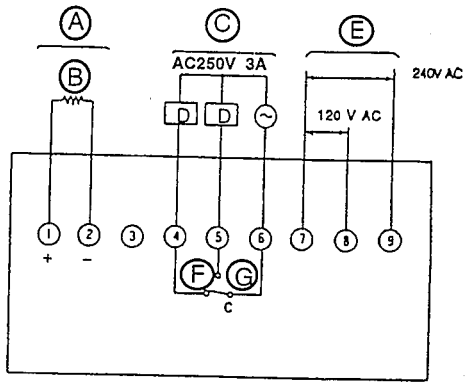

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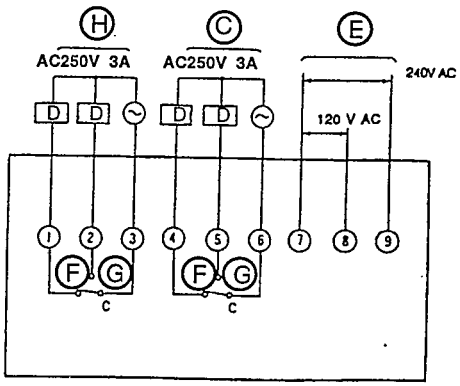


Ⓐ	Salida de corriente
Ⓑ	4 a 20 mA / resistencia de carga : 300 Ω máximo
Ⓒ	Salida relé 1
Ⓓ	Carga
Ⓔ	Suministro de tensión
Ⓕ	Normalmente cerrado
Ⓖ	Normalmente abierto
Ⓗ	Salida relé 2

INSTRUÇÕES DE SEGURANÇA

PO2I-6027

Para reduzir o risco de choque eléctrico que pode causar danos físicos, siga todas as instruções de segurança contidas nesta documentação.

Este símbolo avisa o utilizador sobre um eventual perigo de choque quando são acessíveis voltagens sob tensão perigosas.

Terminal de terra de protecção. Fornecido para a conexão do condutor do sistema de alimentação de terra de protecção.

* Se o equipamento for utilizado de uma forma não especificada pelo fabricante, a protecção normalmente facultada pode falhar.
* Não se deve substituir qualquer componente (ou peça) que não seja explicitamente especificado como substituível pelo nosso revendedor.
* Todos os fios devem estar em conformidade com as normas locais e instalados por profissionais autorizados.
* O terminal de terra deve ser ligado antes de qualquer outro fio (e desligado em último lugar).
* É necessário um interruptor na alimentação principal perto do equipamento ao alcance do operador.
* Os fios de alimentação principal necessitam de fusíveis (F) 100mA;250V (Voltagem : 120V~).
* Os fios de alimentação principal necessitam de fusíveis (F)50mA;250V (Voltagem : 240V~).

Categoria de instalação: categoria II (IEC 60364-4-443, IEC 60664-1)
Especificação respeitante às tensões ordinárias de 4 a 20 mA saída é inferior a 33 V r.m.s. (valor eficaz), 46.7 V tensão máxima e 70 V dc (corrente contínua).

ESPECIFICAÇÕES DO EQUIPAMENTO

Voltagem	120/240 V~
Frequência	50/60 Hz
Potência	7W máximo

CONDIÇÕES DO MEIO AMBIENTE

Não colocar o equipamento em funcionamento na presença de líquidos ou vapores inflamáveis. A utilização de qualquer equipamento eléctrico num ambiente deste tipo comporta riscos de segurança.

Temperatura	-20 a +60°C	
Humidade	0 a 90 %RH / 40°C	
Vibração	Frequéncia	10 a 60 Hz
	Acceleração	4.9 m/s^2

INSTALAÇÃO DO EQUIPAMENTO

O controlador deve ser montado num painel para limitar o acesso do operador aos terminais traseiros.

ΑΠΑΙΤΗΣΕΙΣ ΑΣΦΑΛΕΙΑΣ

GR2I-6027

Για να αποφύγετε τον κίνδυνο ηλεκτροπληξίας που μπορεί να προκαλέσει τραυματισμό ατόμων, ακολουθήστε όλες τις οδηγίες ασφαλείας του φυλλαδίου.

Αυτό το σύμμβολο προειδοποιεί το χρήστη για μία δυνατότητα κινδύνου ηλεκτροπληξίας όταν μπορεί να υπάρχει πρόσβαση σε επικίνδυνες τάσεις.

Ακροδέκτης προστατευτικής γείωσης. Προσφέρεται για σύνδεση με τη γείωση του καλωδίου τροφοδοσίας.

* Εάν ο εξοπλισμός χρησιμοποιείται κατά τρόπο που δεν περιγράφεται από τον κατασκευαστή, η προστασία που προσφέρεται από το προϊόν μπορεί να αλλοιωθεί.
* Μην αλλάξετε κανένα ανταλλακτικό (ή μέρος) που δεν αναφέρεται καθαρά ότι μπορεί να αντικατασταθεί από τον προμηθευτή μας.
* Όλες οι καλωδιώσεις πρέπει να είναι σύμφωνες με τις τοπικές προδιαγραφές και να γίνονται από ειδικευμένο έμπειρο προσωπικό.
* Η γείωση πρέπει να συνδεθεί πριν από οποιοδήποτε άλλο καλώδιο (και να αποσυνδέεται τελευταίο).
* Ένας διακόπτης στην κεντρική τροφοδοσία είναι απαραίτητος κοντά στον εξοπλισμό, εύκολης πρόσβασης για τον χειριστή.
* Η τροφοδοσία σε ρεύμα απαιτεί μία ασφάλεια (F) 100mA, 250V (Τάση τροφοδοσίας :120V~).
* Η τροφοδοσία σε ρεύμα απαιτεί μία ασφάλεια (F) 50mA, 250V (Τάση τροφοδοσίας :240V~).

Κατηγορια Εγκαταστασης :Κατηγορια II (IEC 60364-4-443, IEC 60664-1)

Προδιαγραφη τασεων κοινης διακυμανσης: Οι τασεις κοινης διακυμανσης των απο 4 μεχρη 20 mA, ειναι λιγοτερο απο τα 33V r.m.s., 46.7V μεγιστη στιγμιαια ταση (peak) και 70V συνεχους τασης (DC).

ΧΑΡΑΚΤΗΡΙΣΤΙΚΑ ΕΞΟΠΛΙΣΜΟΥ

Τάση τροφοδοσίας	120/240 V~
Συχνότητα	50/60 Hz
Ισχύς ρεύματος	7W

ΣΥΝΘΗΚΕΣ ΠΕΡΙΒΑΛΛΟΝΤΟΣ

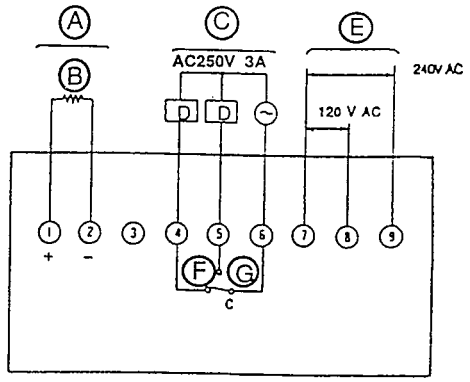
Μη βάζετε σε λειτουργία το όργανο σε παρουσία εύφλεκτων υγρών ή ατμών. Λειτουργία σε τέτοιο περιβάλλον είναι επικίνδυνο για την ασφαλεία.

Θερμοκρασία	-20 έως +60°C	
Υγρασία	0 έως 90% σχετική υγρασία στους 40°C	
Δονήσεις	Συχνότητα	10 έως 60 Hz
	Επιτάχυνση	4.9 m/s^2

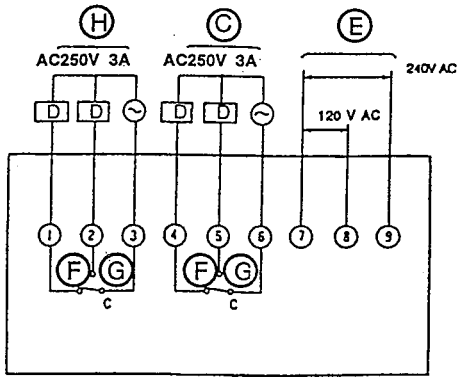
ΕΓΚΑΤΑΣΤΑΣΗ ΕΞΟΠΛΙΣΜΟΥ

Ο ελεγκτής πρέπει να συναρμολογηθεί σε πίνακα για να περιορισθεί η πρόσβαση του χειριστή στους πίσω ακροδέκτες.

SPS300A



SPS300B



Ⓐ	Παροχή ρεύματος
Ⓑ	4 με 20 mA / Αντίσταση φορτίου: 300 Ω μάξιμουμ
Ⓒ	Παροχή ρωστήρος 1
Ⓓ	Φορτίο
Ⓔ	Παροχή ισχύος
Ⓕ	Κανονικό κλείσιμο
Ⓖ	Κανονικό άνοιγμα
Ⓗ	Παροχή Ρωστήρος 2

SIKKERHEDSKRAV

DA2I-6027

For at reducere risikoen for elektrisk stød og dermed forbundet personskade er det nødvendigt at følge sikkerhedsforskrifterne i følgende dokumentation.

Dette symbol advarer brugeren om en potentiel berøringsfare, såfremt der kan være adgang til den livsfarlige netspænding.

Klemme til beskyttelsesjord. Til tilslutning af ledning til forsyningssystemets jordforbindelse.

* Såfremt udstyret anvendes på anden måde end den, producenten har angivet, kan det betyde en forringelse af udstyrets sikkerhed.
* Udskift ikke nogen komponent (eller del), som leverandøren ikke specifikt har angivet er udskiftelig.
* Al ledningsføring skal være i overensstemmelse med nationale standarder og skal udføres af autoriseret personale med behørig erfaring.
* Jordklemmen skal tilsluttes inden andre ledninger (og skal afmonteres sidst).
* Det er nødvendigt med en afbryder til strømforsyningen nær udstyret og i umiddelbar nærhed af operatøren.
* Tilslutning til strømforsyning kræver en (F) 100mA, 250V sikring (Netspænding : 120V~).
* Tilslutning til strømforsyning kræver en (F) 50mA, 250V sikring (Netspænding : 240V~).

Installationskategori: kategori II (IEC 60364-4-443, IEC 60664-1)
Specifikation af almindelig spænding: Den almindelige udgangsspænding fra 4 til 20 mA er mindre end 33 V r.m.s., 46.7 V spids og 70 V jævnstrøm.

UDSTYRETS MÆRKEVÆRDIER

Netspænding	120/240 V~
Frekvens	50/60 Hz
Nominel effekt	7W maksimum

MILJØFORHOLD

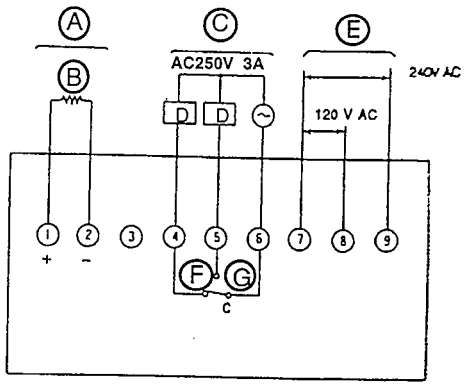
Brug ikke instrumentet i nærheden af brandfarlige væsker eller dampe. Anvendelse af elektriske instrumenter i et sådant miljø udgør en sikkerhedsrisiko.

