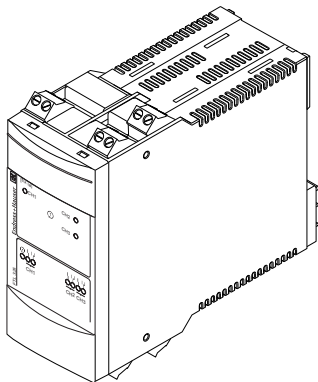


Operating Instructions

Nivotester FTL325P-#3#3



DE - Füllstandauswertegerät mit PFM-Eingang

EN - Level detector with PFM input

FR - Unité d'exploitation de niveau de remplissage avec entrée PFM





ES - Transmisor de nivel con entrada PFM

IT - Dispositivo di rilevamento del livello di riempimento con ingresso PFM





NL - Niveaumeetverstrekker met PFM ingang

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1. 2. 3. Handlungsschritte

-  LED leuchtet nicht
-  LED leuchtet
-  LED blinkt
-  Verweis auf Seite

1. 2. 3. Series of steps





-  LED off
-  LED lights up
-  LED flashes
-  Reference to page

1. 2. 3. Etapes de manipulation





-  LED éteint
-  LED allumé
-  LED clignote
-  Renvoi à la page

es - Índice	3	it - Indice	3	nl - Inhoud	3
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1. 2. 3. Acciones individuales

	LED apagado
	LED iluminado
	LED parpadea
	Referencia a páginas

1. 2. 3. Fasi della lavorazione

	LED spento
	LED acceso
	LED lampeggiante
	Riferimento alla pagina

1. 2. 3. Actiestappen

	LED uit
	LED aan
	LED knippert
	Verwijzing naar pagina

de - Sicherheitshinweise

Der Nivotester FTL325P darf nur als Messumformer-Speisegerät für Grenzschalter von Endress+Hauser mit Zweidraht-PFM-Signal verwendet werden.

Bei unsachgemäßem Einsatz können Gefahren von ihm ausgehen.

Das Gerät **darf nur von qualifiziertem und autorisiertem Fachpersonal** unter strenger Beachtung dieser Betriebsanleitung, der einschlägigen Normen, der gesetzlichen Vorschriften und der Zertifikate (je nach Anwendung) eingebaut, angeschlossen, in Betrieb genommen und gewartet werden.

- Nur isoliertes Werkzeug verwenden!
- Nur Originalteile verwenden!

en - Notes on Safety

The Nivotester FTL325P may only be used as a measuring transmitter power supply for Endress+Hauser limit switches with two-wire PFM signals. If used incorrectly it is possible that application related dangers may arise.

The level limit device 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.

- Use only insulated tools!
- Use only original parts!

fr - Conseils de sécurité

Le Nivotester FTL325P doit exclusivement être utilisé comme alimentation de transmetteur pour détecteurs de niveau Endress+Hauser avec signal PFM 2 fils.

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).

- Utilisez uniquement des outils isolés!
- Utilisez uniquement des pièces d'origine!

es - Notas sobre seguridad

El Nivotester FTL325P debe utilizarse únicamente como fuente de alimentación de detectores de nivel Endress+Hauser con señales PFM de dos hilos. 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).

- Utilice solamente herramientas aisladas!
- Use sólo las piezas originales!

it - Note sulla sicurezza

Il Nivotester FTL325P può essere usato solo per alimentare sensori Endress+Hauser in tecnologia PFM. Un'installazione non corretta può determinare pericolo. Lo strumento FTL325P 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 e, dove richiesto, dei certificati appropriati.

- Utilizzare solo strumenti isolati!
- Utilizzare solo parti originali!

nl - Veiligheidsinstructies

De niveautester FTL325P mag alleen als meetversterker/voeding voor niveauschakelaars met 2-draads PFM signalen, van Endress+Hauser worden gebruikt. Indien niet correct gebruikt kunnen gevaarlijke situaties ontstaan. 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.

- Gebruik uitsluitend geïsoleerd gereedschap!
- Gebruik alleen originele onderdelen!

de - Identifikation

Folgende Möglichkeiten stehen zur Identifizierung des Messgeräts zur Verfügung:

- Typenschildangaben
- Bestellcode (Order code) mit Aufschlüsselung der Gerätemerkmale auf dem Lieferschein

fr - Dénomination

Les options suivantes sont disponibles pour l'identification de l'appareil:

- Indications de la plaque signalétique
- Référence de commande (Order code) avec énumération des caractéristiques de l'appareil sur le bordereau de livraison

it - Identificazione

Per l'identificazione del misuratore sono disponibili le seguenti opzioni:

- dati della targhetta
- codice d'ordine con lista delle caratteristiche del dispositivo sul documento di trasporto

en - Identification

The following options are available for identification of the measuring device:

- Nameplate specifications
- Order code with breakdown of the device features on the delivery note

es - Identificación

Las opciones siguientes están disponibles para la identificación del dispositivo de medición:

- Especificaciones de la placa de identificación
- Código de pedido con desglose de las características del dispositivo en el albarán de entrega

nl - Identificatie

De volgende mogelijkheden bestaan om het meetinstrument te identificeren:

- specificaties op de typeplaat
- codice d'ordine con lista delle caratteristiche del dispositivo sul documento di trasporto

Beispiele / Examples / Exemples /
Ejemplo / Esempio / Voorbeeld



1...3
Messaufnehmer
Sensors
Capteurs
Sensores
Sensore
Sensors

PFM

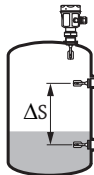
CH3

PFM

CH2

PFM

CH1



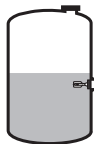
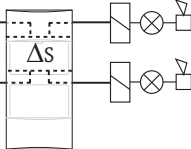
PFM

CH3

PFM

CH2

CH1

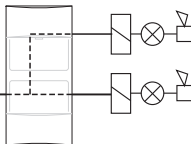


PFM

CH3

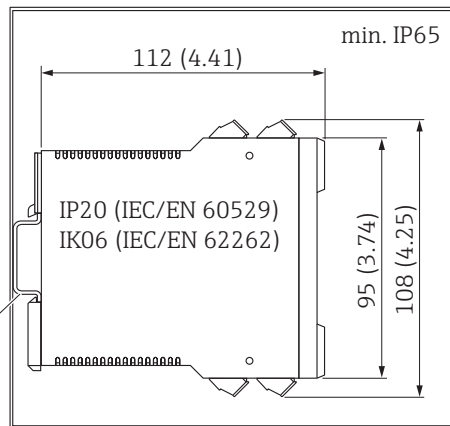
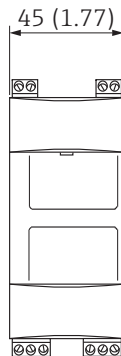
CH2

CH1



de - Messeinrichtung
en - Measuring system
fr - Ensemble de mesure
es - Sistema de medida
it - Sistema di misura
nl - Meetopstelling

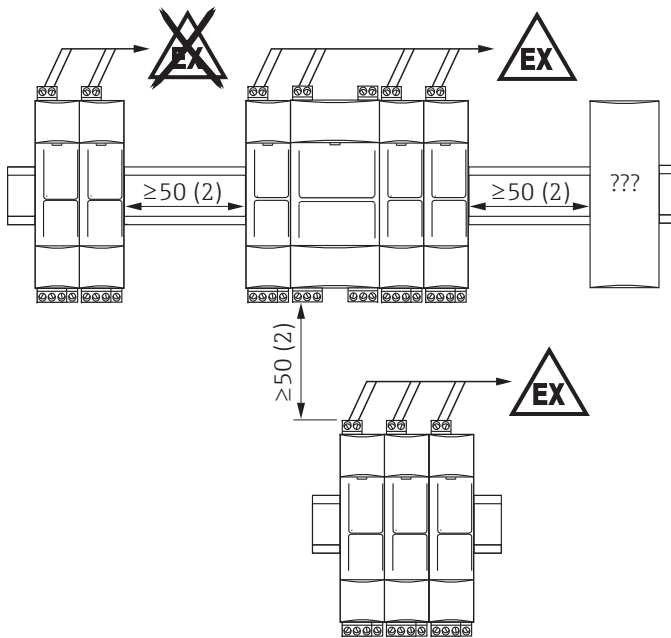
de - Einbau
en - Mounting
fr - Montage
es - Montaje
it - Montaggio
nl - Foutieve



Hutschiene / Mounting rail / Rail profilé /
Raîl de montage / Rotaia / Montage-rail

