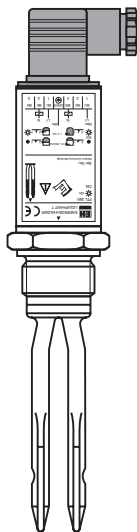


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016757-0000



# *liquiphant T* FTL 260

- d** Füllstandgrenzscharter
- e** Level Limit Switch
- f** Détecteur de niveau
- es** Detector de nivel
- i** Interruttore di livello
- nl** Niveauschakelaar

Endress + Hauser

The Power of Know How



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### Sicherheitshinweise



#### Achtung!

X = verboten; führt zu fehlerhaftem Betrieb oder Zerstörung.

### Notes on Safety



#### Caution!

X = forbidden; leads to incorrect operation or destruction.

### Conseils de sécurité



#### Attention !

X = interdit - peut provoquer des dysfonctionnements ou la destruction.

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**Notas sobre seguridad****¡Atención!**

= Prohibido, peligro de mal funcionamiento o de destrucción.

**Note sulla sicurezza****Attenzione!**

= Vietato, pericolo di malfunzionamento o di distruzione.

**Veiligheidsinstructies****Opgelet!**

= verboden; leidt tot foutieve werking of storing.

#### **d Sicherheitshinweise**

Der Liquiphant FTL 260 darf nur als Füllstandgrenzschalter für Flüssigkeiten in nicht explosionsgefährdeten Bereichen verwendet werden. Bei unsachgemäßem Einsatz können Gefahren von ihm ausgehen. Das Gerät darf

#### **nur von qualifiziertem und autorisiertem Fachpersonal**

unter besonderer Beachtung dieser Betriebsanleitung, der einschlägigen Normen, der gesetzlichen Vorschriften und der Zertifikate (je nach Anwendung) eingebaut, angeschlossen, in Betrieb genommen und gewartet werden.

In der Gebäudeinstallation ist ein Netzschalter für das Gerät leicht erreichbar in dessen Nähe zu installieren.

Der Schalter ist als Trennvorrichtung für das Gerät zu kennzeichnen.

#### **e Notes on Safety**

The Liquiphant FTL 260 is a level limit switch designed for use in non-hazardous areas. If used incorrectly it is possible that application-related dangers may arise.

The level limit switch Liquiphant FTL 260 may be installed, connected, commissioned, operated and maintained **by qualified and authorised personnel only**, under strict observance of these operating instructions, any relevant standards, legal requirements, and, where appropriate, the certificate. Install an easily accessible power switch in the proximity of the device.

Mark the power switch as a disconnecter for the device.

#### **f Conseils de sécurité**

Le Liquiphant FTL 260 doit être exclusivement utilisé comme détecteur de niveau pour liquides en zones non explosibles. Il peut être source de danger en cas d'utilisation non conforme aux prescriptions. L'appareil ne doit être installé, raccordé, mis en service et maintenu **que par un personnel qualifié et autorisé**, qui tiendra compte des indications contenues dans la présente mise en service, des normes en vigueur et des certificats disponibles (selon l'application).

Installer un commutateur réseau à proximité immédiate de l'appareil, en veillant à ce qu'il soit facilement accessible. Marquer ce commutateur comme prise de coupure de l'appareil

## **es** Notas sobre seguridad

El Liquiphant FTL 260 debe emplearse única y exclusivamente como detector de nivel con fluidos en zonas sin peligro de explosión. Su empleo inapropiado puede resultar peligroso. El equipo deberá ser montado, conectado, instalado y mantenido **única y exclusivamente por personal cualificado y autorizado**, bajo rigurosa observación de las presentes instrucciones de servicio, de las normativas y legislaciones vigentes, así como de los certificados (dependiendo de la aplicación).  
Instalar un interruptor de fácil acceso en las proximidades del equipo.  
Identificar el interruptor como desconector del equipo.