Temperatur	-20 til +60°C	
Fugtighed	0 til 90 %RH / 40℃	
Vibration	Frekvens	10 til 60 Hz
	Acceleration	4.9 m/s^2

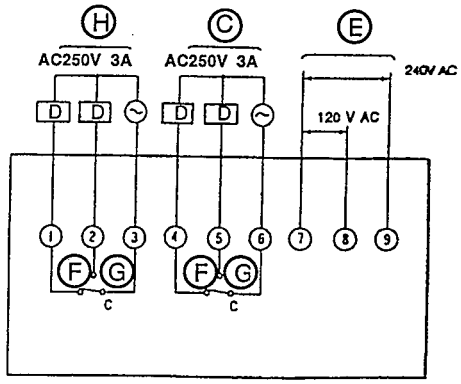
INSTALLATION AF UDSTYR

Styreenheden skal monteres i en plade eller et panel for at begrænse operatørens adgang til de bageste klemmer.

SPS300A



SPS300B



Ⓐ	Output strømforsyning
Ⓑ	4 - 20 mA / Lademodstand maksim. 300 Ω
Ⓒ	Output relae
Ⓓ	Opladning
Ⓔ	Strømforsyning
Ⓕ	Normalt lukket
Ⓖ	Normalt åbnet
Ⓗ	Output relae 2

SÄKERHETSFÖRESKRIFTER

SW2I-6027

Följ noga handbokens samtliga säkerhetsföreskrifter för att undvika elstötar och åtföljande personskador.

Denna symbol varnar användaren för risk för elchock vid tillfällig åtkomst av spänningsförande del.

Skyddat jorduttag. Avsedd för anslutning av skyddande jordnätets ledare.

* Om utrustningen används på ett sätt som ej förutsetts av tillverkaren kan säkerhetsskyddet visa sig vara otillräckligt.
* Byt inte ut någon komponent (eller del) om denna inte klart angivits som utbytbar av tillverkaren.
* All kabeldragning skall följa de lokala föreskrifterna och utföras av en kompetent och erfaren fackman.
* Jorduttaget måste anslutas innan all annan kabeldragning (och kopplas från sist).
* En nätströmbrytare skall finnas i närheten av utrustningen, inom bekvämt räckhåll för operatören.
* Huvudnätets kabeldragning kräver (F) 100mA, 250V säkring(ar) (Nätspänning : 120V~).
* Huvudnätets kabeldragning kräver (F) 50mA, 250V säkring(ar) (Nätspänning : 240V~).

Installationskategori: Kategori II, (IEC 60364-4-443, IEC 60664-1)
Specifikationer för vanliga nätspänningar: De vanliga nätspänningarna för 4 till 20 mA uttag är mindre än 33V sinuseffekt (r.m.s.), 46.7V maximibelastning och 70V dc (likström).

UTRUSTNINGENS MÄRKDATA

Nätspänning	120 / 240V~
Frekvens	50/60 Hz
Effekt eller märkström	7W maximum

MILJÖVILLKOR

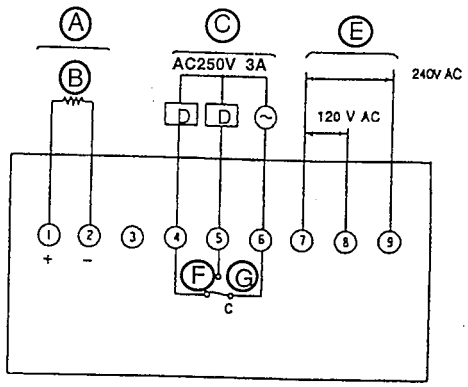
Använd inte utrustningen i närheten av lättantändliga vätskor eller ångor. Drift av elektriska instrument i en sådan omgivning är att leka med säkerheten.

Temperatur	-20 till +60°C	
Fuktighet	0 till 90 %RH / 40°C	
Vibration	Frekvens	10 till 60 Hz
	Acceleration	4.9 m/s^2

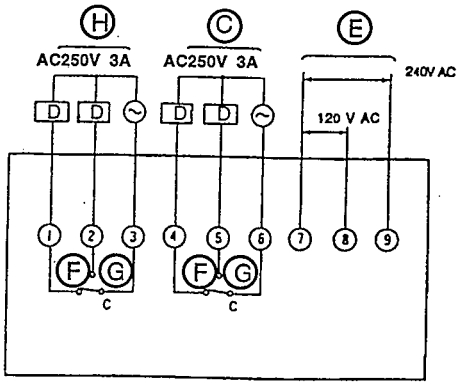
INSTALLERING AV UTRUSTNING

Kontrollern skall monteras i en panel för att minska operatörens åtkomst till de bakre terminalerna.

SPS300A



SPS300B



Ⓐ	Strömuttag
Ⓑ	4 till 20 mA / belastningsresistens:300 Ω maximum
Ⓒ	Outputsrelä 1
Ⓓ	Belastning
Ⓔ	Kraftuttag
Ⓕ	Normalt stängd
Ⓖ	Normalt öppen
Ⓗ	Outputsrelä 2

Noudata kaikkia näitä turvaohjeita vammoja aiheuttavien sähköiskujen välttämiseksi

Tämä merkki varoittaa käyttäjää sähköiskun vaarasta paikassa, missä voi koskettaa vaarallisia jännitteitä.

Suojaavan maadoitusjärjestelmän kytkinnapa maadoitetulle käyttövirralle.

* Laitteeseen kuuluva suojaus voi heikentyä, jos sitä käytetään valmistajan osoittaman tavan vastaisesti
* Älä korvaa mitään komponenttia (tai osaa), ellei jälleenmyyjä ole ilmoittanut sen korvauskelpoisuutta.
* Kaikkien johdotusten on oltava paikallisten standardien mukaiset ja kokeneen, valtuutetun asentajan tekemät.
* Maadoituspiste on kytkettävä ensimmäisenä ennen muita kytkentöjä (ja irrotettava viimeisenä).
* Käyttövirran pääkatkaisijan on oltava laitteen lähellä helposti käyttöhenkilön ulottuvilla.
* Käyttövirralle tarvitaan 100mA, 250V sulakkeet (Käyttöjännite : 120V~).
* Käyttövirralle tarvitaan 50mA, 250V sulakkeet (Käyttöjännite : 240V~).

Laitosluokka : luokka II (IEC 60364-4-443, IEC 60664-1)
Yhteismuotojänniteiden määritys : 4 - 20 mA syöttöjen yhteismuotojännitteet ovat alle 33 V tehollisjännite, alle 46.7 V huippujännite ja alle 70 V tasavirtajännite.

LAITTEEN NIMELLISARVOT

Käyttöjännite	120/240 V~
Taajuus	50/60 Hz
Teho	7W maksimi

KÄYTTÖOLOSUHTEET

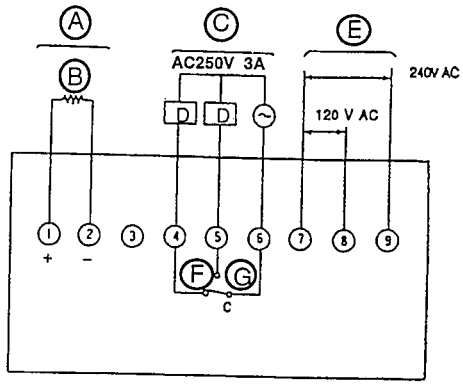
Älä käytä laitetta tulenarkojen nesteiden tai kaasujen lähistöllä. Jokainen sähkölaite muodostaa vaaratekijän sellaisessa ympäristössä.

Lämpötila	-20 - +60℃	
Kosteus	0 - 90 %RH / 40℃	
Tärinä	Taajuus	10 - 60 Hz
	Iihtyvyys	4.9 m/s^2

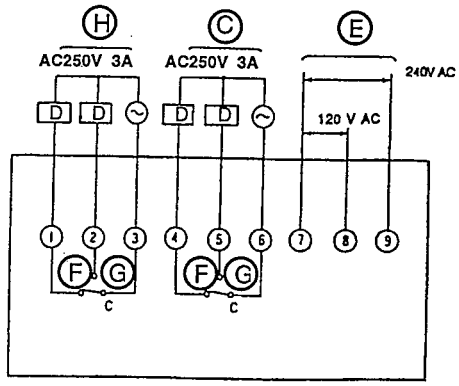
LAITTEEN ASENNUS

Säätötoiminnot on asennettava paneelille, jotta käyttäjällä olisi rajoitettu pääsy taustakytkentöihin.

SPS300A



SPS300B



Ⓐ	Virran ulostulo
Ⓑ	4 - 20 mA / kuormitusvastus: 300 Ω maksimi
Ⓒ	Releen 1 ulostulo
Ⓓ	Kuorma
Ⓔ	Virtalähde
Ⓕ	Normaalisti suljettu
Ⓖ	Normaalisti auki
Ⓗ	Releen 2 ulostulo

CONTENTS

1. General Features

1. OVERVIEW

The SPS 300A/B is a micro-processor- based high functionality compact digital pressure sensor/switch. It is used to control air, steam, inert gas, or non corrosive fluid pressure. It is produced in either a wall-mount or panel flush-mount.

2. DISTINGUISHING FEATURES

① High accuracy

The accuracy for the output range, 4 to 20mA, is ± 0.25% at 0 to 50°C.

② Pressure readings

Pressure values (PV value) are shown by a 4-digit LED. The decimal position can be changed to a minimum resolution range.

③ 4 to 20mA output (SPS300A)

PV values are converted to 4 to 20mA output for either full range or a preset span.

④ Relay output

Relay ON/OFF control is done by digital set.

⑤ Digital set (Set point, Differential)

Relay contact and pressure differential set points are changed by the input key while monitoring process pressures (digital readings and set points can be checked as needed.)

⑥ Keylock

The DISPLAY and PARAMETER mode contents can be displayed and checked in the keylock state.

⑦ Indicating digit

Indicating digits can set to eliminate the less significant digits in order to prevent LED flickers caused by microscopic pressure changes.

⑧ Peak hold

The previous maximum pressure value can be stored into memory and checked when required. This value will clear when the power supply is turned off.

⑨ Filter time

Abrupt PV value fluctuations can be suppressed by the preset time constant.

⑩ HI/LO operation

The HI/LO relay can be reversed to indicate the following:

HI setting – relay energizes on pressure drop and deenergizes on pressure rise

LO setting – relay energizes on pressure rise, deenergizes on pressure drop

The LED lights when the relay is energized.

⑪ PV bias

Process variables can be increased or decreased with preset values. This allows zero point adjustment to atmospheric pressure.

⑫ PV adjusting value (zero point, span point)

Zero and span point of PV values are adjustable.

⑬ Current value manual output (SPS300A)

Manually set pressure values can be output in order to check controllers and recorders during trial runs.

⑭ Self-diagnosis

Abnormal conditions are indicated by an intregal microcomputer so remedial measures can be quickly instituded.

