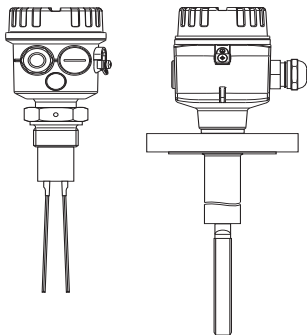


## Çalıştırma Talimatları **Soliphant M FTM50, FTM51**

Limit Seviye Sivici



## tr - İçerik

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### **İkaz!**

= yasak;

hatalı çalışmaya veya bozulmaya neden olabilir.

## tr - Güvenlik Notları

Soliphant M FTM50, FTM51  
yığın katılarda seviye limiti tespiti  
için tasarlanmıştır.

Hatalı kullanılırsa uygulama ile  
ilgili tehlikeler ortaya çıkabilir.  
Seviye limit sivici sadece eğitimli  
personel tarafından bu çalıştırma  
talimatlarına, **ilgili tüm**

**standartlara,**

**kanuni gereksinimlere** ve

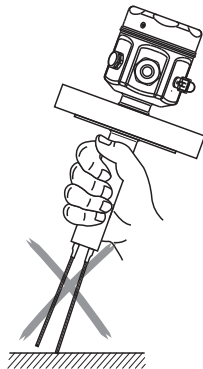
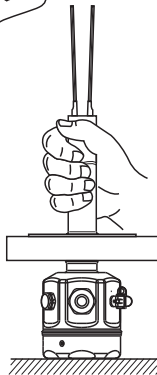
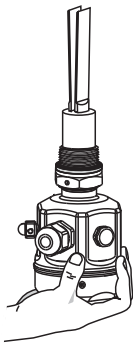
ilgili yerlerde sertifikaya tamamen  
uygun şekilde kurulabilir,  
bağlanabilir, devreye  
alınabilir, çalıştırılabilir ve bakımı  
yapılabilir.

Cihazın yakınına kolayca  
ulaşılacak bir güç sivici monte  
edin.

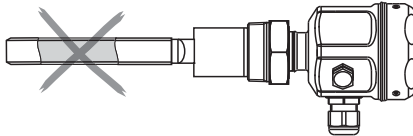
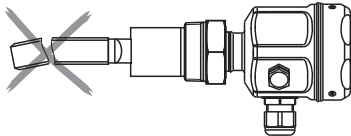
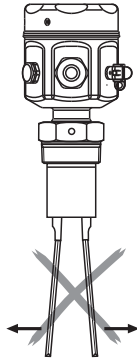
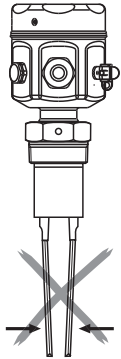
Güç sivici cihaz için bir bağlantı  
kesici olarak işaretleyin.

## tr - Taşıma

Muhafaza, flanş veya uzatma borusundan tutun.