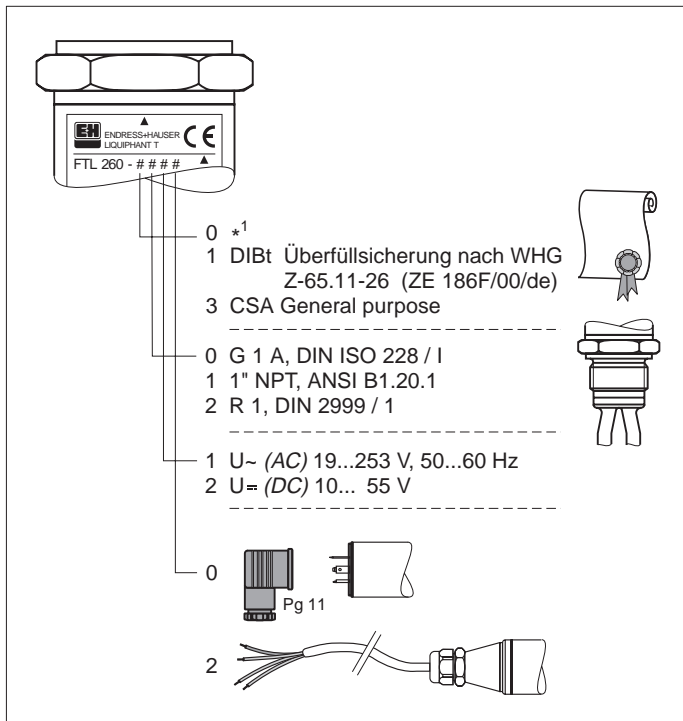
## **i** Note sulla sicurezza

Il Liquiphant FTL 260 può essere utilizzato come sicurezza di troppo pieno, solo in aree sicure.  
Un'installazione non corretta può determinare una situazione di pericolo determinata dall'applicazione.  
Lo strumento deve essere montato, connesso, messo in funzione ed operato **solamente da personale qualificato ed autorizzato**, sotto la stretta osservazione delle presenti norme di installazione e di manutenzione e delle ulteriori norme, regolamenti, disposizioni legali vigenti e, dove richiesto, dei certificati appropriati.  
Installare un interruttore per l'alimentazione in prossimità del dispositivo.  
Marcare l'interruttore come disconnessione del dispositivo.

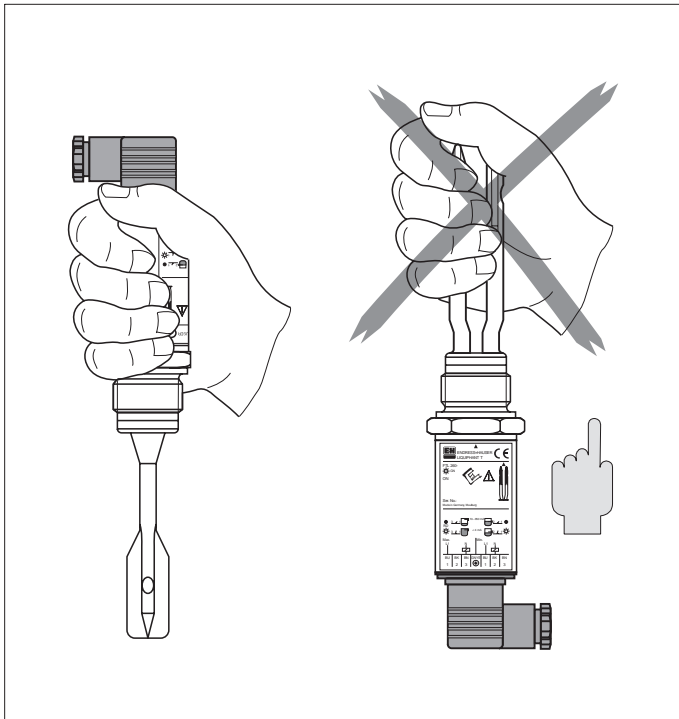
## **nl** Veiligheidsinstructies

Gebruik de Liquiphant FTL 260 alléén als niveauschakelaar voor vloeistoffen in niet explosiegevaarlijke gebieden. Het instrument **alleen door gekwalificeerd en geautoriseerd personeel** laten inbouwen, aansluiten, in bedrijf nemen en onderhouden. Neem de instructies in deze Inbedrijfstellingsvoorschriften, de desbetreffende normen, de wettelijke voorschriften en eventuele certificaten in acht. Installeer een makkelijk bereikbare voedingschakelaar in de nabijheid van het instrument. Kenmerk de voedingschakelaar specifiek voor het instrument.

- d** Geräte-Identifikation
- e** Device Identification
- f** Dénomination
- es** Identificación del equipo
- i** Identificazione dello strumento
- nl** Instrument-identificatie



\*<sup>1</sup> = ohne / without / sans /  
sin / senza / zonder



**d** **Behandlung**

Am Gehäuse anfassen,  
**nicht** an der Schwinggabel

**e** **Handling**

Hold by the housing,  
**not** by the sensor forks

**f** **Manipulation**

Tenir par le boîtier,  
et **non** par la fourche

**es** **Modo de empleo**

Coger por el cabezal,  
**no** por las horquillas

**i** **Accorgimenti**

Afferrare la custodia,  
**non** i rebbi

**nl** **Behandeling**

De behuizing vastpakken,  
**niet** de trilvork

**d** **Nicht** verbiegen  
**Nicht** kürzen  
**Nicht** verlängern

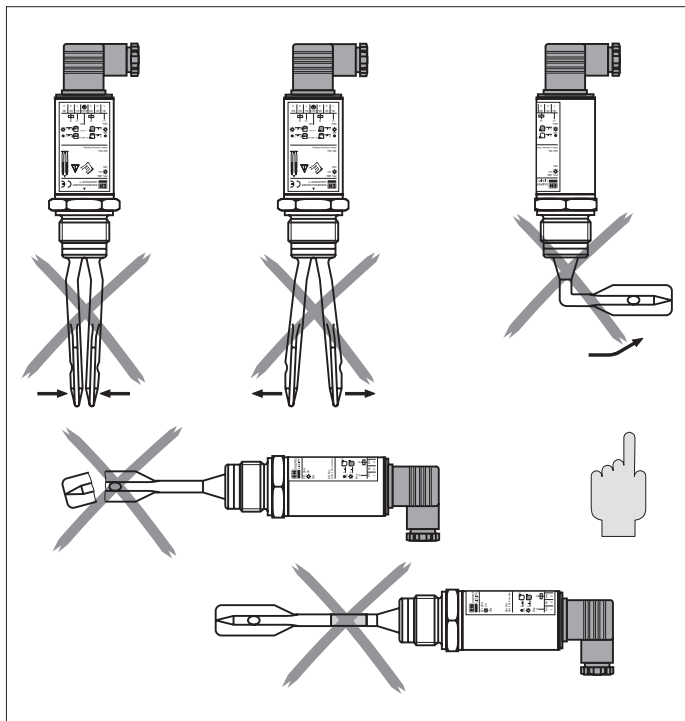
**e** Do **not** bend  
Do **not** shorten  
Do **not** lengthen