3. FUNCTION OUTLINE

DISPLAY key
(Display mode)

- PV value (pressure value) digit change indicator
- Set point
  - SP 1
  - SP 2
- Keylock

PARAMETER key
(Parameter mode)

- Differential
  - DIF 1
  - DIF 2
- Filter time change
- PV bias
- Peak hold
- HI/LO select

◁ + PARAMETER key
(SPS300A only)

- Manual current output
- Current value scale
  - 4mA setting
  - 20mA setting
- Initial current

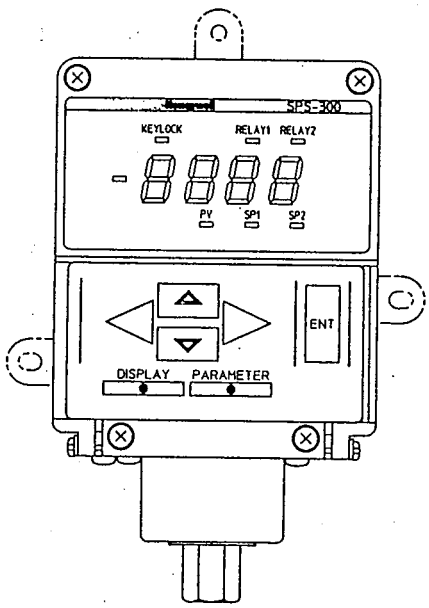
▷ + PARAMETER key

- PV value adjustments
  - PV zero adjust
  - PV full span adjust
- Initial PV

Self-diagnosis

Digital display

Digital setting



Current output

SPS300A

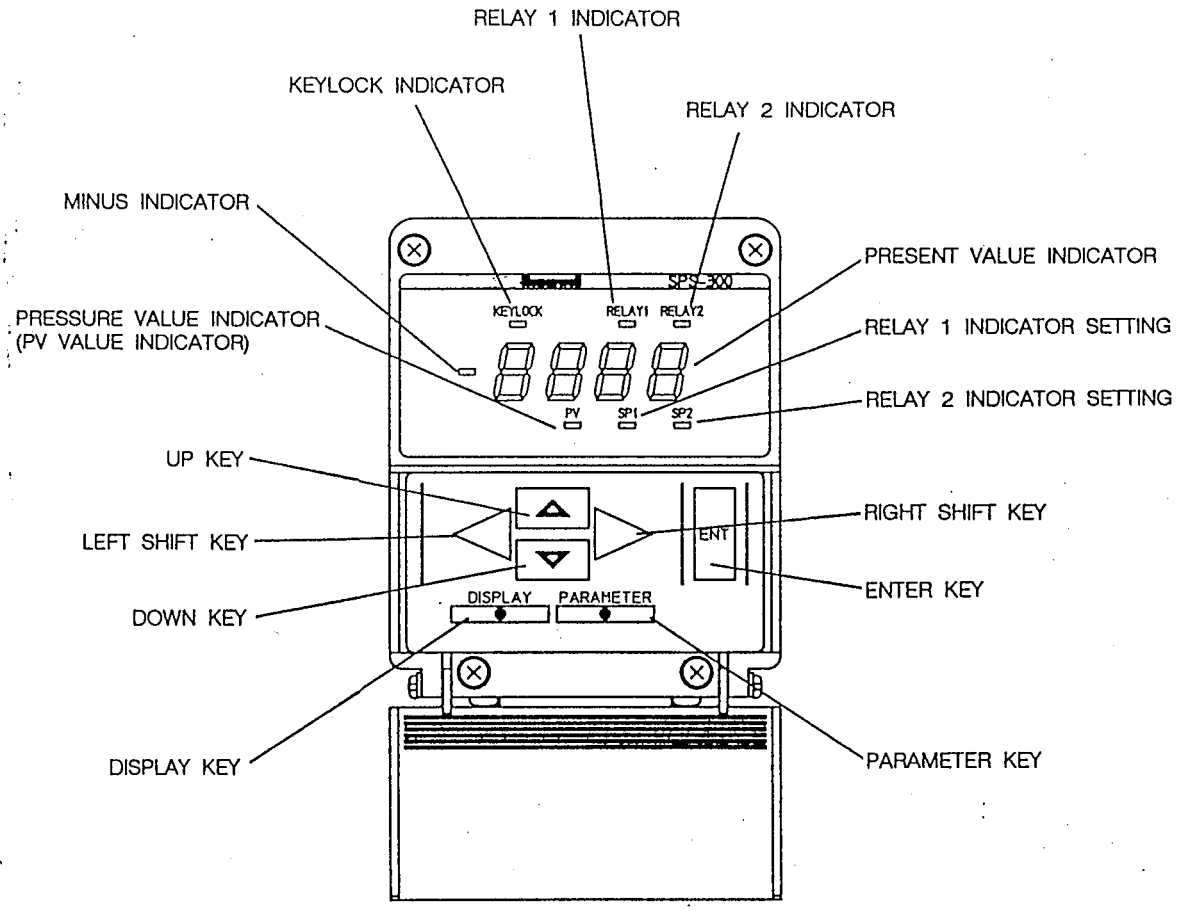
- 4 to 20mA
- &
- RELAY 1 ON/OFF

Relay contact output

SPS300B

- RELAY 1 ON/OFF
- &
- RELAY 2 ON/OFF

2. Component Part Names and Operating Methods



■ To input numbers with display key:

- Move a digit left or right with ◁ or ▷ keys; increase or decrease the number with △ or ▽ keys.
- After numeric input, press | ENT | key.

■ To input numbers with parameter key:

- Press | ENT | key.
- Move a digit left or right with ◁ or ▷ keys; increase or decrease the number with △ or ▽ keys.
- Press | ENT | key.

1. OPERATING METHODS SUMMARY

Key Operation	Mode	Function	SPS300A	SPS300B	Display Characters and Lamp States	Factory Setting
DISPLAY key	①DISPLAY mode	PV value display	O	O	PV lamp lit	—
		SP1 value setting	O	O	SP1 lamp lit	※
		SP2 value setting	X	O	SP2 lamp lit	※
		Keylock	O	O	LO.CK. (LOCK)	Canceled
PARAMETER key	②PARA-METER mode	DIFF1 value setting	O	O	dI.F1 (DI. F1)	※
		DIFF2 value setting	X	O	dI.F2 (DI. F2)	※
		Digital filter time constant setting	O	O	FI.Lt (FILT)	1,000 s
		PV bias value setting	O	O	bI.AS. (BIAS)	0
		Peak hold value display	O	O	PEAK. (PEAK)	—
		Relay 1 action state setting	O	O	rEL1 (REL 1)	HI
		Relay 2 action state setting	X	O	rEL2 (REL 2)	HI
◁ + PARAMETER key	③4 to 20 mode	4 to 20 mA manual output (relay control function provided)	O	X	MANL (MANUAL)	—
		4 mA output point range scaling value setting	O	X	4 Ad (4 AD)	Range model low limit
		20 mA output point range scaling value setting	O	X	20Ad (20 AD)	Range model high limit
		4 to 20 mA output values initialization	O	X	CUI.n (CURRENT INITIALIZE)	—
▷ + PARAMETER key	④PV adjustment mode	PV zero adjusting value setting	O	O	Pv 0 (PV 0)	—
		PV span adjusting value setting	O	O	PvFS. (PV FULL SCALL)	—
		PV all adjusting value initialization	O	O	PvI.n (PV INITIALIZE)	—

(Note) Press ◁ + PARAMETER, ▷ + PARAMETER key first, then PARAMETER key.

※ The least significant digit is "1" regardless of range model.
Ex. 0.1 kPa in case of 0.0 – 200.0 kPa range model.

2. OPERATING METHODS

Operation with DISPLAY key

(1) The following functions are sequentially accessed and set when DISPLAY key is pressed.

Step	Key operation	Display	Display description
1	Press DISPLAY key	PV value PV	PV value display PV LED lights. Press ◁ or ▷ key to shift display digit. Fix display digit with ENT key
2	Press DISPLAY key	RELAY1 SP1 value SP1	SP1 value display SP1 LED lights. RELAY 1 LED lights when relay 1 energized.
3	Press DISPLAY key	RELAY2 SP2 value SP2	(Note) SPS300B only SP2 value Indicator SP2 LED lights RELAY 2 LED lights when relay 2 energized
4	Press DISPLAY key	LO.CA.	LO.CA. indication Keylock set is prepared.

Keylock is not done.

- RELAY LED lights when relay is energized.
- The RELAY LED will change according to HI/LO selection.

In case of keylock or reset

5	Press ENT key	F	F Display flickers (F = FREE)
6	Press either △ or ▽ key	L	L Display flickers (L = LOCK)
7	Press ENT key	KEYLOCK L	L display KEYLOCK LED lights. Keylock set
8	Press either △ or ▽ key	KEYLOCK F	F Display flickers KEYLOCK LED flickers.
9	Press ENT key	KEYLOCK F	F display KEYLOCK LED goes out. Keylock reset.

Keylock set

Keylock reset

PARAMETER key operation

Step	Key operation	Display	Display description
1	PARAMETER Press [o] key	d 1.F 1	Differential 1 set value Set range 0 to 100 (%) Full Scale (FS)
2	PARAMETER Press [o] key	d 1.F 2	(SPS300B only) Differential 2 set value Set range 0 to 100 (%) FS
3	PARAMETER Press [o] key	F 1.L t	Digital filter time set range 0.00 to 99.99 (sec) FS
4	PARAMETER Press [o] key	b 1.A S.	PV bias set value Set range 0 to 100 (%) FS
5	PARAMETER Press [o] key	P E A K.	Peak hold display value
6	PARAMETER Press [o] key	r E L 1	Relay 1 operating set condition
7	PARAMETER Press [o] key	r E L 2	(SPS300B only) Relay 2 operating set condition

Operation by simultaneously pressing ◁ + PARAMETER } keys

This display operation for SPS300A only.

Step	Key operation	Display	Display description
1	◁ + PARAMETER Press ○ key	▭ n.nAL	4 to 20mA manual output (Relay control function provided.)
2	PARAMETER Press ○ key	▭ 4 Ad	4mA low point scale set value
3	PARAMETER Press ○ key	▭ 20Ad	20mA high point scale set value
4	PARAMETER Press ○ key	▭ CU 1.n	4 to 20mA full scale set value Reset to factory value.

Operation by simultaneously pressed ▷ + PARAMETER } keys

Step	Key operation	Display	Display description
1	▷ + PARAMETER Press ○ key	▭ Pu 0	PV zero adjust set value
2	PARAMETER Press ○ key	▭ PuFS.	PV span adjust set value
3	PARAMETER Press ○ key	▭ Pu 1.n	PV full adjust Initial value Reset to factory value.

3. PROCEDURES FOR DISPLAY/PARAMETER MODES

[1] Display Mode

[1-1] PV Function/display Digit Changes (PV)

- **Set procedure**

  a) After a one second delay, the measured pressure value (PV value) is displayed by the PV lamp.

  b) Pressing [DISPLAY] key allows the PV function to be changed.

  c) Pressing [DISPLAY] in keylock state sets the PV function.

- **Reset procedures**

  a) Pressing [DISPLAY] changes the function from PV to SPI.

  b) Pressing [PARAMETER], the parameter mode is set.

  Display changes to d i. F 1.

- **Description**

  a) PV LED light displays PV value.

  b) To change display digit (without keylock)

  - Set PV to the desired number of digits with ◁ or ▷ key.
  - If the decimal point is positioned all the way to the (4th digit) pressing ◁ key will not shift decimal point.
  - Left shift is done with ▷ key to the position where the full-span value is the most significant digit.
  - A number less than that displayed at the far right is rounded up when number is 5 or over and disregarded when less than 5.

  c) The display digit is set and fixed with [ENT] key.

  The display will return to the previous value, if [ENT] key is not pressed when power is turned off.

1-2 SP1 or SP2 function (SP1), (SP2)

- To set and reset, use the same procedures described above.

Description

a) Set procedure

- Select the digit to be set by pressed ◁ or ▷ key. The flickering digit can be set.
- Set the value by pressing △ or ▽ value. The number increases or decreases by one each time △ or ▽ key is pressed. Pressing △ key when number 9 is shown will shift to 0 and be increased to the higher significant digit. Pressing ▽ key when number 0 is shown will shift to 9 and the key to left will decrease by one significant digit.
- When the ENT key has set the value, the digit flicker once, then stop to indicate the value has been set. A control output is sent at a time.
- To reset press ◁ , ▷ , △ or ▽ key.

(Note)

- Since the displayed PV value could have been rounded, it is possible that the corresponding relay does not function even if the PV value and set point are equal.
- This will happen when the PV value digit shifts.
- The relay will function only when the set point and PV value coincides.

o

2 Parameter mode

2-1 Differential (d1.F1), (d1.F2)

- (To set and reset observe the procedure in 1-2 .)