tr - Bükme  
Kısaltmayın  
Uzatmayın





ENDRESS+HAUSER  
SOLIPHANT M

Sipariş Kodu

FTM50-##-#####



A	*1	CSA Genel Amaçlı, CSA C US
C		FM DIP-AIS Cl. II, III, Div. 1, Gr. E-G +
D		CSA DIP Cl. II, III, Div. 1+2, Gr. E-G
E		IEC Ex iaD A20
F		FM IS Cl. I, II, III, Div. 1, Gr. A-G + NI +
G		CSA IS Cl. I, II, III, Div. 1+2, Gr. A-G
H		IEC Ex ID [IaD] A21
I		FM XP-AIS Cl. I, Div. 1, Gr. A-D +
K		CSA XP Cl. I, Div. 1+2, Gr. A-D
L		IEC Ex d IIC T6 Ga/Gb
M		IEC Ex de IIC T6 Ga/Gb
N		INMETRO Ex tb IIIC Da/Db
P		INMETRO Ex d IIC T6-T2 Ga/Gb, Ex Ia/tb IIIC Da/Db
Q		INMETRO Ex de IIC T6-T2 Ga/Gb, Ex Ia/tb IIIC Da/Db
R		EAC Ex de IIC T6 Ga/Gb, Ex t IIIC Da/Db
S		TIIS Ex d IIC T3
T		TIIS Ex Ia IIC T3
U		Tehlikesiz alan + EAC işaretleme
V		EAC Ex d IIC T6 Ga/Gb, Ex t IIIC Da
W		EAC Ex Ia IIIC Da/Db, Ex Ia IIC T6 Ga/Gb
X		NEPSI Ex Ia IIC T6
Z		NEPSI Ex d [Ia] IIC T6
8		NEPSI DIP
Y	*2	
1		ATEX II 1 D, 1/2 GD, 1/3 GD Ex Ia IIC T6
2		ATEX II 1/2 D Ex ID
3		ATEX II 3 D, ATEX II 3 G EEx nA/nL/nC
4		ATEX II 1/3 D Ex ID
5		ATEX II 1 D, ATEX II 1/2 G Ex de [Ia] IIC T6
6		ATEX II 1 D, ATEX II 1/2 G Ex d [Ia] IIC T6
7		ATEX II 1 D, II 1 G Ex Ia T6 (XA)
AF		2", 150 lbs, RF, ANSI B16.5
AG		3", 150 lbs, RF, ANSI B16.5
AH		4", 150 lbs, RF, ANSI B16.5
B3		DN50, PN25/40 A, EN1092-1 (DIN2527 B)
BS		DN80, PN10/16 A, EN1092-1 (DIN2527 B)
BT		DN100, PN10/16 A, EN1092-1 (DIN2527 B)
GG		EN10226, R 1 1/2
GJ		ANSI, NPT 1 1/2, d = 1.67"
GK		ANSI, NPT 1 1/4, d = 1.38"

GX	ANSI, NPT 1½, d = 1.38" --> ISA
KF	10K 50, RF, JIS B2220
KG	10K 80, RF, JIS B2220
KH	10K 100, RF, JIS B2220
TD	Tri-Clamp ISO2852, DN40-51 (2")
YY	*2
A	PTFE>316L; Kaplanmış çatal
B	PTFE>316L; Tamamen kaplanmış
C	ETFE>316L; Tamamen kaplanmış
2	316L; Ra ≤ 3,2 µm/80 grit, *1
5	316L; Ra ≤ 0,8 µm/180 grit; Parlatılmış çatal
7	316L; Ra ≤ 0,8 µm/180 grit; Çatal + boru parlatılmış
9	*2
A	155 mm/6 in; min. 10 g/l (0,7 lbs)
K	100 mm/4 in; min. 50 g/l (3 lbs)
Y	*2
1	FEM51; 19...253 V AC
2	FEM52; PNP, 10... 55 V DC
4	FEM54; DPDT, 19...253 V AC / 55 V DC
5	FEM55; 8/16 mA, 11... 36 V DC
7	FEM57; PFM
8	FEM58; NAMUR + Test butonu
9	*2
A	Kompakt
D	6 m > *3
E	20 ft > *3
G	6 m, Zirhli > *3

H	20 ft. Zirhli > <sup>3</sup> <sub>2</sub> *
Y	
H	T13, Alüminyum, IP66/68 NEMA4X, Ayrı bağlantı bölgesi
Y	<sup>2</sup> F16, Polyester, IP66/67 NEMA4X + Şeffaf kapak
3	F17, Alüminyum, IP66/67 NEMA4X
5	F13, Alüminyum, IP66/68 NEMA4X
7	F15, 316L, IP66/67 NEMA4X
1	M12 tapa
2	M20
3	NPT ½
4	G ½
7	NPT ¾
9	<sub>2</sub> *
A	<sup>1</sup> * Cam kapak
G	
R	SIL, <sup>4</sup> , * Cam kapak
S	SIL, <sup>4</sup>
Y	<sub>2</sub> *
A	<sup>1</sup>
C	EN10204-3.1, <sup>5</sup>
D	Sıcaklık ara parçası
E	≤ 150 °C (≤ 300 °F) Sıcaklık ara parçası
F	≤ 150 °C (≤ 300 °F), EN10204-3.1, <sup>5</sup> Yüksek sıcaklık ≤ 280 °C (≤ 540 °F)