**f** **Ne pas** tordre  
**Ne pas** raccourcir  
**Ne pas** rallonger

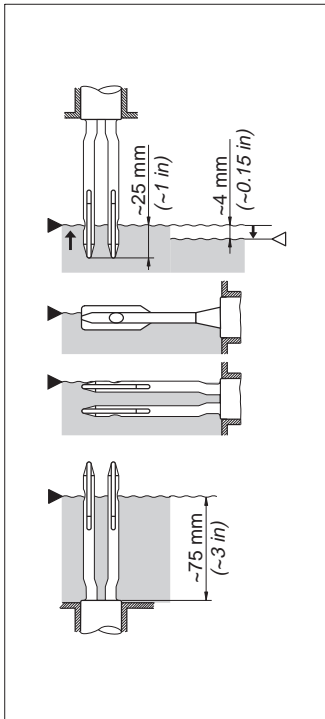
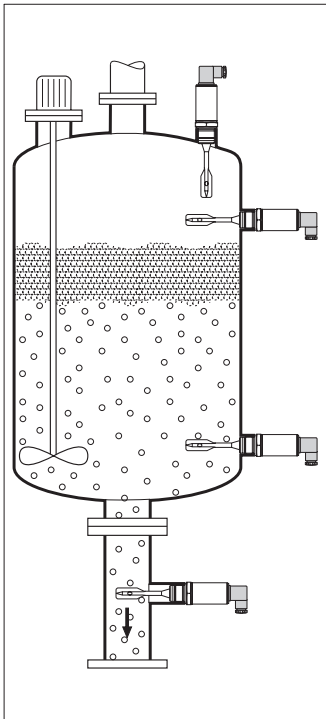
**es** **No** torcer  
**No** acortar  
**No** alargar

**i** **Non** stringere o allargare  
**Non** accorciare o allungare  
**Non** piegare

**nl** **Niet** verbuigen  
**Niet** inkorten  
**Niet** verlengen







- d** Einbaubeispiele
- e** Mounting examples
- f** Exemples d'implantation
- es** Ejemplos de montaje
- i** Esempi di montaggio
- nl** Inbouwvoorbeelden

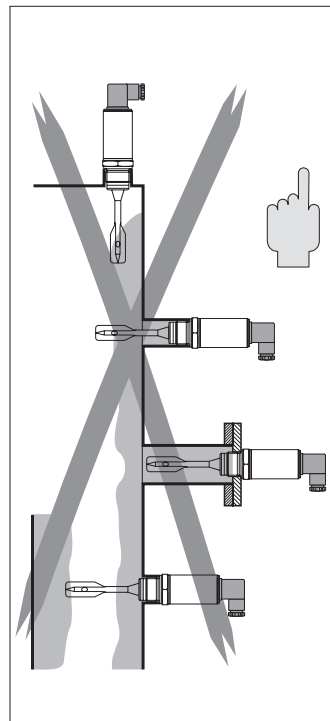
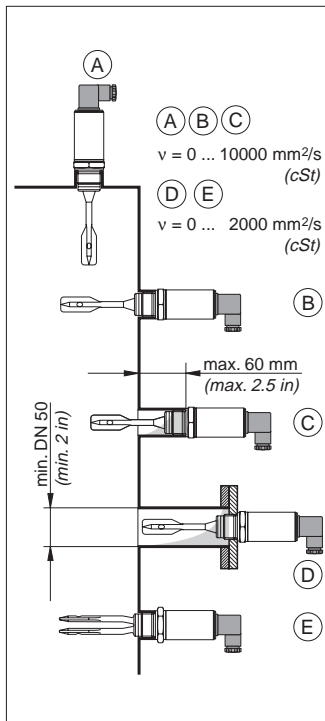


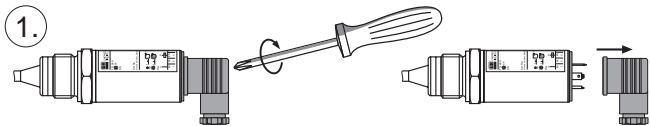
- d** Schaltpunkt
- e** Switchpoint
- f** Point de commutation
- es** Punto de conmutación
- i** Punto di commutazione
- nl** Schakelpunt



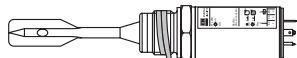
- d** Schalthysterese
- e** Switching hysteresis
- f** Hystérésis
- es** Histerésis de conmutación
- i** Isteresi
- nl** Schakelhysterese