EN 60715 TH35-7.5 / EN 60715 TH35-15

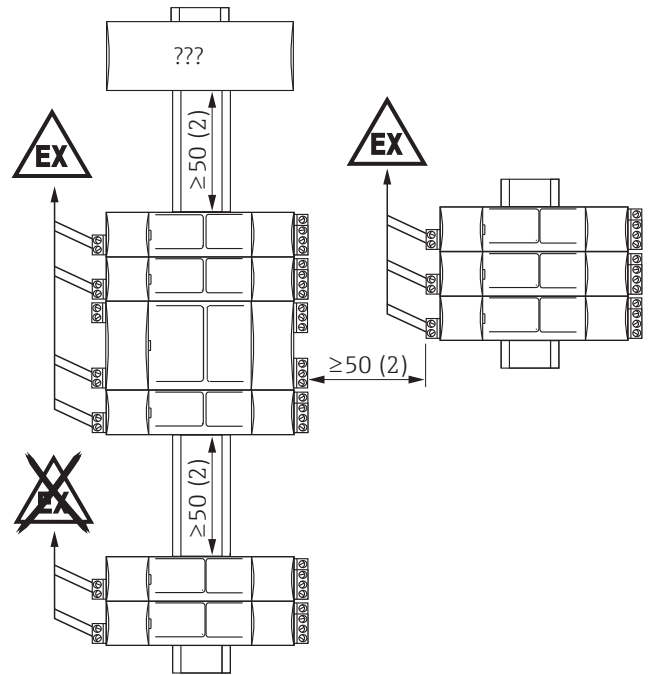
mm (in)



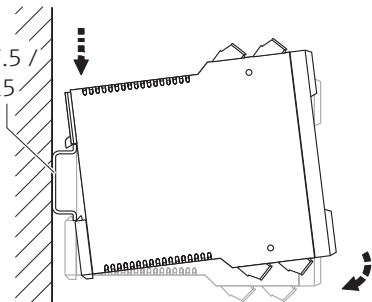
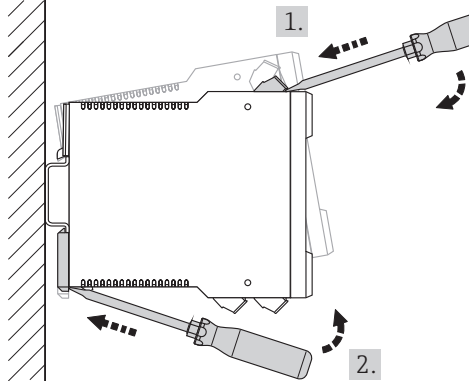
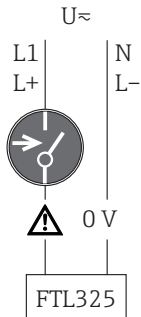
- de - Mindestabstände
- en - Minimum separation
- fr - Intervalles min. entre deux appareils
- es - Distancia mínima
- it - Distanze minime
- nl - Minimale afstandd

mm (in)

- de - Mindestabstände
- en - Minimum separation
- fr - Intervalles min. entre deux appareils
- es - Distancia mínima
- it - Distanze minime
- nl - Minimale afstand



mm (in)

AEN 60715 TH35-7.5 /
EN 60715 TH35-15**B****de - A:** Montage auf Hutschiene**B:** Demontage

1. Klemmenblöcke entfernen
2. Gerät abnehmen

en - A: Rail mounting**B:** Dismantling

1. Remove the terminal blocks
2. Remove the unit

fr - A: Montage sur rail profilé**B:** Démontage

1. Déconnecter les borniers
2. Oter l'appareil

es - A: Montaje en raíl**B:** Desmontaje

1. Quitar los bornes de conexión
2. Quitar el instrumento

it - A: Montaggio su rotaia**B:** Smontaggio

1. Togliere il blocchetto morsetti
2. Togliere lo strumento

nl - A: Railmontage**B:** Uitbouw

1. Klemmenblok verwijderen
2. Instrument verwijderen

de - Anschluss

Anordnung der Klemmen
Energieversorgung

en - Connection

Terminal arrangement
Power supply

fr - Raccordement

Agencement des bornes
Alimentation en énergie

es - Conexiones

Asignación de terminales
Suministro de energía eléctrica

it - Collegamenti

Ordinamento dei terminali
Alimentazione di energia

nl - Aansluiting

Klemmen positie
Voeding

Typenschild beachten!

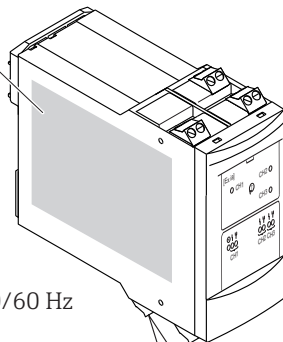
Note name plate!

Tenir compte de la plaque signalétique !

Ver identificación!

Targhetta note!

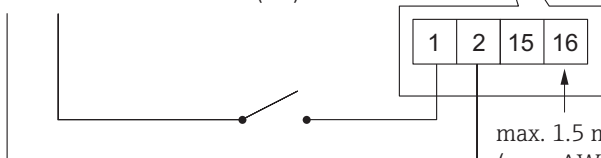
Typeplaatje bekijken!



N L1 U~ 85...253 V (AC), 50/60 Hz

N L1 U~ 20... 30 V (AC), 50/60 Hz

L- L+ U= 20... 60 V (DC)



max. 1.5 mm²
(max. AWG 16)

Liquiphant M FTL50/51, 50 H/51 H, 51C +FEL57



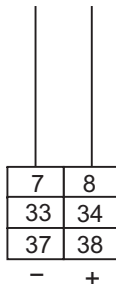
Liquiphant S FTL70/71 +FEL57



Soliphant M FTM50/51/52 +FEM57



Nivotester FTL325P



de - Anschluss der Messaufnehmer

en - Sensor connection

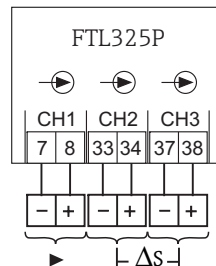
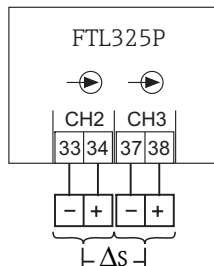
fr - Raccordement des capteurs

es - Conexión de sensor

it - Connessione sensore

nl - Aansluiting van de sens

- de** - Anschluss der Messaufnehmer für Zweipunktregelung Δs
- en** - Sensor connection for two-point control Δs
- fr** - Raccordement des capteurs our régulation entre deux points Δs
- es** - Conexión de sensor para control de 2 puntos Δs
- it** - Connessione sensore per il controllo su due punti Δs
- nl** - Aansluiting van sensoren voor Δs 2-puntsregeling



Liquiphant M FTL50/51, 50 H/51 H, 51 C +FEL57

1	2
---	---

Liquiphant S FTL70/71 +FEL57

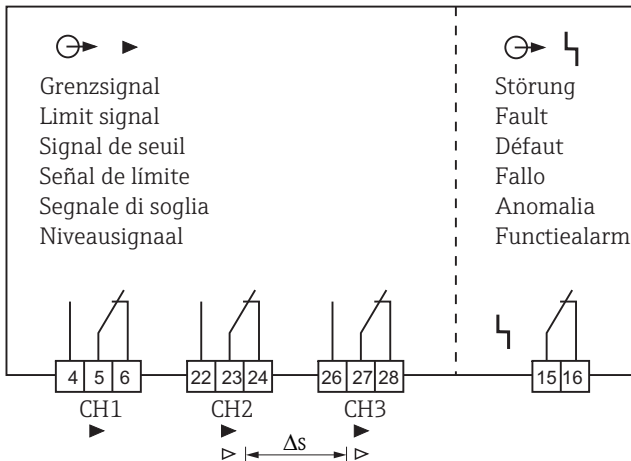
1	2
---	---

Soliphant M FTM50/51/52 +FEM57

1	2
---	---

Nivotester FTL325P

-	+
---	---



- de** - Anschluss der Ausgänge
- en** - Output connection
- fr** - Raccordement des sorties
- es** - Conexión de la salida
- it** - Connessione d'uscita
- nl** - Aansluiting van de uitgangen

U_{\sim} max. 250 V (AC)

I_{\sim} max. 2 A (AC)

P_{\sim} max. 500 VA / $\cos \varphi \geq 0.7$

U_{\dots} max. 40 V (DC)

I_{\dots} max. 2 A (DC)