H	Yüksek sıcaklık ≤ 280 °C (≤ 540 °F), EN10204-3.1, *5
J	Yüksek sıcaklık ≤ 230 °C (≤ 450 °F)
K	Yüksek sıcaklık ≤ 230 °C (≤ 450 °F), EN10204-3.1, *5
Y	*2

\*1 Yok

\*2 Diğerleri

\*3 Aynı muhafaza

\*4 Uygunluk beyanı

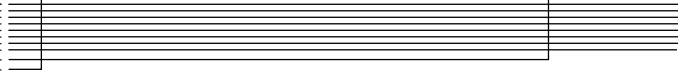
\*5 Malzeme (yaş parçalar), denetim sertifikası



ENDRESS+HAUSER  
SOLIPHANT M

Sipariş Kodu

FTM51-#####



A	*1	CSA Genel Amaçlı, CSA C US
C		FM DIP-AIS Cl. II, III, Div. 1, Gr. E-G +
D		CSA DIP Cl. II, III, Div. 1+2, Gr. E-G
E		IEC Ex iaD A20
F		FM IS Cl. I, II, III, Div. 1, Gr. A-G + NI +
G		CSA IS Cl. I, II, III, Div. 1+2, Gr. A-G
H		IEC Ex ID [iaD] A21
I		FM XP-AIS Cl. I, Div. 1, Gr. A-D +
K		CSA XP Cl. I, Div. 1+2, Gr. A-D
L		IEC Ex d IIC T6 Ga/Gb
M		IEC Ex de IIC T6 Ga/Gb
N		INMETRO Ex tb IIC Da/Db
P		INMETRO Ex d IIC T6-T2 Ga/Gb, Ex ia/ib IIC Da/Db
Q		INMETRO Ex de IIC T6-T2 Ga/Gb, Ex ia/ib IIC Da/Db
R		EAC Ex de IIC T6 Ga/Gb, Ex t IIC Da/Db
S		TIIS Ex d IIC T3
T		TIIS Ex ia IIC T3
U		Tehlikesiz alan + EAC işaretleme
V		EAC Ex d IIC T6 Ga/Gb, Ex t IIC Da
W		EAC Ex ia IIC Da/Db, Ex ia IIC T6 Ga/Gb
X		NEPSI Ex ia IIC T6
Z		NEPSI Ex d [ia] IIC T6
8		NEPSI DIP
Y	*2	
1		ATEX II 1 D, 1/2 GD, 1/3 GD Ex ia IIC T6
2		ATEX II 1/2 D Ex ID,
3		ATEX II 3 D, ATEX II 3 G EEx nA/nL/nC
4		ATEX II 1/3 D Ex ID
5		ATEX II 1 D, ATEX II 1/2 G Ex de [ia] IIC T6
6		ATEX II 1 D, ATEX II 1/2 G Ex d [ia] IIC T6
7		ATEX II 1 D, II 1 G Ex ia T6 (XA)
AF		2", 150 lbs, RF, ANSI B16.5
AG		3", 150 lbs, RF, ANSI B16.5
AH		4", 150 lbs, RF, ANSI B16.5
B3		DN50, PN25/40 A, EN1092-1 (DIN2527 B)
BS		DN80, PN10/16 A, EN1092-1 (DIN2527 B)
BT		DN100, PN10/16 A, EN1092-1 (DIN2527 B)
GG		EN10226, R 1½
GJ		ANSI, NPT 1½, d = 1,67"
GK		ANSI, NPT 1¼, d = 1,38"

GX ANSI, NPT 1/2, d = 1,38" --> ISA  
 KF 10K 50, RF, JIS B2220  
 KG 10K 80, RF, JIS B2220  
 KH 10K 100, RF, JIS B2220  
 TD Tri-Clamp ISO2852, DN40-51 (2")  
 YY \*2