- d** Viskosität und Ansatzbildung berücksichtigen
- e** Take account of viscosity and build-up
- f** Tenir compte de la viscosité et du colmatage
- es** Tener en cuenta la viscosidad y la formación de adherencias
- i** Attenzione alla viscosità e ai depositi
- nl** Houdt rekening met de viscositeit en de vorming van aangroei

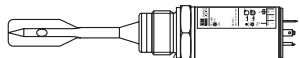




1 - 11½ NPT, R1 (G1A)



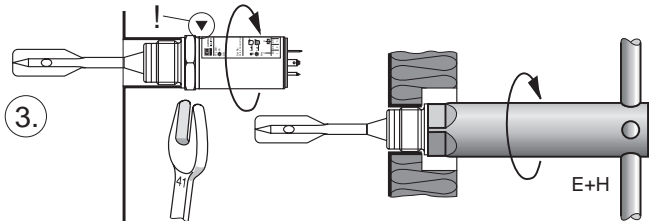
G1A



2.



33 x 39



#### d Einbau

Liquiphant einschrauben

#### e Installation

Screw Liquiphant into process connection

#### f Montage

Visser le Liquiphant

#### es Montaje

Atornillar el Liquiphant

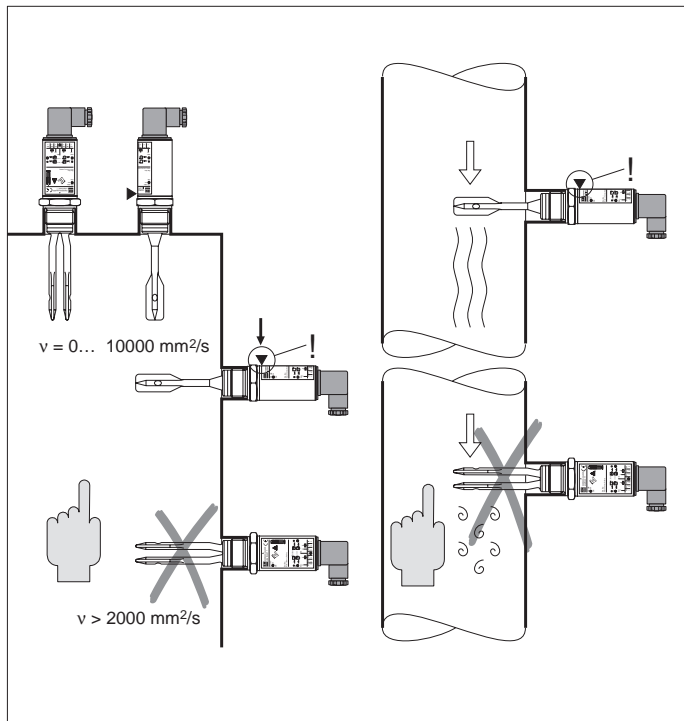
#### i Montaggio

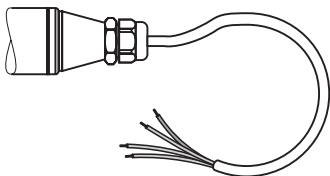
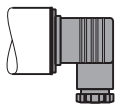
Avvitare il Liquiphant

#### nl Inbouw

Liquiphant vastschroeven

- d** Schwinggabel ausrichten  
Markierung ▼ beachten
- e** Align sensor forks  
Note mark ▼
- f** Orienter la fourche  
Tenir compte du repère ▼
- es** Orientación de las horquillas  
Atención a la marca ▼
- i** Orientare la forcella.  
Osservare il contrassegno ▼
- nl** Trilvork uitrichten  
Let op de markering ▼





<b>d</b>	Nummer	=	Farbe	
<b>e</b>	Number	=	Colour	
<b>f</b>	Numéro	=	Couleur	
<b>es</b>	Número	=	Color	
<b>i</b>	Numero	=	Colore	
<b>nl</b>	Nummer	=	Kleur	
1	=	BU	blau, blue, bleu, azul, blu, blauw	
2	=	BK	schwarz, black, noir, negro, nero, zwart	
3	=	BN	braun, brown, brun, marron, marrone, bruin	
 (PE)	=	GNYE	grün/gelb, green/yellow, vert/jaune, verde/amarillo, verde/giallo, groen/geel	