Description

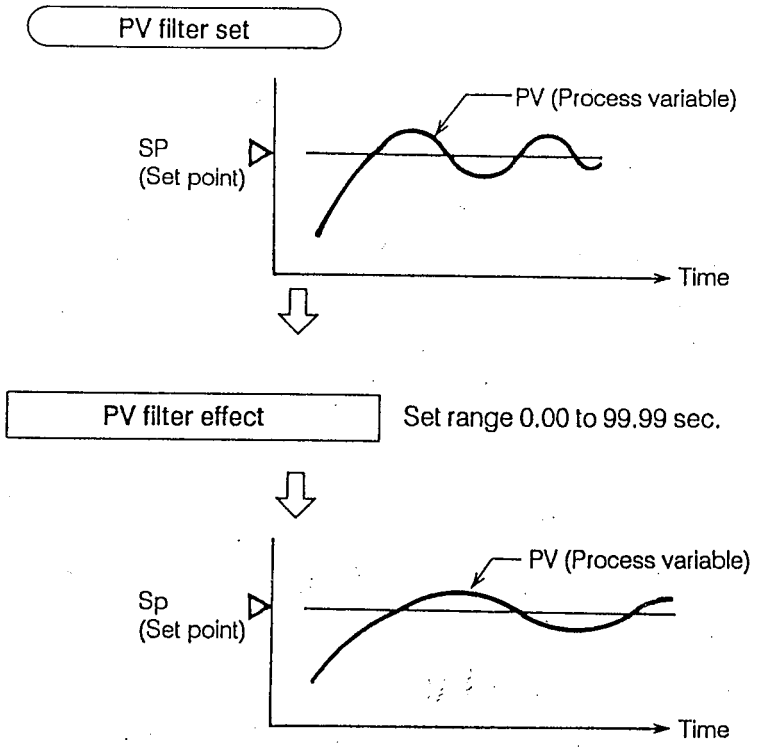
(a) Set procedure

Pressing ENT key displays a set point. Repeat the procedures described in 1-2 .

2-2 Filter time constant/display set procedures (F IL E)

a) Set procedure

Pressing the ENT key displays a set point. The number must be between 0.00 to 99.99 sec.



(1) Set PV filter constant.

(2) The PV filter is provided to ignore sudden PV changes.

Without the PV filter sudden pressure changes would be displayed.

2-3 PV bias function (b I .AS.)

a) Definition of PV bias set point

Pressing ENT key displays a set point.

A PV value is displayed or output as a 4 to 20mA signal after biasing it by the set point.

Note) PV adjustment procedure

Since the PV bias function is independent, it remains unchanged if either PV zero or PV full span values are adjusted.

b) Set procedure

Repeat the procedure described in 1-2 .

2-4 Peak hold/display set procedure (PERh.)

a) Set procedure

The last maximum pressure value can be read by pressing ENT key. (This value will be cleared when turning power supply off.)

b) Clear procedure

Pressing ENT key the 5.0. (GO) display flickers.

Pressing ENT key again the display is cleared to accept a new peak hold value.

c) Display cautions

Zero will be displayed for 20 seconds when turning the power supply on.

(Note) A value that exceeds rated pressure should only be used as a reference, since its accuracy decreases to ± 5%.
In addition, if a pressure exceeds the rated value the accuracy may fluctuate.

2-5 Relay 1 or 2 operating condition selection (FEL1), (FEL2)

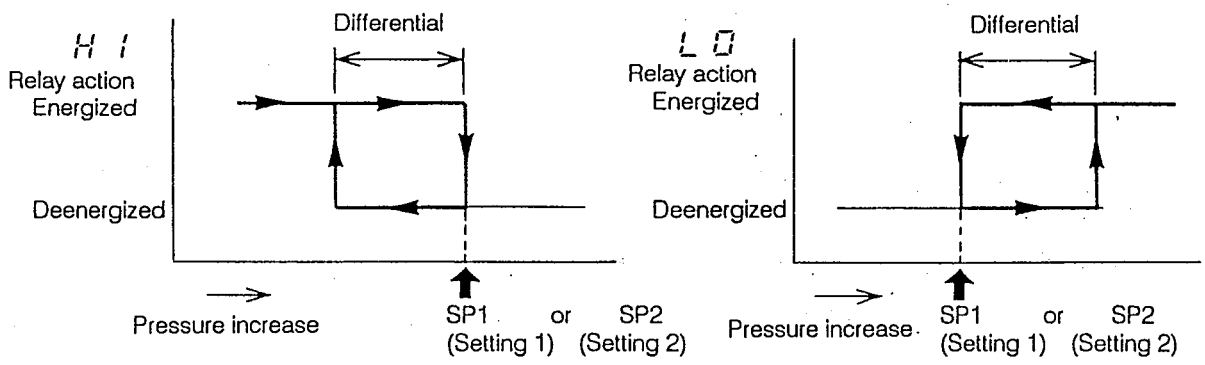
1) FEL1 is displayed in relay 1 function 1 mode, while FEL2 is displayed in relay function 2 mode.

2) Pressing ENT key the corresponding relay deenergizes as follows:
If input is greater than set point during H1. pressure increase, the relay deenergizes (pressure rise control).

If input is less than set point during L0. pressure decrease, the relay is deenergized (pressure drop control).

3) Pressing △, or ▽ key, the set conditions can be reversed.

Pressing ENT key loads and displays set points.



4) The indicator operation LED lights when relay is energized.

3-1 Current value manual output function (M.MAL)

a) Set procedure

Pressing [ENT] key, displays and its output present PV value. Set output PV value with ◁, ▷, △, or ▽ key, then press [ENT]. The new set value is displayed and output.

The input range is specified below.

Negative pressure side: – 1.2 bar

Positive pressure side: Positive pressure range × 1.1 bar

3-2 4mA output point range scaling (4 Ad)

Contents

- 4 Ad is displayed in 4 Ad function mode.
- Pressing [ENT] key, a value at the 4mA output point is displayed.

1) Set procedure

- Input a desired value of the 4mA output point by ◁, ▷, △, ▽ keys.
- The new set value is displayed by pressing [ENT] key.
- Change the 4 to 20mA process variables as a result of the above change.

3-3 20mA output point range scaling (20Ad)

Contents

- 20Ad is displayed in 20Ad function mode.
- Pressing [ENT] key but value at the 20mA output point is displayed.

1) Set procedure

- Input a desired value of the 20mA output point by ◁, ▷, △, ▽ keys.
- The new set value is displayed by pressing [ENT] key.
- Change the 4 – 20mA process variables as a result of the above change.

3-4 Initialize of 4 – 20mA output values (CUI.M)

- CUI.M is displayed in the initialize function mode.

1) Setting method

- 5.0. flickers when pressing the [ENT] key.
- When pressing the [ENT] key again under this condition, the 4 – 20mA output is reset to the factory adjusted value.
- This function is effective to reset the 4 – 20mA output value to the initial value, if the adjustment has failed in [3-2] or [3-3].

4 – 1 PV zero adjust function (P ␣ 0)

a) Set procedure

Pressing [ENT] key displays current PV value (A PV value based on the factory set point but excluding bias value).

b)
- Set the pressure to either zero or a specific value.
- Input the number displayed on the reference manometer with ◁, ▷, △, or ▽ keys.
- Pressing the [ENT] key, calculates the current PV value to meet the input value.
- The difference between PV and input values is calculated in order to change the bias and ratio of the succeeding PV value.

- To reset repeat the above procedure.
- 4 – 20mA output changes as a result of PV value changes.

(Note)
- Since PV bias value is not adjustable, reset it to zero before starting the above.
- An adjusting bias value after PV zero adjustment is independent of PV bias values.
- Filter time is reset to zero and adjusted only after the PV value stabilizes.

4-2 PV value full span point adjustment function (PuFS.)

a) Set procedure

Observe the same procedure as PV value zero adjustment.

(Note)
- Since PV bias value is not adjustable, reset it to zero before starting this adjustment.
- An adjusting bias value after PV zero adjustment is independent of PV bias values.
- Filter time is reset to zero and adjusted only after the PV value stabilizes.

4-3 Initialize in PV value zero point and full-span point adjustment (Pu I.IT)

- Pu I.IT is dispalyed in the initialize function mode.

1) Setting method
- 5.0. flickers when pressing the [ENT] key.
- When pressing the [ENT] key again under this condition, the PV value adjustment is reset to the factory adjusted value.
- This function is effective to reset the 4–20mA output value to the initial value, if the adjustment has failed in [4-1] or [4-2].

3. Troubleshooting

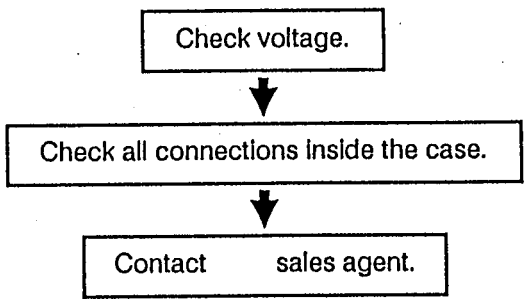
1. ALARM CODE DISPLAY

Alarm code	Reason for alarm	Corrective measures
AL 1	Excessive pressure (A pressure lower than the rated pressure)	Apply rated pressure and confirm normal operation.
AL 2	Excessive pressure (A pressure higher than the rated pressure)	Apply rated pressure and confirm normal operation.
AL 3	Lower than – 20°C (Inside the case)	Check operation in recommended temperature range.
AL 4	Higher than + 80°C (Inside the case)	Check operation in recommended temperature range.
AL 5	Client's set points not accepted by memory	Check all set points and reset if necessary.
AL 6	Factory set points not accepted by memory	PV values and alarm codes are alternately displayed.

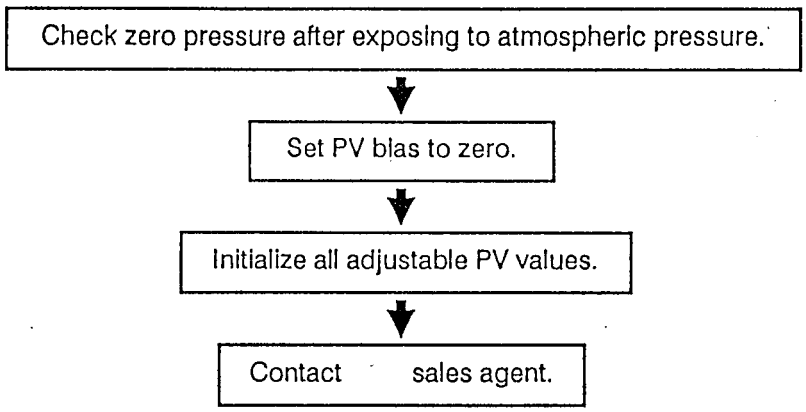
- PV values and alarm codes are alternately displayed.
- Outputs under this status are not guaranteed as normal.

2. TROUBLESHOOTING PROCEDURE

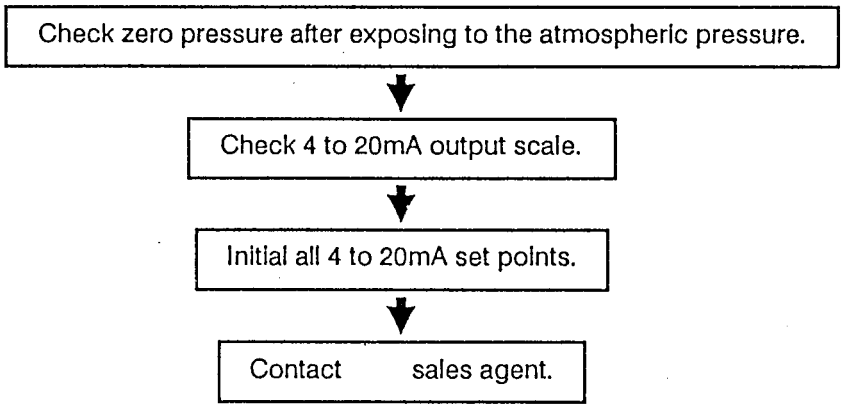
(1) No PV value displayed.