A PTFE>316L;  
 Kaplanmış çatal

B PTFE>316L;  
 Tamamen kaplanmış

C ETFE>316L;  
 Tamamen kaplanmış

2 316L; Ra ≤ 3,2 µm/80 grit, \*1

5 316L; Ra ≤ 0,8 µm/180 grit;  
 Parlatılmış çatal

7 316L; Ra ≤ 0,8 µm/180 grit;  
 Çatal + boru parlatılmış

9 \*2

L ..... mm; min. 10 g/l (0,7 lbs)

M ..... mm; min. 50 g/l (3 lbs)

P ..... in; min. 10 g/l (0,7 lbs)

Q ..... in; min. 50 g/l (3 lbs)

S ..... mm; min. 10 g/l (0,7 lbs),\*6

T ..... mm; min. 50 g/l (3 lbs),\*6

U ..... in; min. 10 g/l (0,7 lbs),\*6

V ..... in; min. 50 g/l (3 lbs),\*6

Y \*2

1 FEM51; 19...253 V AC

2 FEM52; PNP, 10... 55 V DC

4 FEM54; DPDT, 19...253 V AC / 55 V DC

5 FEM55; 8/16 mA, 11... 36 V DC

7 FEM57; PFM

8 FEM58; NAMUR +

Test butonu

9 \*2

A	Kompakt
D	6 m > <sup>3</sup>
E	20 ft > <sup>*3</sup>
G	6 m, <sup>3</sup>
H	Zırhlı > <sup>*</sup>
Y	20 ft, <sup>3</sup>
	Zırhlı > <sup>*</sup>
	<sup>2</sup>
	<sup>*</sup>
H	T-13, Alüminyum, IP66/68 NEMA4X, Ayrı bağlantı bölgesi
Y	<sup>2</sup>
1	F16, Polyester, IP66/67 NEMA4X + Şeffaf kapak
3	F17, Alüminyum, IP66/67 NEMA4X
5	F13, Alüminyum, IP66/68 NEMA4X
7	F15, 316L, IP66/67 NEMA4X
1	M12 tapa
2	M20
3	NPT ½
4	G ½
7	NPT ¾
9	<sup>2</sup>
	<sup>*</sup>
A	<sup>1</sup>
G	Çam kapak
R	SIL, <sup>4</sup> , Çam kapak
S	SIL, <sup>4</sup>
Y	<sup>2</sup>
	<sup>*</sup>
A	<sup>1</sup>
C	EN10204-3.1, <sup>5</sup>
D	Sıcaklık ara parçası
E	≤ 150 °C (≤ 300 °F) Sıcaklık ara parçası

F	Sıcaklık ara parçası ≤ 150 °C (≤ 300 °F), EN10204-3.1, *5 Yüksek sıcaklık ≤ 280 °C (≤ 540 °F)
H	Yüksek sıcaklık ≤ 280 °C (≤ 540 °F), EN10204-3.1, *5
J	Yüksek sıcaklık ≤ 230 °C (≤ 450 °F)
K	Yüksek sıcaklık ≤ 230 °C (≤ 450 °F), EN10204-3.1, *5
Y	*2