P_{\dots} max. 80 W

de - Einstellungen

Frontplatte öffnen

en - Setting-up

Opening the front panel

fr - Réglages

Ouvrir la plaque frontale

es - Ajuste

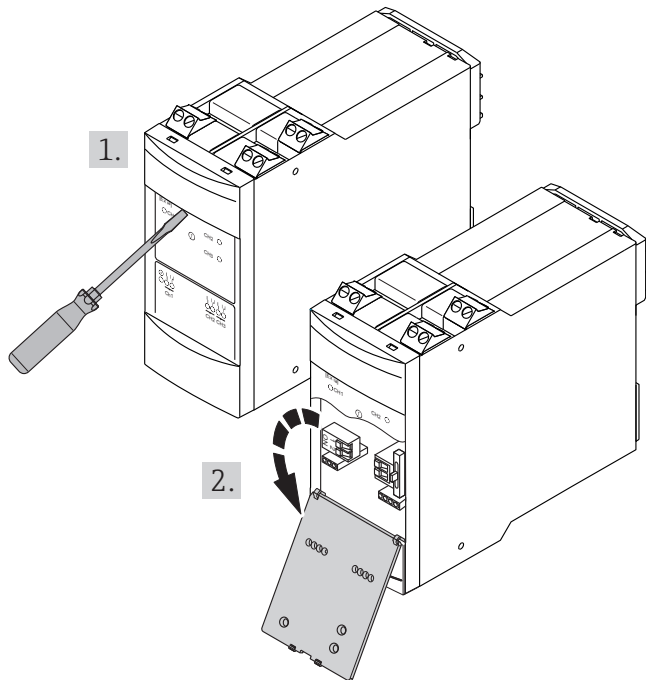
Abrir el panel frontal

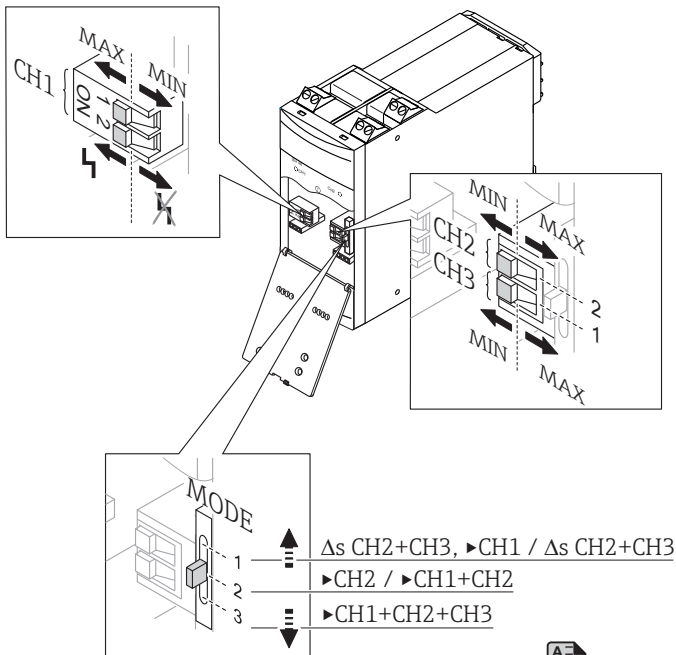
it - Messa in marcia

Aprendo il pannello frontale

nl - Instellingen

Frontplaat openen





- de** - Sicherheitsschaltung (1)
Störungsmeldung (2)
- en** - Safety circuit (1)
Alarm signal (2)
- fr** - Circuit de sécurité (1)
Signal d'alarme (2)
- es** - Circuito de seguridad (1)
Señal de alarma (2)
- it** - Circuito di sicurezza (1)
Segnale d'allarme (2)
- nl** - Veiligheidsschakeling (1)
Storingsmelding (2)

 → 19ff

de - Lichtsignale

grün (gn): Betrieb
gelb (ye): Schaltzustand
rot (rd): Störung

en - Light signals

green (gn): Working
yellow (ye): Switch status
red (rd): Fault

fr - Signaux lumineux

verte (gn): Fonctionnement
jaune (ye): Etat de commutation
rouge (rd): Défaut

es - Señales luminosas

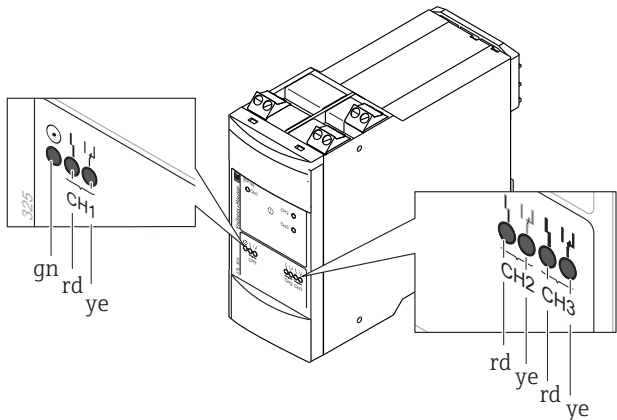
verde (gn): En servicio
amarillo (ye): Estado de
conmutación /rojo (rd): Fallo

it - Segnali luminosi





























verde (gn): Funzionamento
giallo (ye): Stado di
commutazione
rosso (rd): Guasto

nl - Lichtsignalen

groen (gn): In bedrijf
geel (ye): Schakeltoestand
rood (rd): Fout



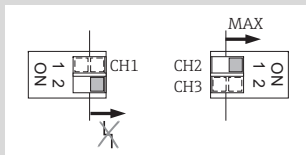
→ 2...3

		CH1	
			→ 20...35
▶ CH2	 MAX		20
	 MIN		21
▶ CH1 + CH2	 MAX		22
			23
	 MIN		24
			25
▶ CH1 + CH2 + CH3	 MAX		26
			27
	 MIN		28
			29
CH2 - CH3 (Δs)	 MAX		30
	 MIN		31
Ch2 - CH3 (Δs) + ▶ CH1	 MAX		32
			33
	 MIN		34
			35

de - Funktion
en - Function
fr - Fonction
es - Funcionamiento
it - Funzione
nl - Functie

CH2 MODE 2

Maximum-Sicherheitschaltung
Maximum fail-safe mode
Sécurité maximum
Conmutador de seguridad máx.
Selezione della modalità di
sicurezza max.
Maximum veiligheidsschakeling

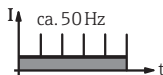
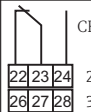
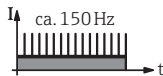


Ohne Störungsmeldung **CH1**
Without alarm signal **CH1**
Sans signal d'alarme **CH1**
Sin señal de alarma **CH1**
In mancanza di allarme **CH1**
Zonder storingsmelding **CH1**

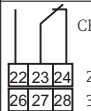
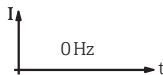
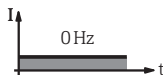
Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie



Eingangssignal / Input signal /
Signal d'entrée / Señal de entrada /
Segnale d'ingresso / Ingangssignaal
⊖ CH2



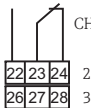
Störung
Fault
Défaut
Fallo
Guasto
Storing



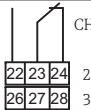
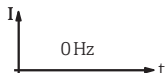
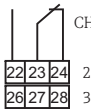
Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie



Eingangssignal / Input signal /
Signal d'entrée / Senal de entrada /
Segnale d'ingresso / Ingangssignaal
CH2

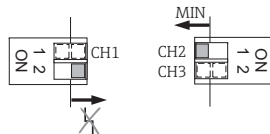


Störung
Fault
Défaut
Fallo
Guasto
Storing



CH2 MODE 2

Minimum-Sicherheitschaltung
Minimum fail-safe mode
Sécurité minimum
Conmutador de seguridad mín.
Selezione della modalità di
sicurezza mín.
Minimum veiligheidschakeling



Ohne Störungsmeldung **CH1**
Without alarm signal **CH1**
Sans signal d'alarme **CH1**
Sin señal de alarma **CH1**
In mancanza di allarme **CH1**
Zonder storingsmelding **CH1**

CH1 + CH2

MODE 2

Maximum-Sicherheitschaltung

Maximum fail-safe mode

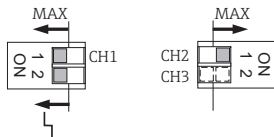
Sécurité maximum

Conmutador de seguridad máx.

Selezione della modalità di

sicurezza max.