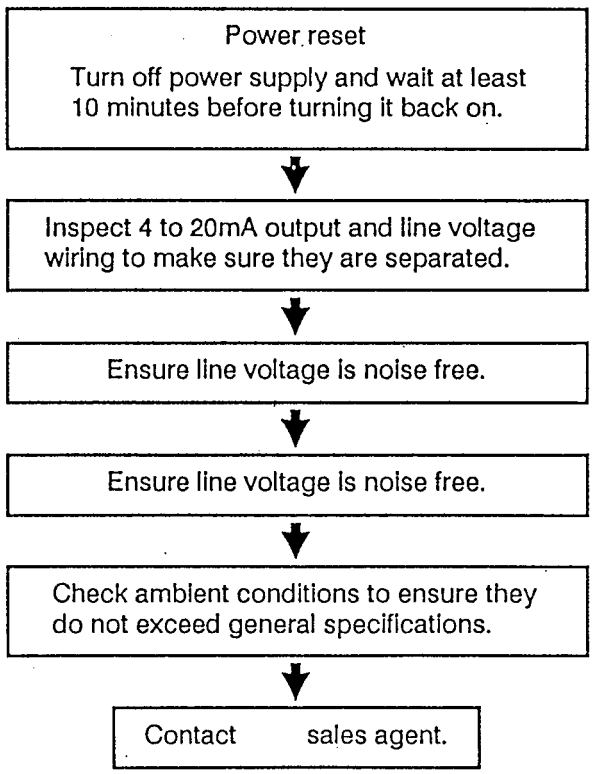
(2) Abnormal PV value



(3) Abnormal 4 – 20mA



(4) Incorrect operation



4. Model Number Configuration, Specifications, and External Dimensions

1. MODEL NUMBER CONFIGURATION

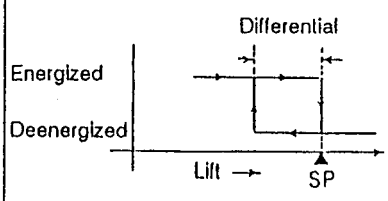
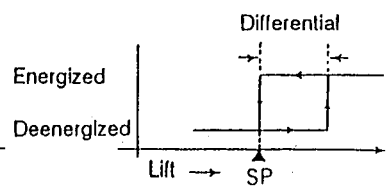
I	II	III	IV	V

(Example) SPS300A 800 A E 00

I Basic model no.	II Range	III Mounting	IV Power voltage	V Additional processing	Ranges (bar) and mounting type selection
SPS300A					Pressure sensor
SPS300B					Pressure switch
	800				0 to 1
	801				0 to 2
	802				0 to 5
	803				0 to 10
	804				0 to 20
	805				0 to 35
	806				−1 to +1
	807				−1 to +10
	808				0.2 to 1
	809				0 to 3
	810				−1 to +20
	811				−1 to +35
		A			Wall-mount panel
		B			Flush-mount panel
			E		AC120/240V 50/60Hz
				00	None

2. SPECIFICATIONS

Applicable fluid	Gases and liquids, except corrosive fluids that may corrode pressure receive material (SUS316L, SUS316)			
	Applicable fluid temperature	−20 to +60°C		
Pressure detection	Pressure receiver structure	Diaphragm-type protected by oil seal		
	Pressure detecting element	Piezo-resistance silicon pressure detector		
	Wetted material	Diaphragm: SUS316L		
		Pressure inlet: SUS316L, SUS316		
Display and set	Display and set method	Digital 4 digits, 7 segment LED display		
	Display and set range	Rated pressure (bar)	Set range	Display/set resolution
		−1 to + 1	−1.200 to +1.100	0.001
		−1 to +10	−1.20 to +11.00	0.01
		−1 to +20	−1.20 to +22.00	0.01
		−1 to +35	−1.20 to +38.50	0.01
		—	—	—
		—	—	—
		—	—	—
		—	—	—
		0.2 to 1	0.120 to 1.100	0.001
		0 to 1	−0.100 to +1.100	0.001
		0 to 2	−0.200 to +2.200	0.001
		0 to 3	−0.300 to +3.300	0.001
		0 to 5	−0.500 to +5.500	0.001
		0 to 10	−1.00 to +11.00	0.01
		0 to 20	−1.20 to +22.00	0.01
		0 to 35	−1.20 to +38.50	0.01
	Display digit change	Lower significant digits can be hidden and set to prevent flickering with small pressure fluctuations.		
	Input filter	0.00 to 99.99 sec., variable First-order filter system off at 0.00.		
	Response speed	Display output	100ms	Input filter = 0.00 at 63% response
		Current output	50ms	
		Relay contact outlet	50ms	
	Indicator accuracy (Note 1)	Working temperature range / Pressure range	−20 to 0°C	
		Positive pressure range	± 1%FS ± 1 digit (± 2%FS ± 1 digit in case of 0 to 5 bar model	
		Vacuum pressure range	± 2%FS ± 1 digit	

Display and set	Indicator accuracy (Note 3)	Working temperature range / Pressure range		0 to 50°C
		Positive pressure range		± 0.25%FS ± 1 digit
		Vacuum pressure range		± 1%FS ± 1 digit
		Working temperature range / Pressure range		50 to 60°C
		Positive pressure range		± 1%FS ± 1 digit (± 2%FS ± 1 digit with 0 to 5 bar model
		Vacuum pressure range		± 2%FS ± 1 digit
		(Note 1) Overall accuracy including the linearity, offset, hysteresis, and their temperature/power voltage characteristics.		
Output section				
	Basic model number	SPS300A		
	Output type	Current + relay contact (SPDT)		
	Output rating	Current	Current value	4 to 20mA External load resistance: 0 to 300Ω max.
			Scale	Zero and span can be set.
			Manual	Current value manual output can be set.
		Relay contact	SP1	250V AC 3A resistive load (Note 2)
	Basic model number	SPS300B		
	Output type	Relay contact (SPDT) + relay contact (SPDT)		
	Output rating	Relay contact	SP1	250V AC 3A resistive load (Note 2)
		Relay contact	SP2	250V AC 3A resistive load (Note 2)
		(Note 2) Mechanical life: 50,000,000 cycles Electrical life: 100,000 cycles (with rated load)		
	Relay action	Hi	Relay deenergized on pressure rise, energized on pressure drop.	Selectable
		Lo	Relay energized on pressure rise, deenergized on pressure drop.	
	Differential clearance of relay (DIF)	0 to 100%FS, variable		
	Output refresh	25ms		
	Relay action	Relay action when Hi selected  Relay action when Lo selected 		
	Output accuracy (Note 3)	Working temperature range / Pressure range		−20 to 0°C
		Positive pressure range		± 1%FS (± 2%FS with 0 to 5 bar model)
		Vacuum pressure range		± 2%FS

<table>
<tr><td rowspan="5">Output section</td><td rowspan="5">Output accuracy
(Note 3)</td><td>Working temperature range / Pressure range</td><td>0 to 50°C</td><td>50 to 60°C</td></tr>
<tr><td>Positive pressure range</td><td>± 0.25%FS</td><td>± 1%FS</td></tr>
<tr><td>Negative pressure range</td><td>± 1%FS</td><td>± 2%FS</td></tr>
<tr><td colspan="3">(Note 3) Overall accuracy including the linearity, offset, hysteresis, Vacuum and their temperature/power voltage characteristics.</td></tr>
<tr><td rowspan="5">Various functions</td><td>Process variable bias</td><td colspan="3">± 0 to 100%FS</td></tr>
<tr><td>Process variable adjustment</td><td colspan="3">Zero and span of measured values are both adjustable.</td></tr>
<tr><td>Peak hold</td><td colspan="3">The last maximum pressure value can be held in memory, displayed, and checked.
This peak hold function is only activated 20 seconds after turning on the power supply.</td></tr>
<tr><td>Keylock</td><td colspan="3">This function is used to prevent inadvertent set point changes.</td></tr>
<tr><td>Self-diagnosis</td><td colspan="3">Sum check is done between user set points and backup set points
Alarm display when abnormal</td></tr>
<tr><td></td><td>Alarm</td><td colspan="3">Overscale (more than +10%FS or less than – 10%FS) or abnormal working temperatures (higher than +80°C or lower than – 20°C) are displayed by alarm codes.</td></tr>
<tr><td rowspan="10">General specifications</td><td>Rupture pressure</td><td colspan="3">3 times the span
(1.5 times with 0 to 3, 0 to 35, or –1 to 35 bar ranges)</td></tr>
<tr><td>Allowable pressure</td><td colspan="3">1.1 times the span
(Equal to the span with 0 to 3, 0 to 35, or –1 to 35 bar ranges)</td></tr>
<tr><td>Rated voltages</td><td colspan="3">120/240V AC 50 – 60Hz</td></tr>
<tr><td>Working voltage range</td><td colspan="3">85 to 110% of rated value</td></tr>
<tr><td>Power consumption</td><td colspan="3">Lower than 7W</td></tr>
<tr><td>Insulation resistance</td><td colspan="3">Higher than 50MΩ between both primary power supply and case.</td></tr>
<tr><td rowspan="2">Dielectric strength</td><td colspan="3">1500V AC, 1 min between primary power supply and case,</td></tr>
<tr><td colspan="3">Caution:
Wall-mount type is provided with a lightning surge protection device for power supply and a current will flow if a voltage of higher than about 1000V is applied across the power supply and the case.
To prevent this, disconnect dielectric strength test pin from the power supply board before dielectric strength test is conducted; reinsert pin after test.</td></tr>
<tr><td rowspan="2">Countermeasure against a lightning surge</td><td colspan="3">Wall-mount type:
A lightning surge preventive device is built in. (10K between power supply and sensor, 6KV between the power supply and the case)</td></tr>
<tr><td colspan="3">Panel-flush mount type:
No lightning surge preventive device provided.</td></tr>
<tr><td>Working ambient temperature</td><td colspan="3">– 20 to +60°C Condensation not allowed.</td></tr>
<tr><td>Ambient storage temperature</td><td colspan="3">– 20 to +80°C Condensation not allowed.</td></tr>
</table>

General specifications	Ambient working humidity	Lower than 90%RH at 40°C. Condensation not allowed
	Vibration resistance	Less than 4.9m/s², 10 to 60Hz in X, Y, and Z direction, 2 h each
	Unit construction	Case/cover: Diecast aluminum Door, window, decorated board: Polycarbonate
	Pressure inlet	1/4 BSP Liquid temperature: 60°C max. A siphon can be used to reduce temperature.
	Main body color	Case: Grey Cover, window, decorated board: Dark grey Door: Grey smoke
	Mass	Approx. 1.1kg
	Mounting position	Vertical
	Altitude	Max. 2000m
	Mounting	Wall-mount of panel flush-mount
	Environment condition	Permanently connected equipment
	Over voltage category	Category II (IEC60364-4-443, IEC60664-1)
	Pollution degree	Pollution degree 2
	Conformed standard	EN61010-1, EN61326

Caution: Check all specifications carefully and use utmost care during installation and use.