\*1 Yok

\*2 Diğerleri

\*3 Aynı muhafaza

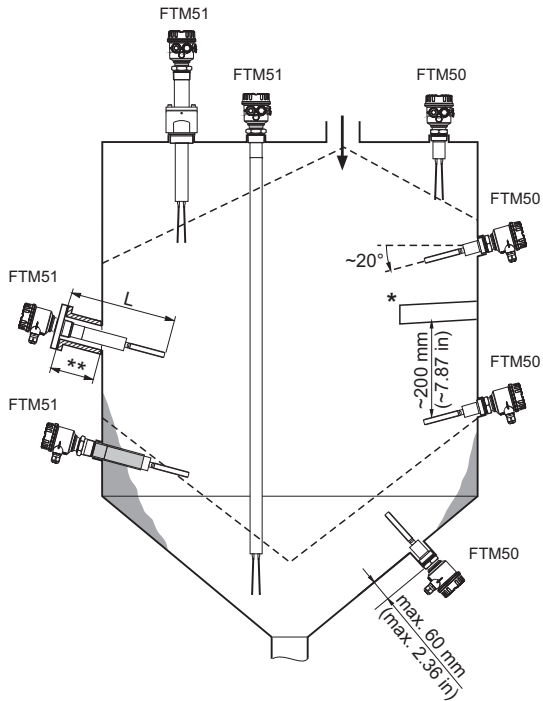
\*4 Uygunluk beyanı

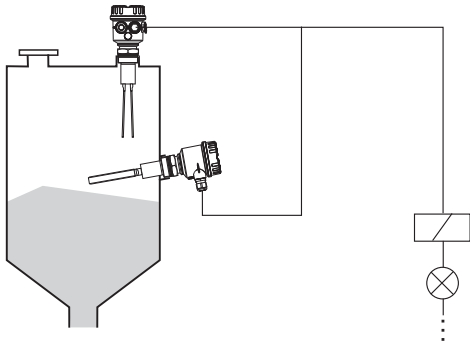
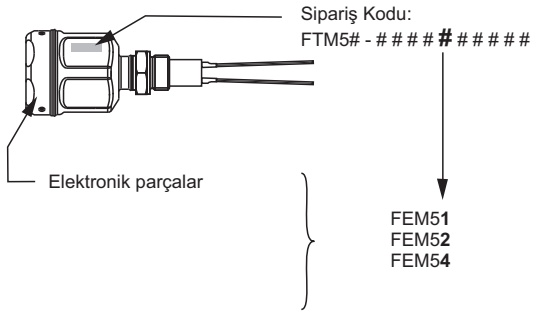
\*5 Malzeme (yaş parçalar), denetim sertifikası

\*6 Yüzey geliştirme

## tr - Montaj Notları

- \* Koruyucu çatı
- \*\* Nozul uzunluğu
- L Sensör uzunluğu
- L = 200 mm (7,87 in)  
Standart çatal
- L = 145 mm (5,71 in)  
Kısa çatal

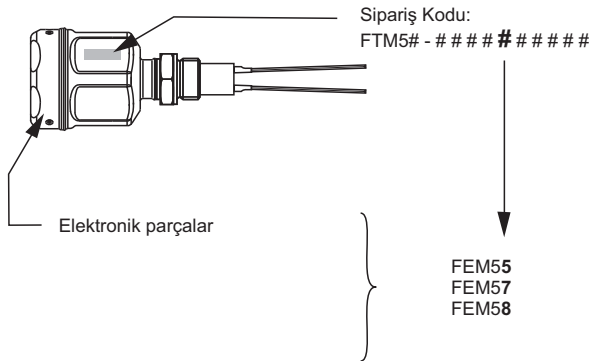




tr - Ölçüm sistemi  
doğrudan bağlantı için

## tr - Ölçüm sistemi

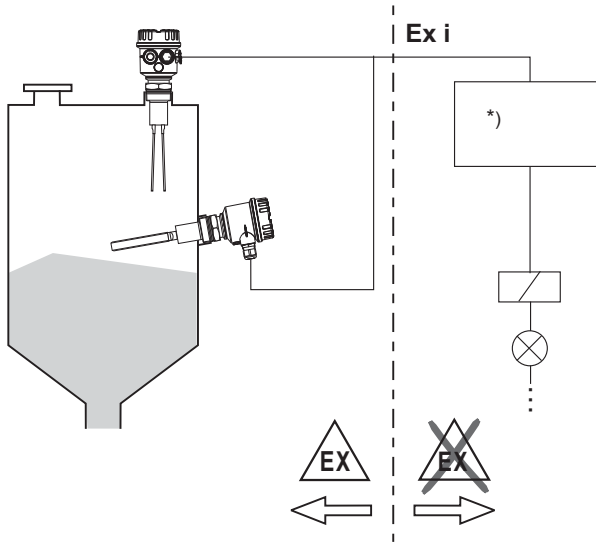
bir anahtarlama ünitesi ile bağlantı için