Maximum veiligheidsschakeling



Mit Störungsmeldung CH1

With alarm signal CH1

Avec signal d'alarme CH1

Con señal de alarma CH1

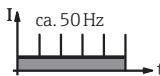
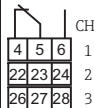
In caso di allarme CH1

Met storingsmelding CH1

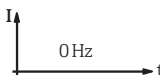
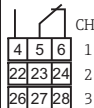
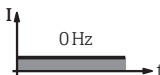
Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie



Eingangssignal / Input signal /
Signal d'entrée / Senal de entrada /
Segnale d'ingresso / Ingangssignaal
CH1, CH2



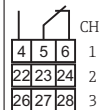
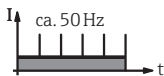
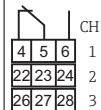
Störung
Fault
Défaut
Fallo
Guasto
Storing



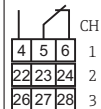
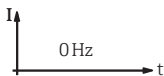
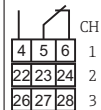
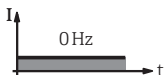
Schalterstellung / Switch position /
 Position commutateur / Posición conmutador /
 Posizione commutatore / Schakel positie



Eingangssignal / Input signal /
 Signal d'entrée / Senal de entrada /
 Segnale d'ingresso / Ingangssignaal
 CH1, CH2



Störung
 Fault
 Défaut
 Fallo
 Guasto
 Storing



CH1 + CH2

MODE 2

Maximum-Sicherheitschaltung

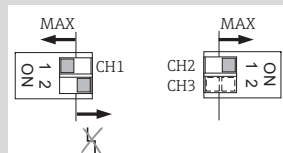
Maximum fail-safe mode

Sécurité maximum

Conmutador de seguridad máx.

Selezione della modalità di
 sicurezza max.

Maximum veiligheidschakeling



Ohne Störungsmeldung **CH1**

Without alarm signal **CH1**

Sans signal d'alarme **CH1**

Sin señal de alarma **CH1**

In mancanza di allarme **CH1**

Zonder storingsmelding **CH1**

CH1 + CH2

MODE 2

Minimum-Sicherheitschaltung

Minimum fail-safe mode

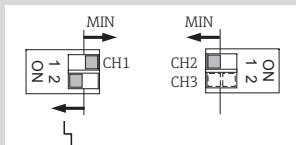
Sécurité minimum

Conmutador de seguridad min.

Selezione della modalità di

sicurezza min.

Minimum veiligheidsschakeling



Mit Störungsmeldung **CH1**

With alarm signal **CH1**

Avec signal d'alarme **CH1**

Con señal de alarma **CH1**

In caso di allarme **CH1**

Met storingsmelding **CH1**

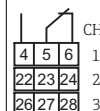
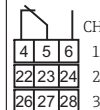
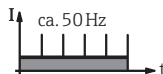
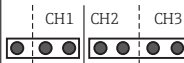
Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie

MODE

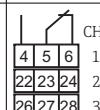
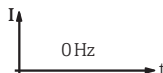
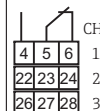
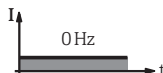


Eingangssignal / Input signal /
Signal d'entrée / Señal de entrada /
Segnale d'ingresso / Ingangssignaal
☞ CH1, CH2

CH1, CH2(+3)



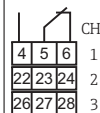
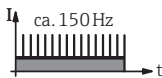
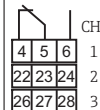
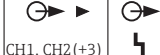
Störung
Fault
Défaut
Fallo
Guasto
Storing



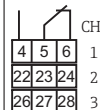
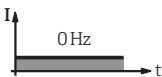
Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie



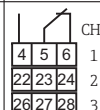
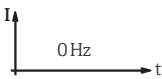
Eingangssignal / Input signal /
Signal d'entrée / Senal de entrada /
Segnale d'ingresso / Ingangssignaal
↻ CH1, CH2



Störung
Fault
Défaut
Fallo
Guasto
Storing



0 V



CH1 + CH2

MODE 2

Minimum-Sicherheitschaltung

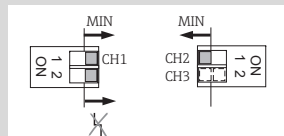
Minimum fail-safe mode

Sécurité minimum

Conmutador de seguridad mín.

Selezione della modalità di
sicurezza mín.

Minimum veiligheidschakeling



Ohne Störungsmeldung **CH1**

Without alarm signal **CH1**

Sans signal d'alarme **CH1**

Sin señal de alarma **CH1**

In mancanza di allarme **CH1**

Zonder storingsmelding **CH1**

CH1 + CH2 + CH3

MODE 3

Maximum-Sicherheitschaltung

Maximum fail-safe mode

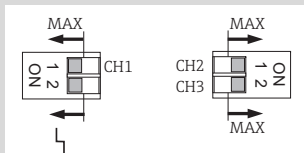
Sécurité maximum

Conmutador de seguridad máx.

Selezione della modalità di

sicurezza max.

Maximum veiligheidsschakeling



Mit Störungsmeldung **CH1**

With alarm signal **CH1**

Avec signal d'alarme **CH1**

Con señal de alarma **CH1**

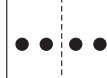
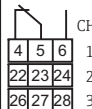
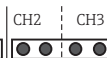
In caso di allarme **CH1**

Met storingsmelding **CH1**

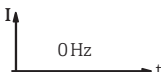
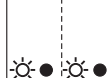
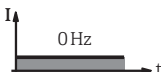
Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie



Eingangssignal / Input signal /
Signal d'entrée / Señal de entrada /
Segnale d'ingresso / Ingangssignaal
CH1, CH2, CH3



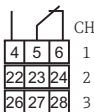
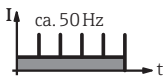
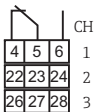
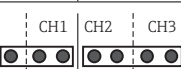
Störung
Fault
Défaut
Fallo
Guasto
Storing



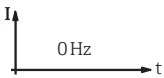
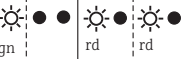
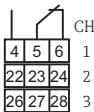
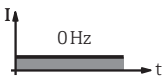
Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie



Eingangssignal / Input signal /
Signal d'entrée / Señal de entrada /
Segnale d'ingresso / Ingangssignaal
⊖ CH1, CH2, CH3



Störung
Fault
Défaut
Fallo
Guasto
Storing



CH1 + CH2 + CH3

MODE 3

Maximum-Sicherheitschaltung

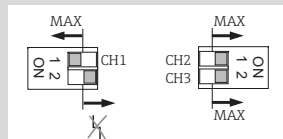
Maximum fail-safe mode

Sécurité maximum

Conmutador de seguridad máx.

Selezione della modalità di
sicurezza max.

Maximum veiligheidschakeling



Ohne Störungsmeldung CH1

Without alarm signal CH1

Sans signal d'alarme CH1

Sin señal de alarma CH1

In mancanza di allarme CH1

Zonder storingsmelding CH1

CH1 + CH2 + CH3

MODE 3

Minimum-Sicherheitschaltung

Minimum fail-safe mode

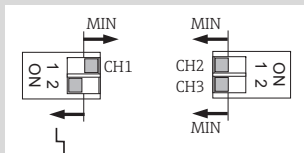
Sécurité minimum

Conmutador de seguridad min.

Selezione della modalità di

sicurezza min.

Minimum veiligheidschakeling



Mit Störungsmeldung CH1

With alarm signal CH1

Avec signal d'alarme CH1

Con señal de alarma CH1

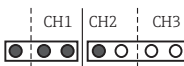
In caso di allarme CH1

Met storingsmelding CH1

Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie









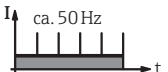
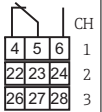



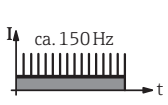
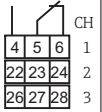


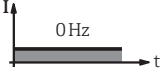
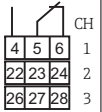



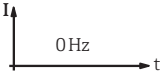
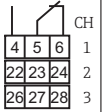




Eingangssignal / Input signal /
Signal d'entrée / Señal de entrada /
Segnale d'ingresso / Ingangssignaal



CH1, CH2, CH3

Störung Fault Défault Fallo Guasto Storing				

Schalterstellung / Switch position / Position commutateur / Posición conmutador / Posizione commutatore / Schakel positie		MODE 		
Eingangssignal / Input signal / Signal d'entrée / Senal de entrada / Segnale d'ingresso / Ingangssignaal ⊖ CH1, CH2, CH3		CH1...3 		
				
				
Störung Fault Défaut Fallo Guasto Storing				
				

CH1 + CH2 + CH3

MODE 3

Minimum-Sicherheitschaltung

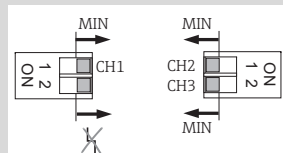
Minimum fail-safe mode

Sécurité minimum

Conmutador de seguridad mín.