#### **d** Anschluß

Stecker oder Kabel

#### **e** Connection

Plug or cable

#### **f** Raccordement

Connecteur ou câble

#### **es** Conexiones

Conector o cable

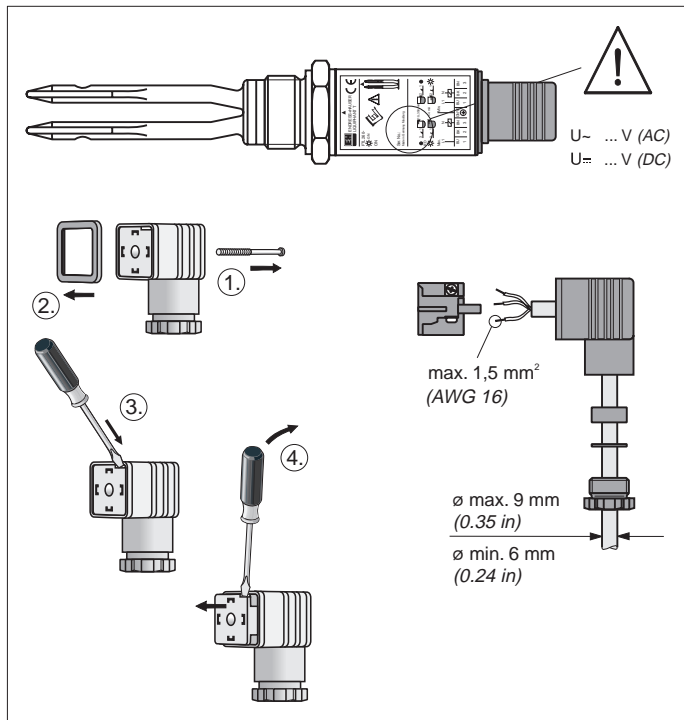
#### **i** Collegamenti

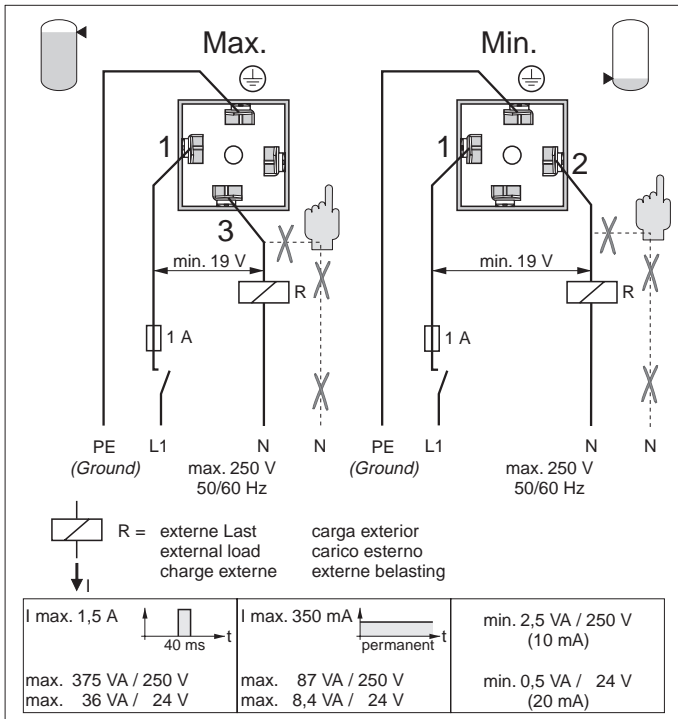
Connettore o cavo

#### **nl** Aansluiting

Connector of kabel

- d** Spannung beachten  
Leitung in Kabeldose  
einführen
- e** Note voltage rating  
Insert cable into plug housing
- f** Tenir compte de la tension  
Insérer le câble dans le  
boîtier de raccordement
- es** Observar el voltaje  
Introducir los hilos en la caja  
de conexiones
- i** Attenzione all'alimentazione.  
Inserire il cavo nel vano  
connessioni
- nl** Let op de voedingsspanning  
Bedrading in connector  
invoeren





**d Wechselstromvariante anschließen**

Max. = Maximum-Sicherheitsschaltung  
Min. = Minimum-Sicherheitsschaltung

**e Connection AC version**

Max. = max. fail-safe mode  
Min. = min. fail-safe mode

**f Raccordement variante tension alternative**

Max. = sécurité maximum  
Min. = sécurité minimum

**es Conectar las variantes de corriente alterna**

Máx. = Conexión de seguridad máxima  
Mín. = Conexión de seguridad mínima

**i Collegamento della versione in corrente alternata**

Max. = Sicurezza di massimo  
Min. = Sicurezza di minimo

**nl Wisselstroomvarianten aansluiten**

Max. = max. veiligheidsschakeling  
Min. = min. veiligheidsschakeling (ruststroomprincipe)

**d Gleichstromvariante anschließen**

Max. = Maximum-  
Min. = Minimum-  
Sicherheitschaltung

**e Connection DC version**

Max. = max. fail-safe mode  
Min. = min. fail-safe mode

**f Raccordement variante tension continue**

Max. = sécurité maximum  
Min. = sécurité minimum

**es Conectar las variantes de corriente continua**

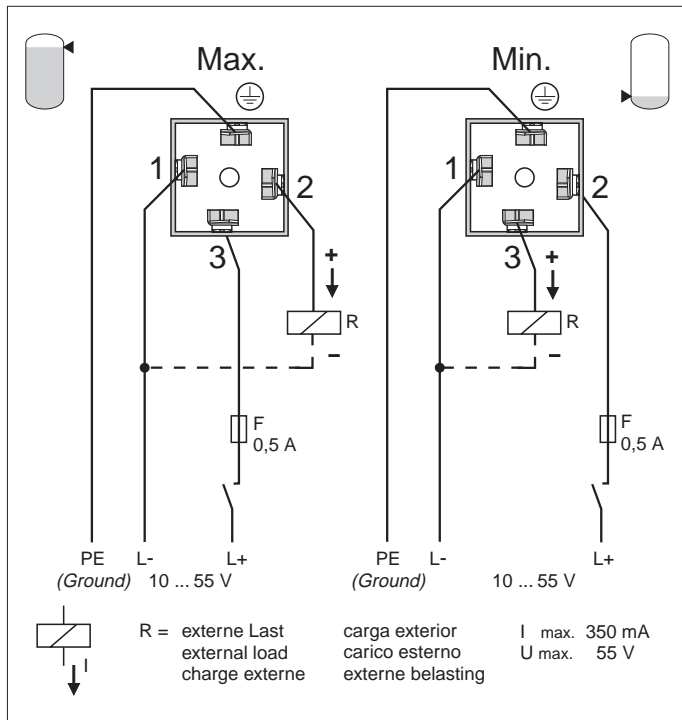
Máx. = Conexión de seguridad máxima  
Mín. = Conexión de seguridad mínima