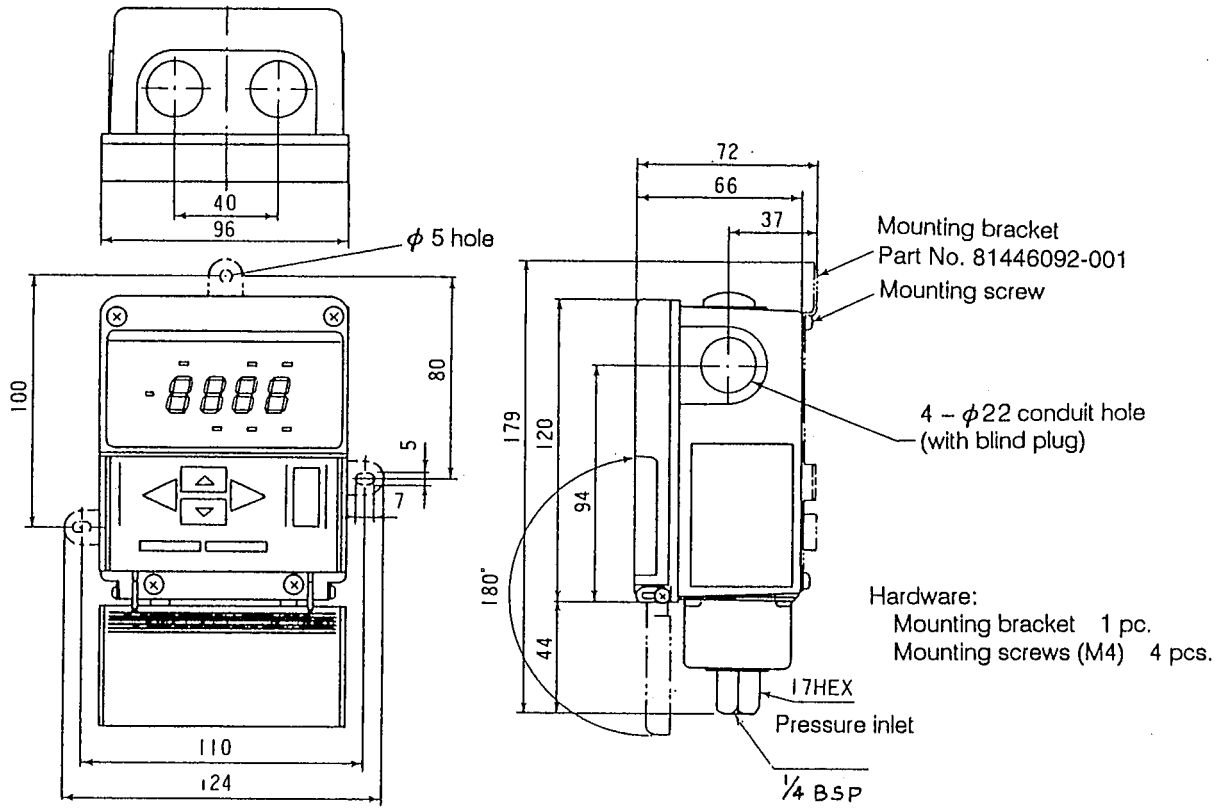
3. HARDWARE AND AUXILIARY PARTS

Standard attachments	Wall mounting bracket (with pressure range indicator label and four M4 screws) Part No. 81446092-001 1 pc.
	Panel mounting bracket (with a pressure range indicator label) Part No. 81446093-001 1 set
Auxiliary parts (optional)	Siphon Part No. J-14026
	Cover packing for replacement Part No. 81403871-001

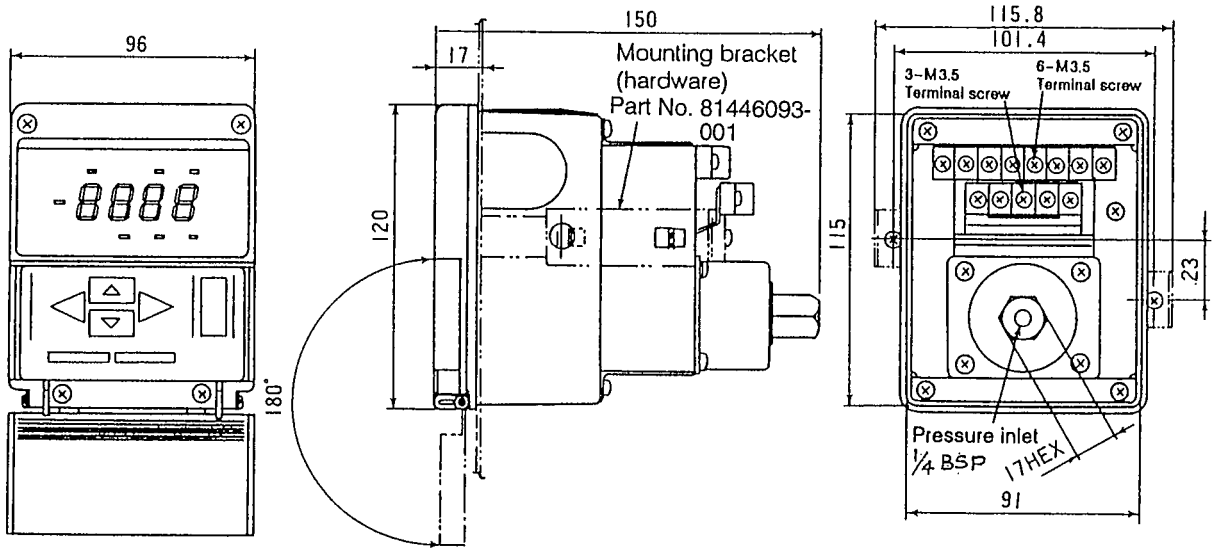
4. EXTERNAL DIMENSION DRAWING

(Unit: mm)

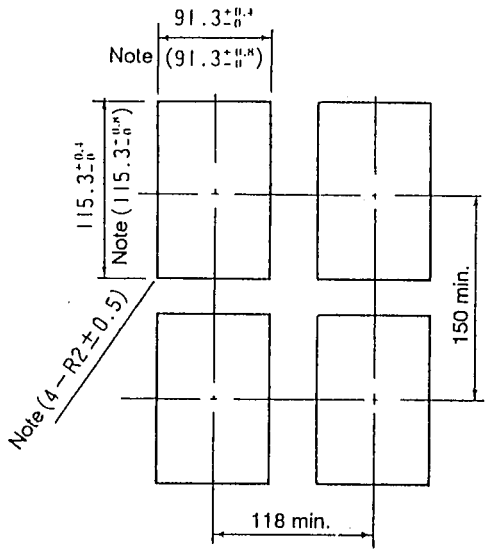
SPS300$^{A}_{B}$ □ □ □ A: Wall-mount type



SPS300$^{A}_{B}$ □ □ □ B: Flush-mount



Panel cutout size

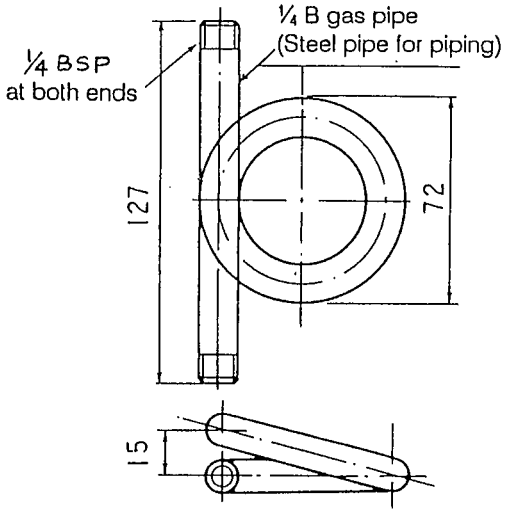


Note ( ) shows the size when dimensional tolerance of the cutout hole is $^{+0.8}_{-0.0}$ with R corners.

(Unit: mm)

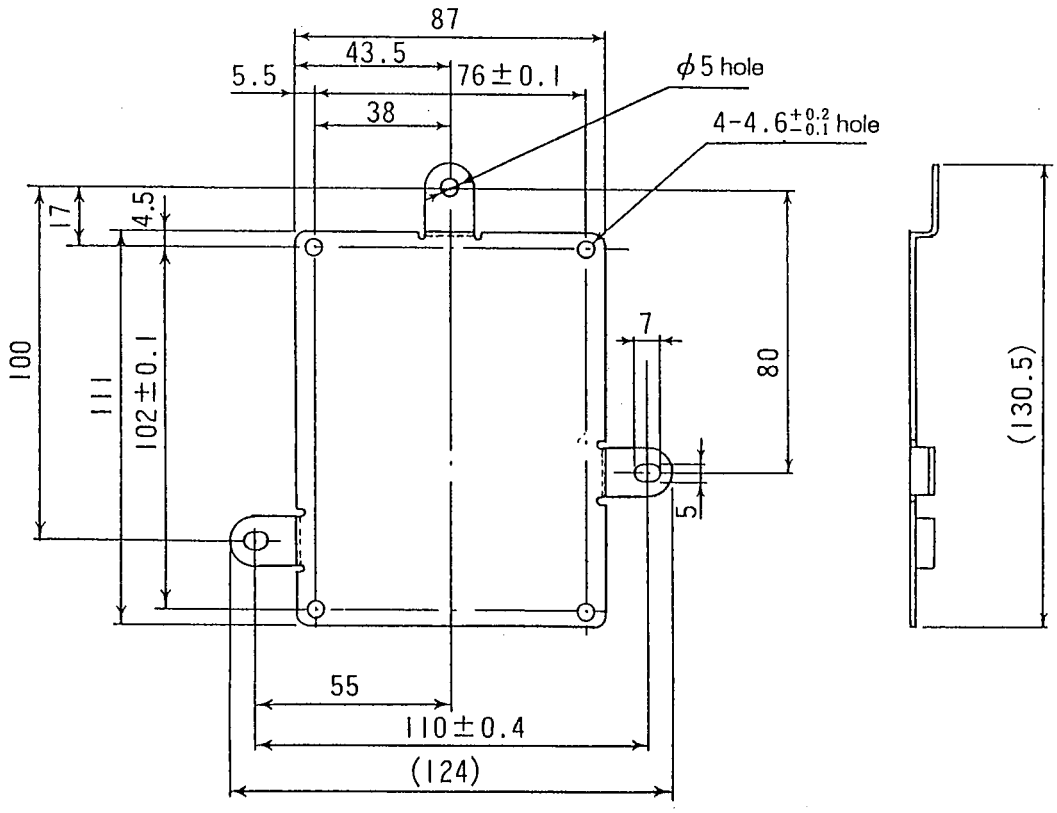
(Option)

Siphon **Part No. J-14026**



(Attachments)

Wall mounting bracket **Part No. 81446092-001**



5. Installation

1. AMBIENT ENVIRONMENT

Do not mount the unit where the following are found;

1. Ambient temperature exceeds – 20 to 60°C.
2. Ambient humidity exceeds 90% RH
3. Ambient temperature changes abruptly to produce condensation
4. Corrosive or combustible gases
5. Excessive dust, salt, iron powder, and conductive substances or organic solvents
6. Excessive vibrations and impacts
7. Direct exposure to direct sunlight
8. Direct exposure to water and rain
9. Exposure to oil and chemical splashes
10. Strong magnetic or electric fields
11. Surge voltage is applied to the connection joint

Caution

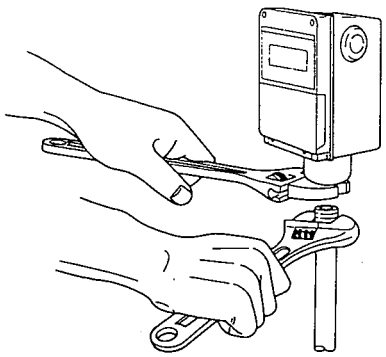
Always use wall-mounting bracket (part No. 81446092-001).

2. PRESSURE INLET CONNECTION

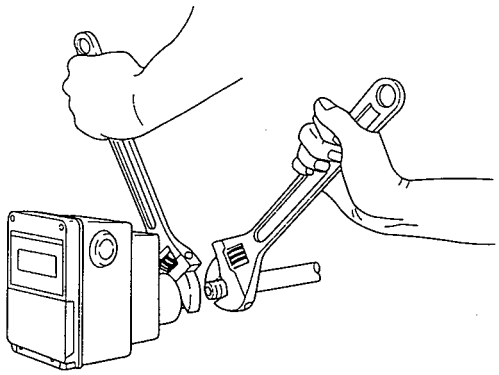
Do not screw in pipe while holding the unit when connecting the pipe to the pressure inlet. This could damage the unit.