Selezione della modalità di
sicurezza mín.

Minimum veiligheidschakeling



Ohne Störungsmeldung CH1

Without alarm signal CH1

Sans signal d'alarme CH1

Sin señal de alarma CH1

In mancanza di allarme CH1

Zonder storingsmelding CH1

CH2 + CH3 (Δs)

MODE 1

Maximum-Sicherheitschaltung

Maximum fail-safe mode

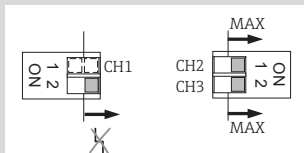
Sécurité maximum

Conmutador de seguridad máx.

Selezione della modalità di

sicurezza max.

Maximum veiligheidschakeling



Ohne Störungsmeldung CH1

Without alarm signal CH1

Sans signal d'alarme CH1

Sin señal de alarma CH1

In mancanza di allarme CH1

Zonder storingsmelding CH1

Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie

MODE



Δs	CH2 33 34						
	CH3 37 38						
	CH2 CH3						
	CH1						
	CH2						
	CH3						

Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie



Δs CH2 CH3 							
 CH2 CH3							
CH1	1	1	1	1	1	1	1
CH2 CH3	2 3	2 3	2 3	2 3	2 3	2 3	2 3
	gn	gn	gn	gn	gn	gn	
	ye	ye	ye	ye	rd	rd	

CH2 + CH3 (Δs)

MODE 1

Minimum-Sicherheitschaltung

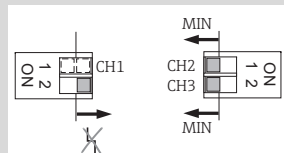
Minimum fail-safe mode

Sécurité minimum

Conmutador de seguridad mín.

Selezione della modalità di
sicurezza min.

Minimum veiligheidsschakeling



Ohne Störungsmeldung **CH1**

Without alarm signal **CH1**

Sans signal d'alarme **CH1**

Sin señal de alarma **CH1**

In mancanza di allarme **CH1**

Zonder storingsmelding **CH1**

CH2 - CH3 (Δs)

+ CH1

MODE 1

Maximum-Sicherheitschaltung

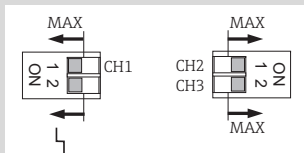
Maximum fail-safe mode

Sécurité maximum

Conmutador de seguridad máx.

Selezione della modalità di sicurezza max.

Maximum veiligheidsschakeling



Mit Störungsmeldung CH1

With alarm signal CH1

Avec signal d'alarme CH1

Con señal de alarma CH1

In caso di allarme CH1

Met storingsmelding CH1

Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie

MODE



	CH1 CH2						
Δs							
$\ominus \rightarrow$							
$\ominus \rightarrow$							
$\ominus \rightarrow$							
\odot							
CH2							

Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie



 CH1 CH2 CH3							 0 V
	 22 23 24 26 27 28	 22 23 24 26 27 28	 22 23 24 26 27 28	 22 23 24 26 27 28	 22 23 24 26 27 28	 22 23 24 26 27 28	 22 23 24 26 27 28
 4 5 6	 4 5 6	 4 5 6	 4 5 6	 4 5 6	 4 5 6	 4 5 6	
 15 16	 15 16	 15 16	 15 16	 15 16	 15 16	 15 16	
 CH1 gn ye	 gn ye	 gn ye	 gn ye	 gn ye	 gn ye	 gn ye	
 CH2 CH3 ye ye	 ye ye	 ye ye	 ye ye	 ye ye	 rd rd	 rd rd	

CH2 - CH3 (Δs)

+ CH1

MODE 1

Maximum-Sicherheitschaltung

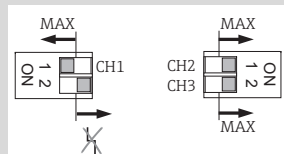
Maximum fail-safe mode

Sécurité maximum

Conmutador de seguridad máx.

Selezione della modalità di
sicurezza max.

Maximum veiligheidschakeling



Ohne Störungsmeldung CH1

Without alarm signal CH1

Sans signal d'alarme CH1

Sin señal de alarma CH1

In mancanza di allarme CH1

Zonder storingsmelding CH1

CH2 - CH3 (Δ_s)

+ CH1

MODE 1

Minimum-Sicherheitschaltung

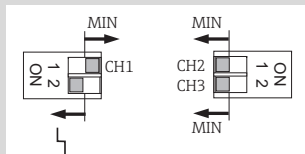
Minimum fail-safe mode

Sécurité minimum

Conmutador de seguridad mín.

Selezione della modalità di sicurezza min.

Minimum veiligheidschakeling



Mit Störungsmeldung CH1

With alarm signal CH1

Avec signal d'alarme CH1

Con señal de alarma CH1

In caso di allarme CH1

Met storingsmelding CH1

Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie

MODE



	CH2	CH3	CH1	0 V	1	2
Δ_s						
CH2 CH3						
CH1						
CH1						
CH2						
CH3						

Schalterstellung / Switch position /
Position commutateur / Posición conmutador /
Posizione commutatore / Schakel positie



<p>CH2</p> <p>↕ Δs</p> <p>CH3 CH1</p>							<p>0 V</p>
<p>CH2 CH3</p>							
<p>CH1</p>							
<p>CH1</p>							
<p>CH2</p> <p>CH3</p>							

CH2 - CH3 (Δs)

+ CH1

MODE 1

Minimum-Sicherheitschaltung

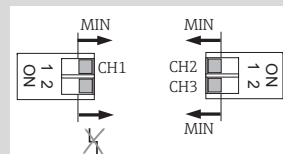
Minimum fail-safe mode

Sécurité minimum

Conmutador de seguridad mín.

Selezione della modalità di
sicurezza min.

Minimum veiligheidsschakeling



Ohne Störungsmeldung CH1

Without alarm signal CH1

Sans signal d'alarme CH1

Sin señal de alarma CH1

In mancanza di allarme CH1

Zonder storingsmelding CH1

**de - Funktionstest der
Messeinrichtung**

Mit Messaufnehmer:

- Liquiphant M
FTL50H/51H/51C
- Liquiphant S FTL70/71

Funktionskontrolle der Messeinrichtung ohne Füllstand-änderung. (Schwinggabel und Elektronikeinsatz FEL57 des Liquiphant M/S, Leitung und Eingangsschaltung des Schaltgeräts Nivotester FTL325P.) Zugelassen zur wiederkehrenden Prüfung von Überfüllsicherungen (WHG).

Hinweis: Bei Spannungsausfall läuft der Selbsttest automatisch ab. Auswirkungen beachten im Hinblick auf die Funktion Ihrer Anlage. Evtl. Schaltverzögerung vorsehen.

**en - Function test of the
measuring system**

With measuring transmitter:

- Liquiphant M
FTL50H/51H/51C
- Liquiphant S FTL70/71

Functional test of the device without a change in level. (Fork and electronic insert FEL57 of the Liquiphant M/S, connecting cable and input circuit of the Nivotester FTL325P.) Approved for the functional testing of overspill protection devices (WHG).

Note: The self test of the electronic insert FEL57 also runs automatically when the power has failed. Take note of this with regard to the functioning of your plant and if necessary provide a suitable switching delay.

**fr - Test de fonction l'ensemble
de mesure**

Avec capteur:

- Liquiphant M
FTL50H/51H/51C
- Liquiphant S FTL70/71

Contrôle du fonctionnement des installations de mesure sans variation de niveau. (Fourche à lames vibrantes et électronique FEL57 du Liquiphant M/S, câble et circuit d'entrée du détecteur Nivotester FTL325P.) Agréé pour le test cyclique de sécurités antidébordement (WHG).

Remarque: L'autotest de l'électronique FEL57 a également lieu après chaque coupure de courant. Tenir compte de ceci pour le fonctionnement de votre installation et prévoir le cas échéant une temporisation appropriée.

es - Prueba de funcionamiento

Con el detector:

- Liquiphant M
FTL50H/51H/51C
- Liquiphant S FTL70/71

Prueba de funcionamiento de la unidad, sin cambio en el nivel. (Horquilla y electrónica FEL57 del Liquiphant M/S, cable de conexión y circuito de entrada del Nivotester FTL325P.)