**i Collegamento della versione in corrente continua**

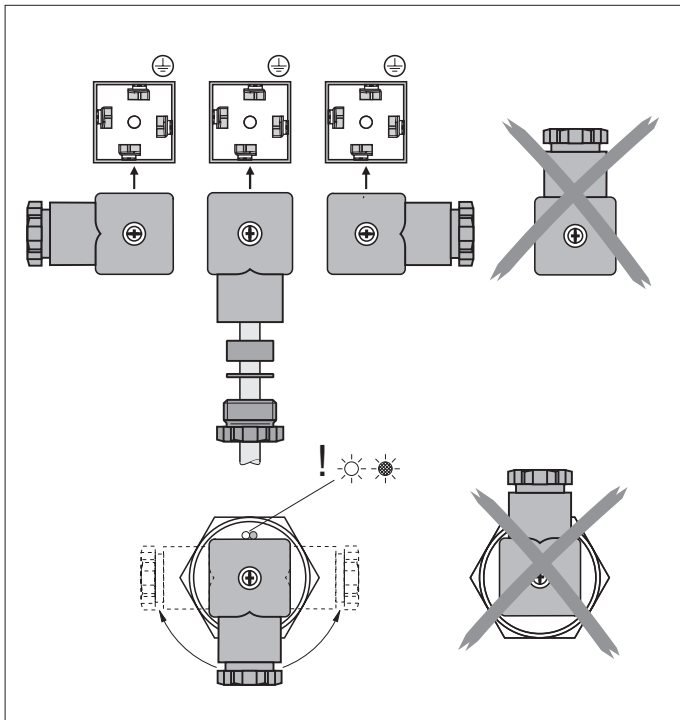
Max. = Sicurezza di massimo  
Min. = Sicurezza di minimo

**nl Gelijkstroomvarianten aansluiten**

Max. = max. veiligheidsschakeling  
Min. = min. veiligheidsschakeling (ruststroomprincipe)







- d** Kabeldose zusammenbauen und festschrauben
- e** Assemble plug and screw tight
- f** Assembler et visser le boîtier de raccordement
- es** Ensamblar y atornillar las cajas de conexiones
- i** Montare il vano connessioni avvitandolo a fondo
- nl** Connector samenbouwen en vastschroeven

**d Funktion**

Max. und Min. =  
Sicherheitschaltung

**e Function**

Max. and Min. =  
fail-safe mode

**f Fonction**

Max. et Min. =  
commutation de sécurité

**es Funcionamiento**


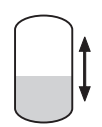

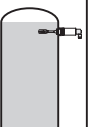
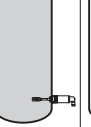

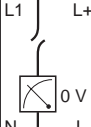
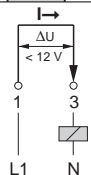
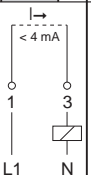
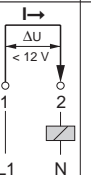
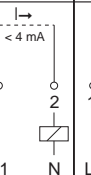
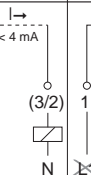
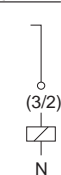
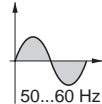
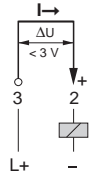
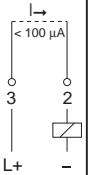
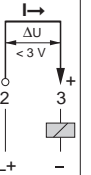
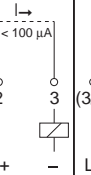
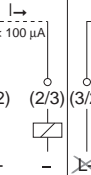
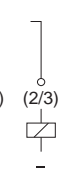
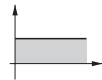
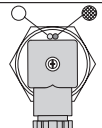