1) Correct method

a) Wall mount

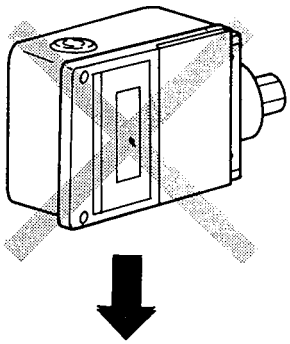


b) Panel flush-mount

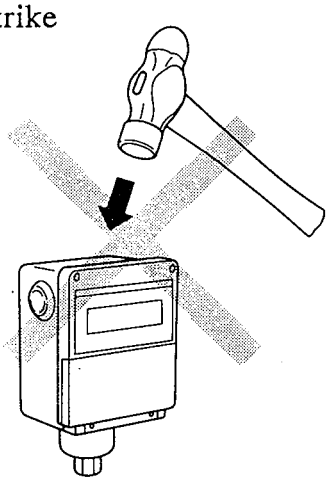


2) Incorrect method

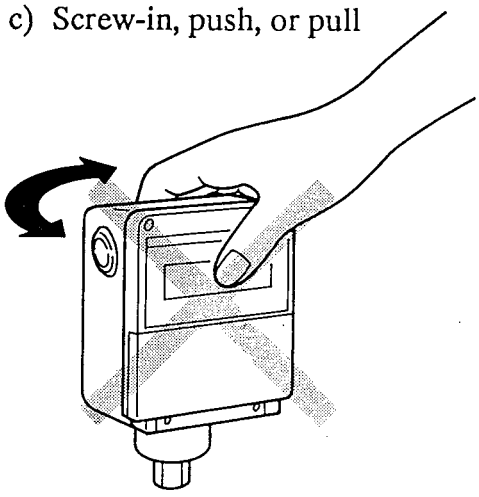
a) Drop



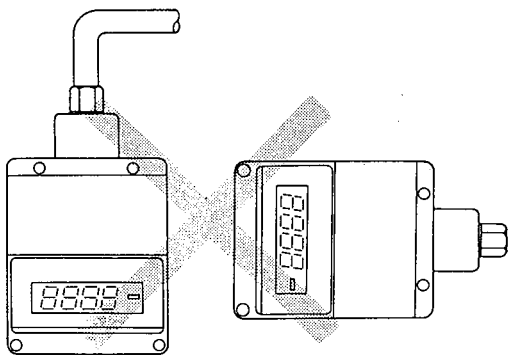
b) Strike



c) Screw-in, push, or pull



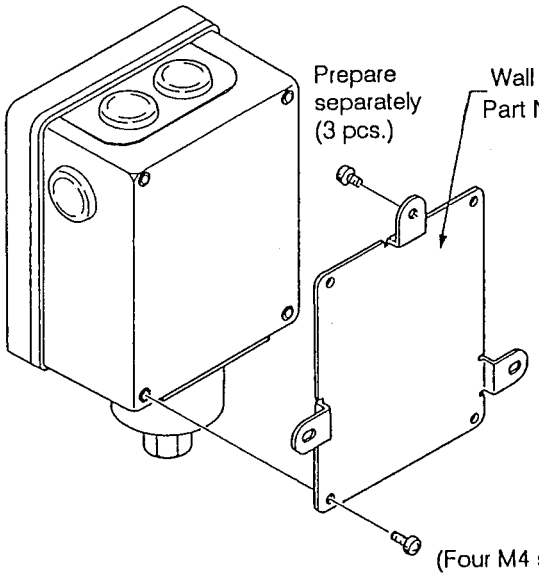
d) Reverse or horizontal



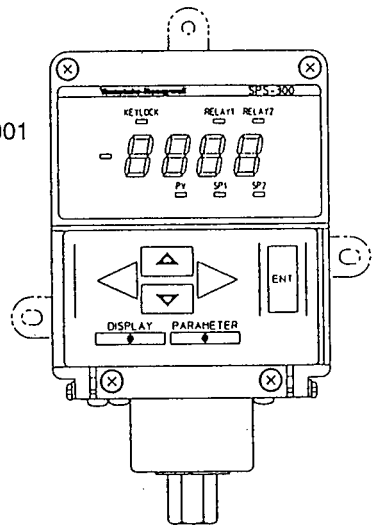
3. INSTALLATION

1) Wall-mount

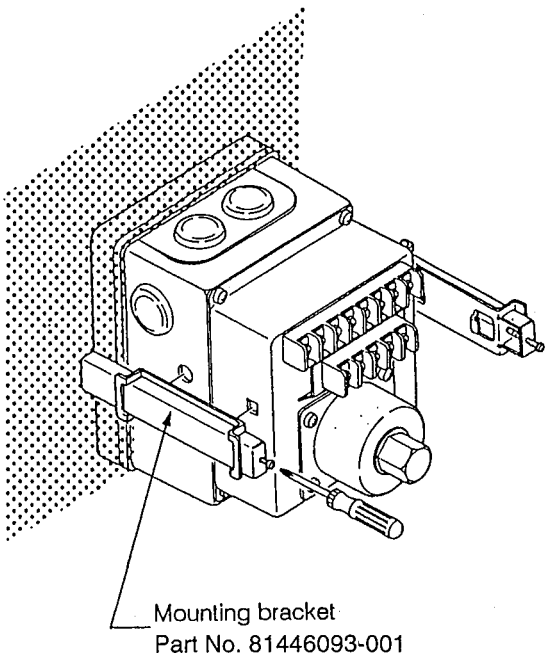
a) Wall mount bracket method



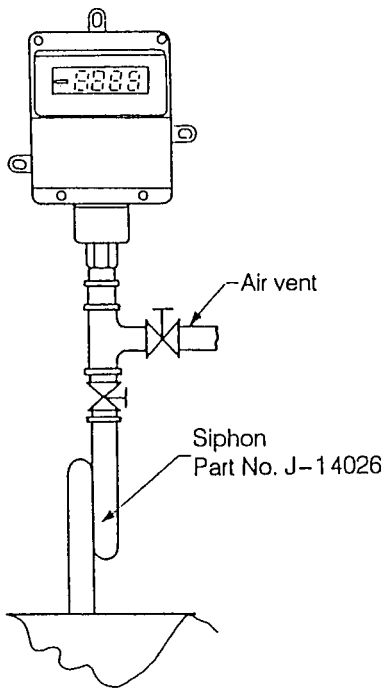
b) Wall mount bracket diagram



2) Flush-mount panel bracket method

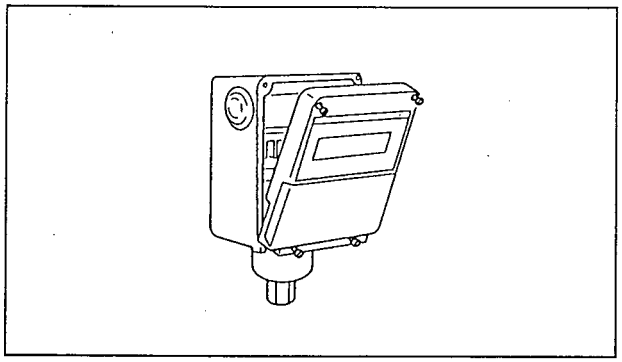


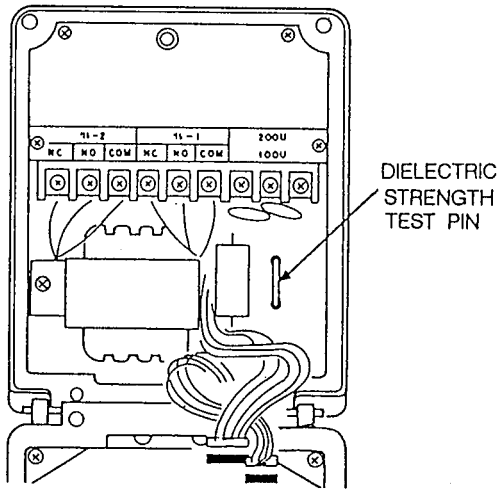
Siphon mounting example



6. Connections

How to open the cover





Precautions

- Be careful to connect cables correctly.
- Be careful not to scratch electronic parts, lead wires, and other components with a screwdriver or other tools.
- Do not insert line voltage and signal cables (4 – 20mA) in the same conduit.
- Tighten cover securely to maintain waterproof seal.
- If waterproofing is required seal the conduit hole with a water-proof conduit.
- Install panel mounting type products in such a way that the operator cannot touch the terminals. This is to prevent electric shock.
- Provide a switch for cutting the mains power supply within operator reach of the controller power wiring circuit.
- Provide a fuse in the controller power wiring circuit matched to the operating power voltage.

1. Connection precautions

(1) Strictly observe following precautions since the digital unit is extremely sensitive to electrical noises, which may cause future malfunction.

(2) Use crimping terminals that conform to 3.5 screws.

(3) First confirm the model number of your unit, then connect cables according to the proper connection diagram. Check model number and connections when finished.

(4) Separate as far as possible input/output signal and drive power cables, or especially power cables of higher than 100V. Do not insert them in the same conduit or duct.

(5) The following table shows the meanings of symbols in the terminal wiring label on the instrument top.

Symbol	Description
~	Alternating current
⏚	Earth (ground) terminal
⚠	Caution, risk of electric shock
⚠	Caution (refer to accompanying documents)

2. Grounding

(1) Connect the sensor unit from the Protective Earth terminal to the ground. do not install any jumper wiring. Mount a separate grounding terminal board (earth bar) as shown in Fig. 6-1. Since only one Protective Earth terminal is provided, connect a shielded wire to the ground.

- Grounding type: Category 3 grounding (Lower than 100)
- Grounding wire: Mild copper wire (AWG14) of more than 2mm^2
- Grounding wire length: 20m

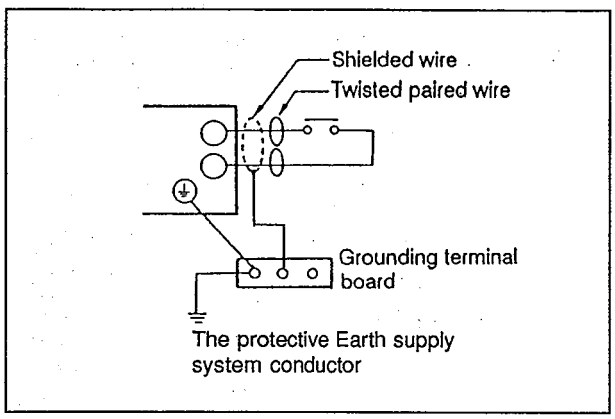
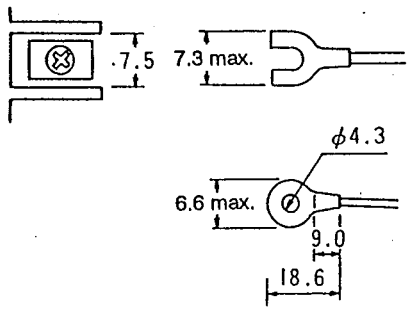


Fig. 6–1. Grounding Method

Terminal connection

Use crimp terminal with 3.5 screw.