Indicado para la comprobación de funcionamiento de equipos de protección contra rebose (WHG).

Nota: El sistema de autocomprobación de la electrónica FEL57 también se activa automáticamente si se ha dado un fallo de alimentación. Ello deberá tenerse en cuenta por lo que se refiere al funcionamiento de la planta, en caso necesario aplicar un temporizador.

it - Test di funzionalità del sistema con sensori

Con sensori:

- Liquiphant M
FTL50H/51H/51C
- Liquiphant S FTL70/71

Test funzionale dello strumento senza variazioni di livello. (Forcella e inserto elettronico FEL57 del Liquiphant M/S, cavo di connessione e circuito di ingresso del Nivotester FTL325P.) Approvazione per test funzionali di strumenti di sicurezza antitriboccamento (WHG).

Nota: L'autotest dell'inserto elettronico FEL57 si avvia automaticamente anche in caso di interruzioni di energia. Tenere presente questo comportamento in relazione al funzionamento dell'impianto e, se necessario, prevedere un opportuno ritardo di commutazione.

nl - Functietest van het meetsysteem

Met sensor:

- Liquiphant M
FTL50H/51H/51C
- Liquiphant S FTL70/71

Functiecontrole van de sensor zonder niveauperandering. (Vork en elektronica module FEL57 van de Liquiphant M/S, aansluitkabel en ingangscircuit van de Nivotester FTL325P.) Goedgekeurd voor het functioneel testen van overvulbeveiligingen (WHG).

Note: Na spanningsuitval wordt de elektronica module FEL57 automatisch getest. Houdt hiermee rekening in uw procesbesturing en pas eventueel een gepaste schakelvertraging toe.

de - Voraussetzungen

1., 2., 3. beachten

en - Conditions

Note 1., 2., 3.

fr - Conditions

Tenir compte de 1., 2., 3.

es - Requisitos previos

Comprobar 1., 2., 3.

it - Prerequisiti

1., 2., 3.

nl - Uitgangssituatie

1., 2., 3. bekijken

Liquiphant M

FTL50/50H/51/51H/51C

Liquiphant S

FTL70/71

1. Schalterstellung STD / EXT des FEL57

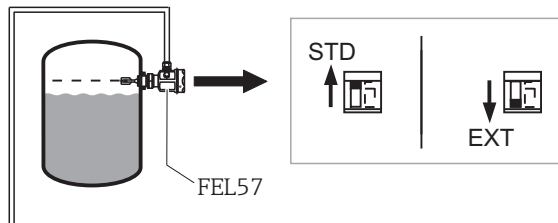
Switch setting STD / EXT of FEL57

Position du commutateur STD / EXT du FEL57

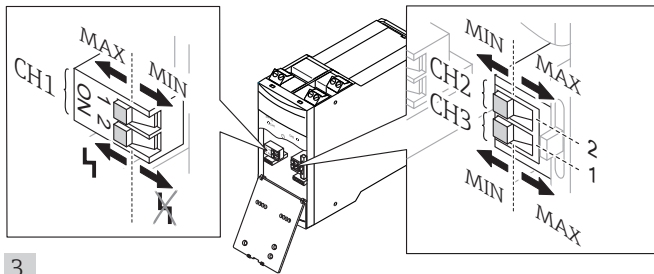
Ajuste STD / EXT of FEL57

Impostazione interruttore STD / EXT del FEL57

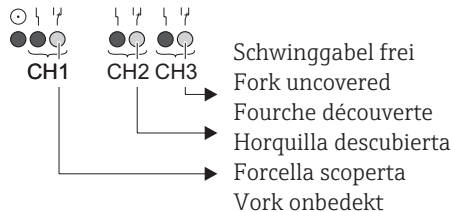
Schakelaar instelling STD / EXT van de FEL57



2. Schalterstellung MIN / MAX; 4/⌘
 Switch setting MIN / MAX; 4/⌘
 Position du commutateur MIN / MAX; 4/⌘
 Ajuste MIN / MAX; 4/⌘
 Impostazione interruttore MIN / MAX; 4/⌘
 Schakelaar instelling MIN / MAX; 4/⌘



3.



MAX	MIN
☀	●
ye	

de - Voraussetzungen
 1., 2., 3. beachten

en - Conditions
 Note 1., 2., 3.

fr - Conditions
 1., 2., 3. enir compte de

es - Requisitos previos
 Comprobar 1., 2., 3.

it - Prerequisiti
 1., 2., 3.

nl - Uitgangssituatie
 1., 2., 3. bekijken

Liquiphant M
 FTL50/50H/51/51H/51C

Liquiphant S
 FTL70/71

de - Erläuterungen

Der Testablauf kann nur vollständig beobachtet werden, wenn

- die Schwinggabel des Liquiphant M/S frei ist und
- der Nivotester FTL325P in Maximum-Sicherheitsschaltung betrieben wird (wiederkehrende Prüfung für Überfüllsicherung) oder
- der Nivotester FTL325P in Minimum-Sicherheitsschaltung betrieben wird.

Der Liquiphant M/S Selbsttest findet zwar unabhängig von der Bedeckung der Schwinggabel statt, bei bedeckter Schwinggabel ist jedoch die einwandfreie Funktion während der Testphase nicht erkennbar.

en - Explanations

The test procedure can be properly observed when:

- the fork of the Liquiphant M/S is uncovered and
- the Nivotester FTL325P is operated in maximum failsafe mode (functional test for overspill protection) or
- the Nivotester FTL325P is operated in minimum failsafe mode.

The Liquiphant M/S self test runs independent of the fork being covered, however, if this is the case, proper functioning cannot be recognised during the test phase.

fr - Explication

Le déroulement du test ne peut être observé dans sa totalité que si

- les lames vibrantes du Liquiphant M/S sont découvertes et
- le Nivotester FTL325P fonctionne en sécurité maximum (test cyclique pour sécurité antidébordement) ou
- le Nivotester FTL325P fonctionne en sécurité minimum.

L'auto-test du Liquiphant M/S est indépendant du recouvrement des lames vibrantes, mais lorsque ces dernières sont recouvertes, il n'est pas possible de reconnaître le fonctionnement correct en phase de test.

es - Explicación:

La prueba podrá observarse adecuadamente si:

- la horquilla del Liquiphant M/S está descubierta y
- el Nivotester FTL325P funciona en modo de seguridad máximo (comprobación de protección contra rebose) o
- el Nivotester FTL325P funciona en modo de seguridad mínimo.

El sistema de auto comprobación del Liquiphant M/S se activa independientemente de que la horquilla esté cubierta, sin embargo, si es así, durante el test no es posible comprobar el buen funcionamiento.

it - Chiarimenti:

La procedura di prova può essere eseguita correttamente se:

- la forcella del Liquiphant M/S è scoperta e
- il Nivotester FTL325P funziona con modalità di sicurezza di massimo (test funzionale di protezione antitraboccamento) oppure
- il Nivotester FTL 325 P funziona con modalità di sicurezza di minimo.

L'autotest del Liquiphant M/S viene eseguito anche se la forcella è coperta, in questo caso però; non è possibile riconoscere il corretto funzionamento durante il test.

nl - Verklaringen:

De test procedure wordt optionaal uitgevoerd als:

- de vork van de Liquiphant M/S vrij is en
- de Nivotester FTL325P in maximum-fail-safe keuze staat (functietest voor overvulbeveiliging) of
- de Nivotester FTL325P in minimum-fail-safe keuze staat.

De functietest van de Liquiphant M/S werkt onafhankelijk van de bedekking van de trilvork. Bij bedekte sensor is het correct functioneren, tijdens de test fase, echter niet te herkennen.

de - Weitere Erläuterungen

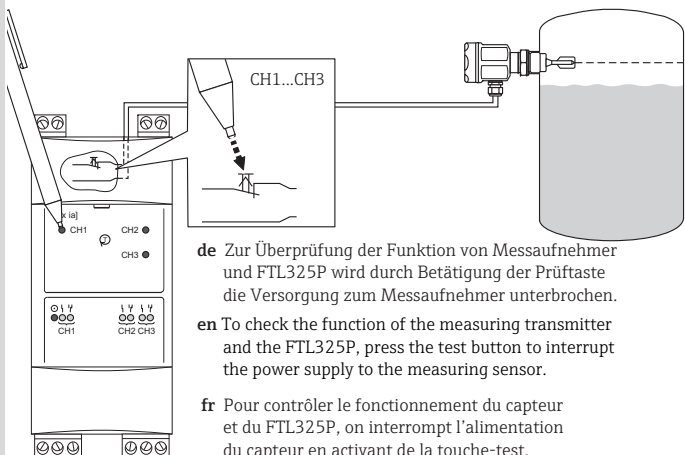
en - Further explanations

fr - Autres explications

es - Más información

it - Altre spiegazioni

nl - Meer informatie



de Zur Überprüfung der Funktion von Messaufnehmer und FTL325P wird durch Betätigung der Prüftaste die Versorgung zum Messaufnehmer unterbrochen.