## tr - Ölçüm sistemi

bir anahtarlama ünitesi ile bağlantı için

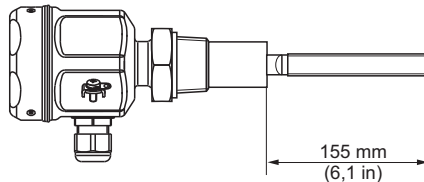


\*) Anahtarlama ünitesi, PLC, yalıtımlı yükseltici, segment bağlantısı

tr - Çatal uzunluğunun seçimi  
yığın yoğunluğuna bağlı olarak

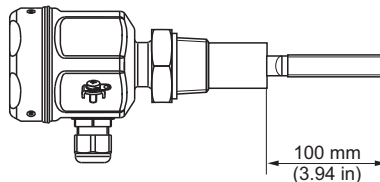
Standart çatal ile yığın yoğunluğu

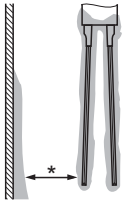
$\geq 10 \text{ g/l}$  ( $\geq 0,7 \text{ lbs}$ )



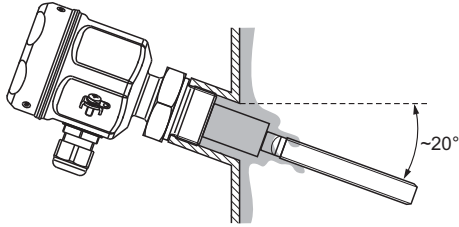
Kısa çatal ile yığın yoğunluğu

$\geq 50 \text{ g/l}$  ( $\geq 3 \text{ lbs}$ )

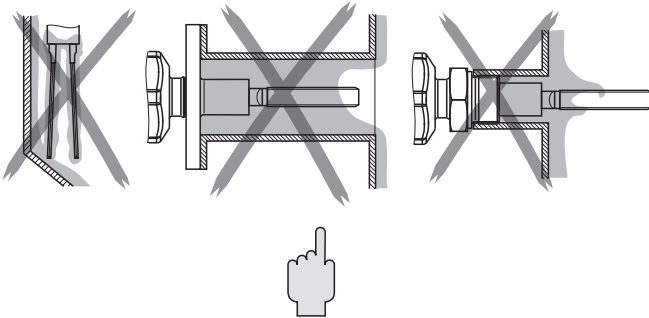




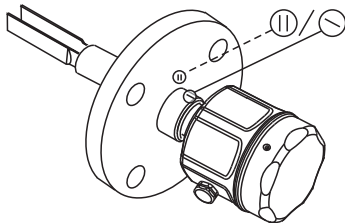
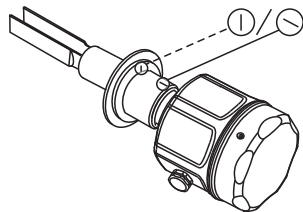
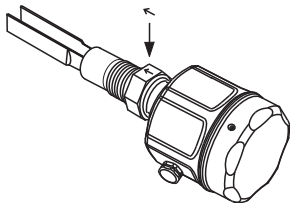
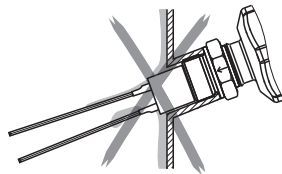
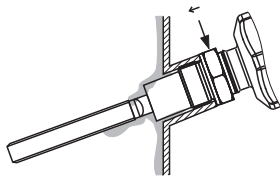
\* Mesafe!

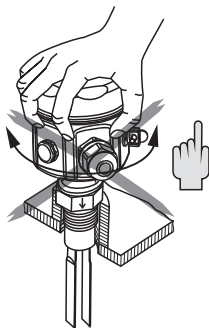
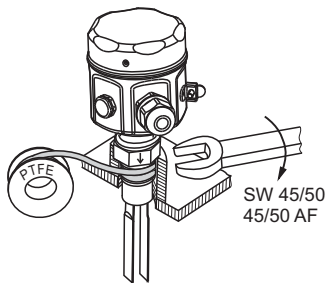


tr - Birikmeyi gözönünde bulundurun.  
Çatal tank üzerindeki birikme ile temas etmemelidir.