Conexión de seguridad  
máxima y mínima

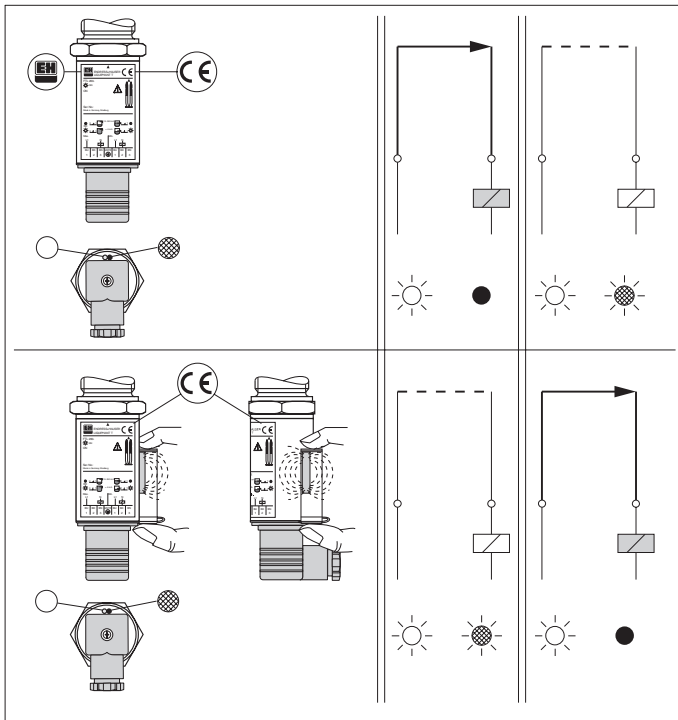
**i Funzionamento**

Sicurezza di massimo e di  
minimo

**nl Functie**

Max. en Min. =  
veiligheidsschakeling  
(ruststroomprincipe)

	Max.		Min.		$L_1$	
					Störung Fault Défaut Fallo Guasto Storing	
$U \sim$ (AC)						
	1 3 L1 N	1 3 L1 N	1 2 L1 N	1 2 L1 N	1 (3/2) L1 N	1 (3/2) L1 N
$U =$ (DC)						
	3 2 L+ -	3 2 L+ -	2 3 L+ -	2 3 L+ -	(3/2) (2/3) L+ -	(3/2) (2/3) L+ -
						
	○ = grün / green / vert / verde / verde / groen					
	● = rot / red / rouge / rojo / rosso / rood					



- d Test**  
mit Prüfmagnet
- e Test**  
with test magnet
- f Test**  
avec aimant de contrôle
- es Comprobación**  
Prueba magnética
- i Test**  
Test magnetico
- nl Test**  
met testmagneet

**d** **Wartung**

Dicke Krusten entfernen

**e** **Maintenance**

Removal of thick encrustation

**f** **Maintenance**

Enlever les dépôts importants

**es** **Mantenimiento**

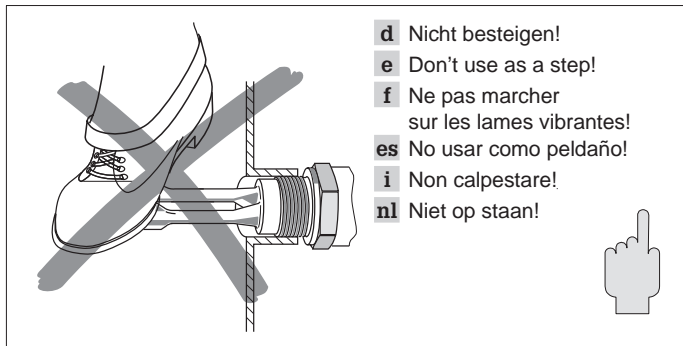
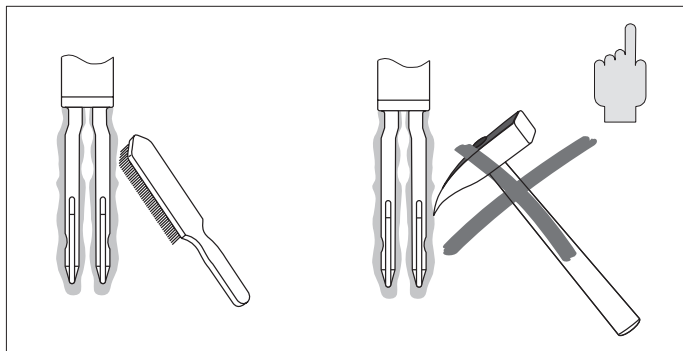
Eliminación de adherencias