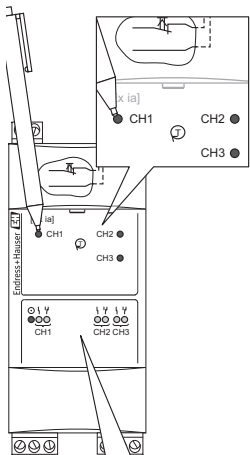
en To check the function of the measuring transmitter and the FTL325P, press the test button to interrupt the power supply to the measuring sensor.

fr Pour contrôler le fonctionnement du capteur et du FTL325P, on interrompt l'alimentation du capteur en activant de la touche-test.

es Para comprobar el funcionamiento del detector y del FTL325P, accione el botón de prueba para interrumpir la alimentación al detector.

it Per verificare la funzionalità del trasmettitore e FTL325P premere il pulsante di test per interrompere l'alimentazione del sensore.

nl Voor het testen van de functie van de sensor en de FTL325P wordt door het indrukken van de testtoets de voedingsspanning naar de sensor onderbroken.



1. Prüftaste drücken
 Press test button
 Activer la touche test
 Presionar el botón de prueba → ≥ 3 s
 Premere il tasto di prova CH1, CH2, CH3
 Testtoets drukken

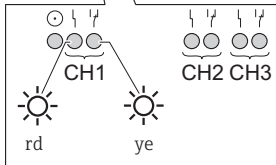


2. Ablauf beobachten
 Observe sequence
 Observer le déroulement
 Observar la secuencia
 Osservare la sequenza
 Volgorde bekijken



→ 44...47

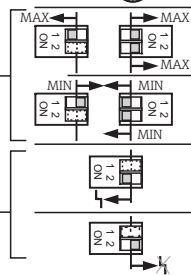
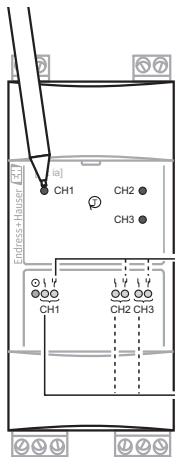
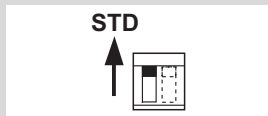
3. **de** Funktion ist abhängig von der Sicherheitsschaltung und kann daher unterschiedlich sein.
en The function is dependent upon the fail-safe mode and can thus be different.
fr Le fonctionnement, qui dépend du mode de sécurité, peut varier.
es El funcionamiento depende del modo de seguridad y por tanto puede ser diferente.
it Il funzionamento dipende dalla modalità di sicurezza e pertanto può variare.
nl Functie is afhankelijk van de fail-safe keuze en kan daarom anders zijn.



- de** - Testverlauf
en - Test procedure
fr - Déroulement du test
es - Procedimiento de prueba
it - Procedura die prova
nl - Test procedure

Nivotester FTL325P-#3#3

Liquiphant M/S FTL5#/7#
+ FEL57:



Liquiphant M/S
FTL5#/7# + FEL57

Betrieb
Operation
Fonctionnement
Funcionamiento
Funzionamento
Bedrijf



0 1 2 3 4 5 ...

ye



rd



gn



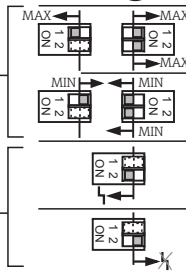
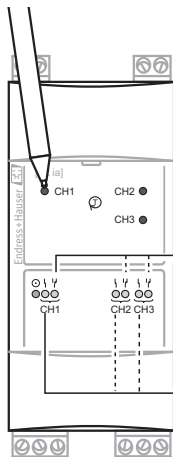
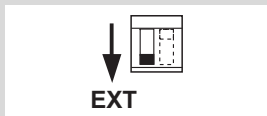
ye



Teststart Test start Début de test Inicio prueba Avvio test Test start	Testphase Test phase Phase de test Fase de prueba Fase di test Test fase	Normaler Betrieb Normal operation Fonctionnement normal Funcionamiento normal Funzionamento normale Normaal bedrijf
<p>≥ 3 s</p>		
0 1 2 3 ...	0 1 2 3 4 5 6 7 8 9 10 ...	
●	● [●] ●	[●]
[●] ●	● [●] ● [●]	●
[●]	[●] ●	●
●	●	●
●	[●]	[●]
●	● [●] ●	[●]

Nivotester FTL325P-#3#3

Liquiphant M/S FTL5#/7#
+ FEL57:



Liquiphant M/S
FTL5#/7# + FEL57

Betrieb
Operation
Fonctionnement
Funcionamiento
Funzionamento
Bedrijf

Teststart
Test start
Début de test
Inicio prueba
Avvio test
Test start



0 1 2 3 4 ... 0 1 2 3 ...

ye

rd

gn

ye

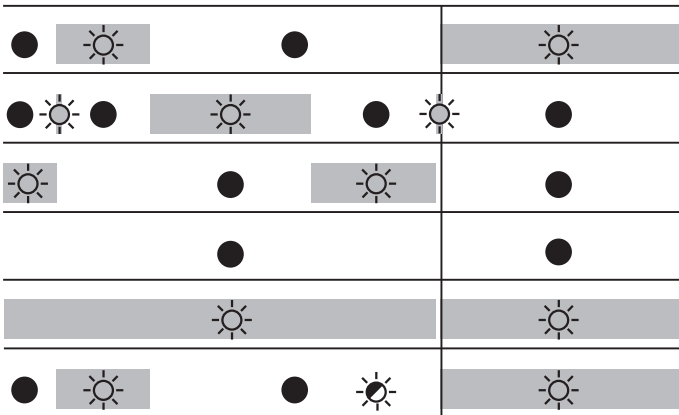


Testphase
 Test phase
 Phase de test
 Fase de prueba
 Fase di test
 Test fase

Normaler Betrieb
 Normal operation
 Fonctionnement normal
 Funcionamiento normal
 Funzionamento normale
 Normaal bedrijf



0 1 2 3 4 5 6 7 37 38 39 40 41 42 43 44 ...



de - Technische Daten

en - Technical Data

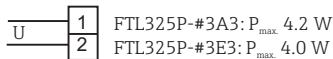
fr - Caractéristiques techniques

es - Datos técnicos

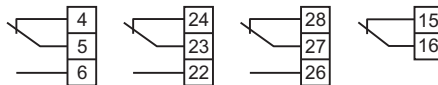
it - Dati tecnici

nl - Technische gegevens

Energieversorgung / Power supply / Alimentation /
Alimentación / Alimentazione / Voedingsspanning



Schaltleistung / Switching power / Pouvoir de coupure /
Capacidad del relé / Carico contatti / Contactbelasting



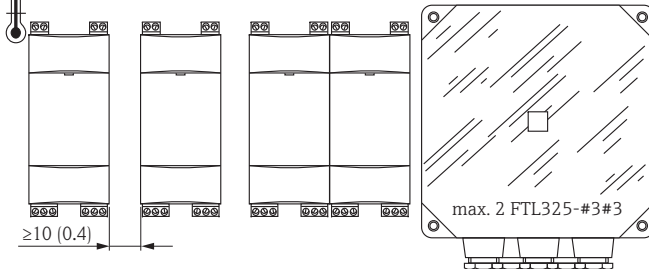
Umgebungstemperatur / Ambient temperature / Température ambiante /
Temperatura ambiente / Temperatura ambiente / Omgevingstemperatuur



-20...60 °C
(0...140 °F)

-20...50 °C
(0...120 °F)

-20...40 °C
(0...100 °F)