(Caution)

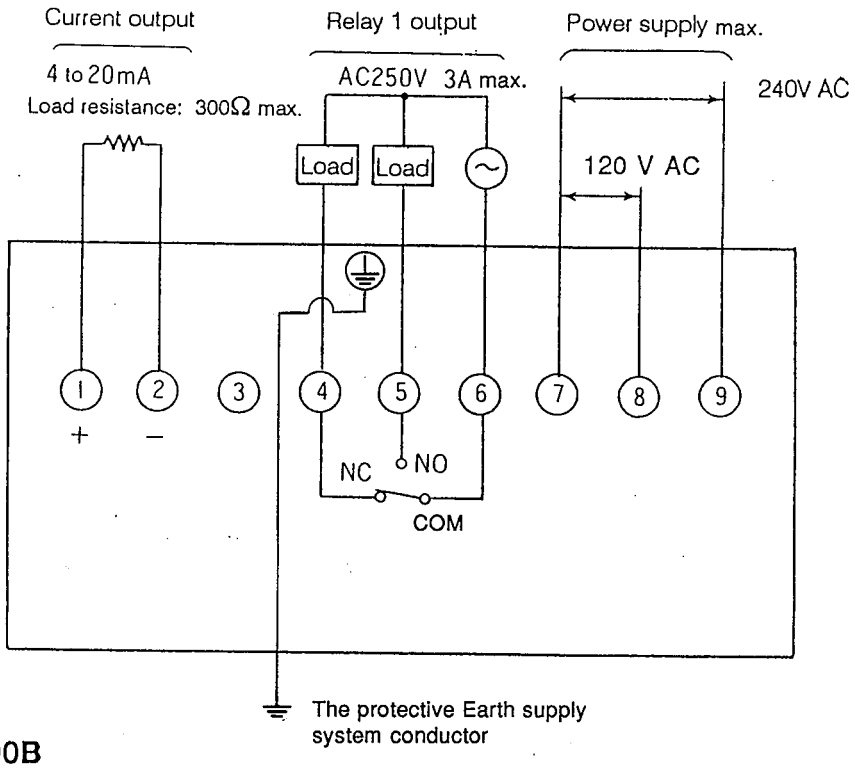
Use circular crimping terminals to ensure that cables do not slip when the unit is subjected to severe vibrations and shocks during operation.

Precautions on handling and use

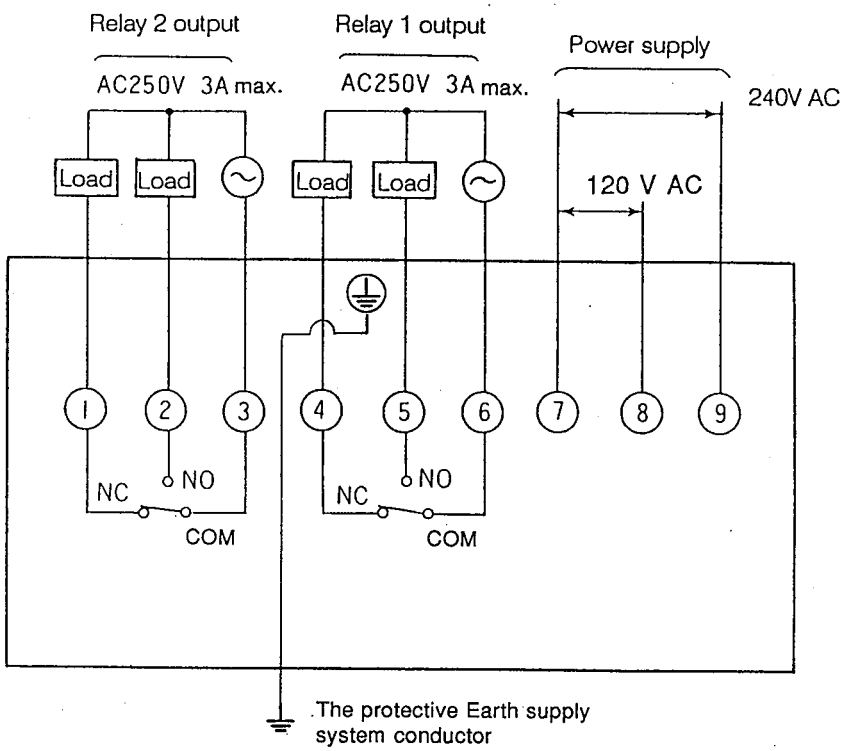
1) Wait for at least 10 minutes after turning on power for unit to stabilize.
2) Do not exceed allowable pressure values. If excessive pressure is applied, check the unit for normal operation.
3) Remove the dielectric strength test pin from its position beside the transformer before starting the dielectric strength test; insert pin securely at the end of test.
4) While this unit is very reliable, it is not fail-safe. Use upmost caution and safety during use.
5) Devices and systems to be connected to this unit must have the basic insulation sufficient to withstand the maximum operating voltage levels of the power supply and input/output parts.

Terminal connection diagram (Wall-mount type)

SPS300A

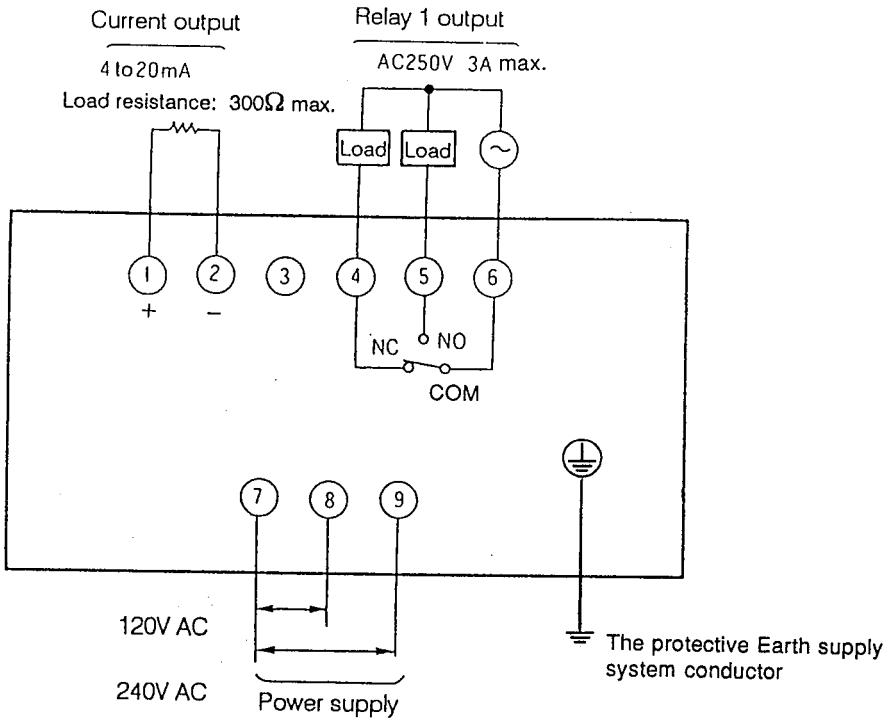


SPS300B

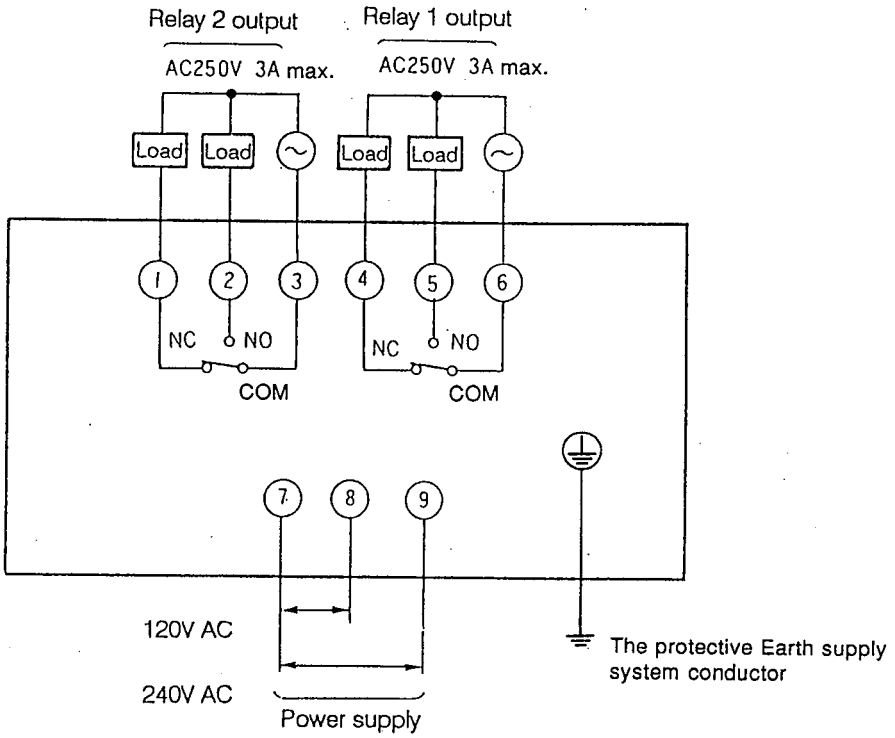


Terminal connection diagram (Panel-mount type)

SPS300A



SPS300B

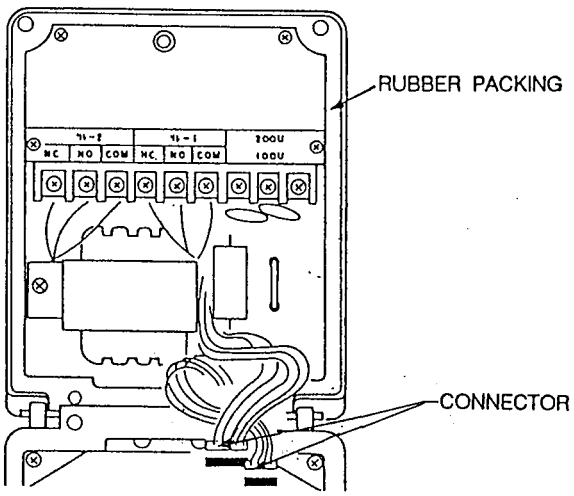


7. Maintenance

Cleaning: Clean the instrument with a soft, dry cloth when it becomes dirty.

Replacing Parts: Only authorized personnel are allowed to replace parts.

Instructions to replace rubber packing: If rain-protection is required, replace the rubber packing (part No. 81403871-001) if it has been over one year since seal was broken. Purchase this rubber packing separately.



Instructions to replace rubber packing

1. Disconnect connector.
2. Replace rubber packing. (Mount new packing in original position.)
3. Reconnect the connector.

Replacing Fuses: When replacing fuses provided on the power supply circuit, use only standard parts specified bellow.

Standard	IEC 127
Type	F
Voltage rating	250 V
Current rating	100 mA (supply voltage 120 V AC) 50 mA (supply voltage 240 V AC)

■ PRECAUTIONS DURING USE

(1) Prevent the unit from excessive shock, either in installation or operation.

(2) Mount unit in the vertical direction only.

(3) Use mount bracket for secure and vibration-free operation.

(4) Do not hold the case while threading pipe into unit. Use hexagonal nut to secure unit while attaching pipe.

(5) This unit is designed for IP54 protection. To ensure long-term seals do not expose it directly to the sunlight and rain, and use a water-proof conduit.

(6) Do not exceed allowable pressure limits. If this occurs check the unit for normal operation.

(7) The pressure sensor is designed with a sufficient tolerance when allowable pressures are exceeded. Use caution when opening and closing valves, the pressure surge through non-compressible liquids could damage the pressure sensor.

(8) Protect wetted portion from freezing. If freezing is anticipated, protect with low-grade, external heat source.

(9) Reduce pressure inlet temperature to 60°C or lower by installing a siphon.

(10) Wait for at least 10 minutes after turning on power for unit to stabilize.

(11) Check all specifications carefully when installing; take proper safety precautions during operation.

(12) Output (e.g., relay output contact operation or 4–20 mA operation) may be unpredictable for a brief moment when power is first supplied. Take preventive measures with the instrumentation to delay reception of the output signal to avoid any effects. Failure to do so might cause faulty operation of the equipment.

(13) For details, contact your dealer.

IMPORTANT

Perform pressure calibration at least once per year.

Although the PV bias function can maintain accuracy, using zero calibration when the unit is opened to the atmospheric pressure, calibrate both zero and span points as field conditions dictate.

This unit comes with factory adjustment data in memory in order for immediate use.

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