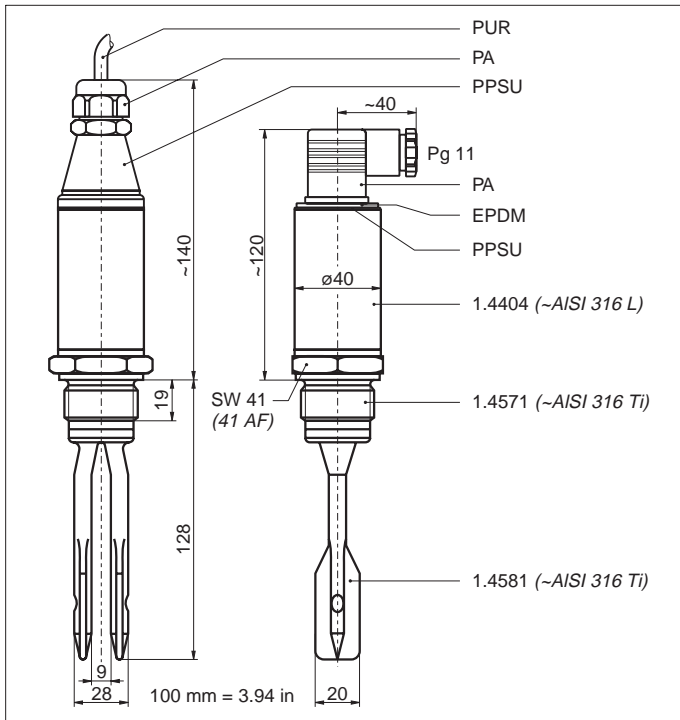
**i** **Manutenzione**

Rimozione di scarsi depositi

**nl** **Onderhoud**

Aangroei verwijderen





#### d Technische Daten

Abmessungen in mm  
und Werkstoffe

#### e Technical data

Dimensions in mm  
and materials

#### f Caractéristiques techniques

Dimensions en mm  
et matériaux

#### es Datos técnicos

Dimensiones en mm  
y materiales

#### i Dati tecnici

Dimensioni in mm  
e materiali

#### nl Technische gegevens

Afmetingen in mm  
en materialen

**d** Umgebungstemperatur  $T_U$   
 Betriebstemperatur  $T_B$   
 Betriebsdruck  $p_e$

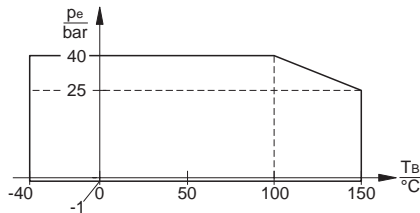
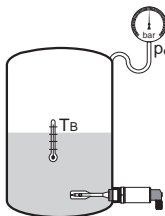
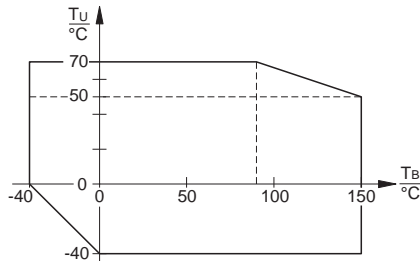
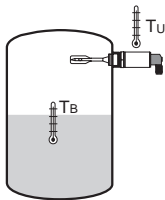
**e** Ambient temperature  $T_U$   
 Operating temperature  $T_B$   
 Operating pressure  $p_e$

**f** Température ambiante  $T_U$   
 Température de service  $T_B$   
 Pression de service  $p_e$

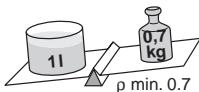
**es** Temperatura ambiente  $T_U$   
 Temperatura de trabajo  $T_B$   
 Presión de trabajo  $p_e$

**i** Temperatura ambiente  $T_U$   
 Temperatura d'esercizio  $T_B$   
 Pressione d'esercizio  $p_e$

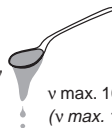
**nl** Omgevingstemperatuur  $T_U$   
 Procestemperatuur  $T_B$   
 Procesdruk  $p_e$



Dichte  $\rho$   
 Density  $\rho$   
 Densité  $\rho$   
 Densidad  $\rho$   
 Densità  $\rho$   
 Dichtheid  $\rho$



Viskosität  $v$   
 Viscosity  $v$   
 Viscosité  $v$   
 Viscosidad  $v$   
 Viscosità  $v$   
 Viskositeit  $v$



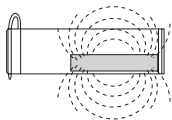
$v$  max. 10000 mm<sup>2</sup>/s  
 ( $v$  max. 10000 cSt)

$x$  °C = (1.8· $x$  + 32) °F  
 1 bar = 14.5 psi



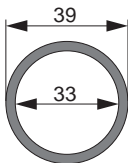
E+H 942667-0000

- d** Steckschlüssel SW 41.
- e** Socket spanner 41 AF
- f** Clé de 41
- es** Llave de fijación SW 41
- i** Chiave a tubo SW 41
- nl** Pijpsleutel SW 41.



E+H 016920-0000

- d** Prüfmagnet
- e** Test magnet
- f** Aimant de contrôle
- es** Imán
- i** Magnete di controllo
- nl** Testmagneet



E+H 003579-0000

- d** Dichtung für G 1 A
- e** Seal for G 1 A
- f** Joint pour G 1 A
- es** Junta para 1" G (G 1 A)
- i** Guarnizione per G 1 A
- nl** Afdichting voor G 1 A

**d** Zubehör, Ersatzteile

**e** Accessories, spare parts

**f** Accessoires  
Pièces de rechange

**es** Accesorios y repuestos

**i** Accessori e ricambi

**nl** Toebehoren  
Reserve-onderdelen

<b>d</b>	<b>Ergänzende Dokumentation</b>	<b>d</b>	TI 244F/00/de Technische Information für den Füllstandgrenzscharter Liquiphant T FTL 260
<b>e</b>	<b>Supplementary Documentation</b>	<b>e</b>	TI 244F/00/en Technical Information for level limit switch Liquiphant T FTL 260
<b>f</b>	<b>Documentation complémentaire</b>	<b>f</b>	TI 244F/14/fr Information technique Détecteur de niveau Liquiphant T FTL 260
<b>es</b>	<b>Documentación suplementaria</b>	<b>es</b>	TI 244F/23/es Información técnica sobre el detector límite Liquiphant T FTL 260
<b>i</b>	<b>Documentazione supplementare</b>	<b>i</b>	TI 244F/16/it Informazioni Tecniche per l'interruttore di livello Liquiphant T FTL 260
<b>nl</b>	<b>Aanvullende documentatie</b>	<b>nl</b>	TI 244F/15/nl Technische Informatie voor de niveauschakelaar Liquiphant T FTL 260

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