Fehlfunktion	Ursache	Maßnahme
Schaltet nicht	Versorgungsspannung fehlt (Grüne Leuchtdiode aus)	Versorgung prüfen
	Elektronik defekt	FTL325P austauschen
	Kontakte verschweißt (nach einem Kurzschluss)	FTL325P austauschen; Sicherung in den Kontaktstromkreis
	Messaufnehmer defekt	Messaufnehmer austauschen
Schaltet falsch	Im FTL325P Umschalter für Grenzsignal falsch eingestellt	Umschalter hinter der Frontplatte richtig einstellen, S. 17 ff
Dauernde Störungsmeldung	Unterbrechung oder Kurzschluss der Leitung zum Messaufnehmer	Leitung überprüfen
	Messaufnehmer-Elektronik defekt	Messaufnehmer-Elektronik austauschen
	FTL325P defekt	FTL325P austauschen
Fehlschaltung nach Netzausfall	FEL57, Verhalten beim Einschalttest (wiederkehrende Prüfung)	Schaltverhalten FEL57 beachten; Anlagensteuerung nach Netzausfall bis ca. 45 s blockieren

de - Fehlersuche

en -Trouble-shooting

Fault	Reason	Remedy
Does not switch	No power (green LED does not light up)	Check power
	Electronic defect	Replace FTL325P
	Contacts welded together (after short-circuit)	Replace FTL325P; connect a fuse into contactor circuit
	Measuring transmitter defective	Replace measuring transmitter
Switches incorrectly	Incorrect setting of change-over switch for limit signal in FTL325P	Correctly set change-over switch behind front panel, p. 17 ff
Permanent alarm signal	Interrupt or short-circuit line to measuring transmitter	Check line
	Measuring transmitter electronics defective	Replace measuring transmitter electronics
	FTL325P defective	Replace FTL325P
Switches incorrectly after power failure	FEL57, Behaviour during switch-on test (functional test)	Observe switching behaviour of FEL57; after a power failure block the system control for up to about 45 s

Défaut	Cause	Mesure
Ne commute pas	Absence tension d'alimentation (diode verte éteinte)	Vérifier l'alimentation
	Electronique défectueuse	Remplacer le FTL325P
	Contacts soudés (après un court-circuit)	Remplacer le FTL325P; insérer un fusible dans le circuit du contact
	Capteur défectueux	Remplacer le capteur
Mauvaise commutation	Dans le FTL325P, commutateur pour signal de seuil mal réglé	Régler correctement le commutateur derrière la plaque frontale, p. 17 ff
Message alarme permanent	Interruption ou court-circuit de la liaison au capteur	Vérifier la liaison
	Electronique du capteur défectueuse	Remplacer l'électronique du capteur
	FTL325P défectueux	Remplacer le FTL325P
Mauvaise commutation après coupure	FEL57, comportement lors du test de mise sous tension (test cyclique)	Tenir compte de la commutation du FEL57; après une coupure de courant, bloquer la commande de l'installation jusqu'à env. 45 s

es - Identificación de fallos

Fallo	Causa	Solución
No conmuta	No hay alimentación (el LED verde no está iluminado)	Compruebe la alimentación
	Las electrónicas son defectuosas	Sustituya el FTL325P
	Contactos soldados juntos (después del corto circuito)	Sustituya el FTL325P; conecte un fusible en el circuito contactor
	Sensor defectuoso	Sustituya el sensor
Conmuta incorrectamente	Ajuste incorrecto de la señal de límite en FTL325P	Posicione correctamente el interruptor en el frontal, p. 17 ff
Aviso de fallo constante	Interrupción o cortocircuito de la conexión con el sensor	Compruebe el cableado
	Electrónicas del transmisor defectuosas	Cambie la electrónica del transmisor
	FTL325P defectuoso	Sustituya el FTL325P
Conmuta incorrectamente después de un fallo de alimentación	FEL57, comportamiento durante la comprobación de conmutación (test de funcionamiento)	Observare el comportamiento de conmutación del FEL57; del fallo de alimentación, bloqueo del control de la planta durante 45 s aprox.

Guasto	Motivo	Rimedio
Non commuta	Mancanza alimentazione (LED verde spento)	Controllare l'alimentazione
	Elettronica guasta	Sostituire elettronica FTL325P
	Contatti saldati insieme (dopo il corto circuito)	Sostituire FTL325P; mettere il fusibile nel circuito di contatto
	Trasmettitore di misura difettoso	Sostituire trasmettitore di misura
Commuta non correttamente	Settaggio FTL325P non corretto	Correggere il punto di misura, p. 17 ff
Segnali di allarme permanente	Interruzione del collegamento al trasmettitore	Verifica la linea
	Trasmettitore di misura elettronica difettosa	Sostituire trasmettitore di misura elettronica
	FTL325P guasto	Sostituire il FTL325P
Commutazione non corretta dopo la mancanza alimentazione	FEL57, Comportamento durante la fase di test all'accensione (test di funzionamento)	Osservare il comportamento di commutazione del FEL57; dopo il ripristino di una mancanza di alimentazione inibire il controllo dell'impianto per 45 s

it - Individuazione e eliminazione delle anomalie

Fout	Oorzaak	Maatregel
Schakelt niet	Voeding ontbreekt (groene LED = uit)	Voeding controleren
	Elektronica defect	FTL325P wisselen
	Contacten verkleefd (na kortsluiting)	FTL325P wisselen; zekering in schakelkring opnemen
	Sensor defect	Sensor wisselen
Schakelt foutief	In de FTL325P niveausignaal fout ingesteld	Omschakelaar achter de frontplaat goed instellen, zie pag. 17 ff
Continu stooralarm	Onderbreking of kortsluiting van sensor leiding	Leiding controleren
	Sensor elektronica defect	Sensor elektronica wisselen
	FTL325P defect	FTL325P wisselen
Fout na netuitval	FEL57, gedrag bij inschakelen na netuitval (periodieke test-functie)	Schakelgedrag FEL57 controleren; Installatiebesturing na netuitval ca. 45 s blokkeren

Technische Information / Technical Information / Information technique
Información técnica / Informazioni tecniche / Technische Informatie
– TI00350F Nivotester FTL325P-#1#1, FTL325P-#3#3

Funktionstest / Functional test / Test de fonction / Prueba de
funcionamiento Verificia di funzionamento / unctie test
– KA00147F

Sicherheitshinweise / Safety instructions / Conseils de sécurité /
Instrucciones de seguridad / Istruzioni di sicurezza /
Veiligheidsinstructies

- XA00133F ATEX
- XA00526F ATEX
- XA00396F NEPSI
- XA01340F INMETRO

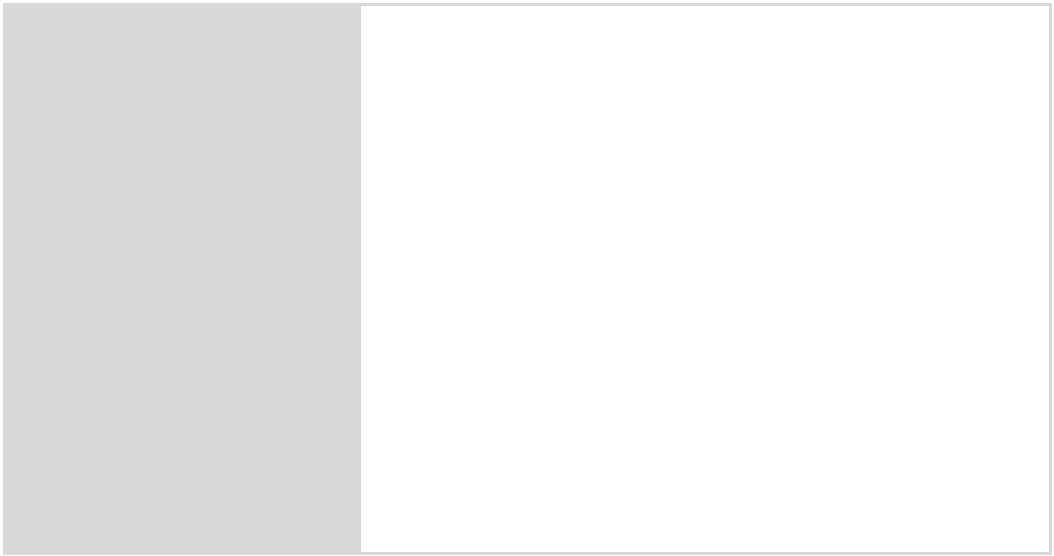
Handbuch zur Funktionalen Sicherheit / Functional Safety Manual
(SIL)

- SD00111F Liquiphant MAX HW-V01.00
- SD00231F Liquiphant MIN HW-V01.00
- SD01508F Liquiphant MAX/MIN HW-V02.00
- SD00207F Soliphant MAX HW-V01.00 + HW-V02.00

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