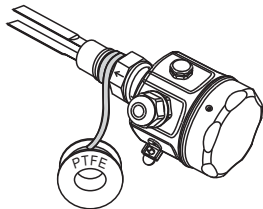


tr - Çatal dişlerinin yönü:  
Yukarı veya aşağı işaret

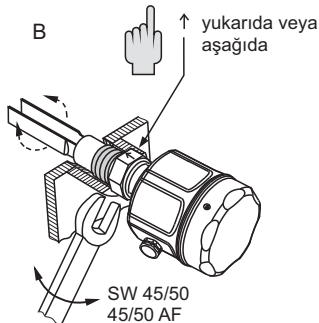




A



B



tr - Soliphant'ı proses bağlantısına vidalayın.  
**Döndürmek** için muhafazayı kullanmayın.

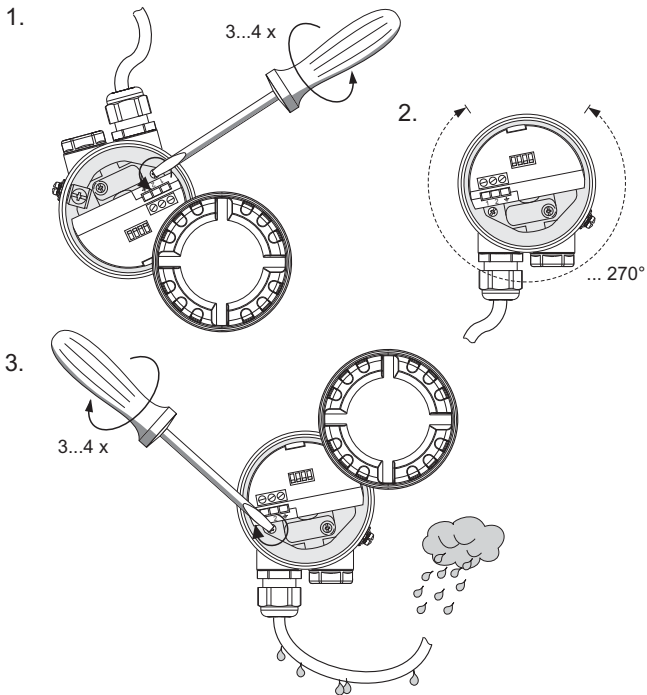
SW 45, 45 AF:  
1½ NPT, ø 36 mm (1,42 in)  
¼ NPT, ø 36 mm (1,42 in)

SW 50, 50 AF:  
1½ NPT, ø 43 mm (1,69 in)  
R 1½, ø 43 mm (1,69 in)

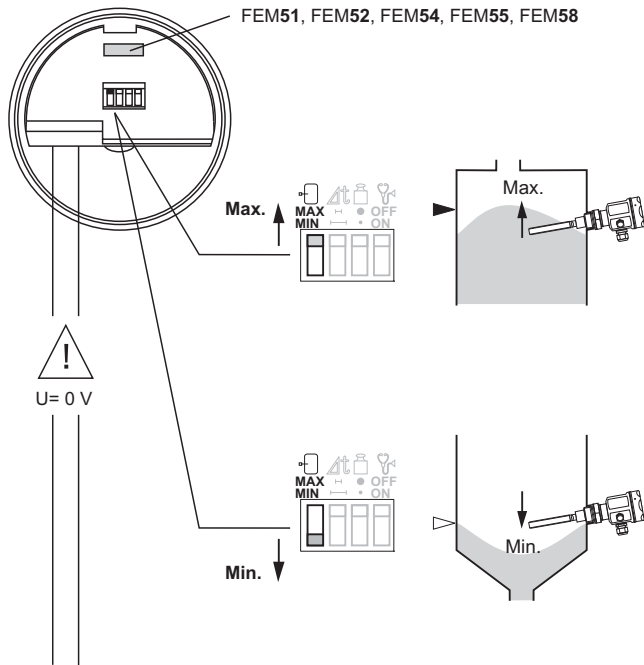
Tork



F16:  
0,6 Nm (0,4425 lbf ft)

F15, F17, F13, T13:  
0,9 Nm (0,6638 lbf ft)



tr - Arıza emniyetli mod  
MIN/MAKS

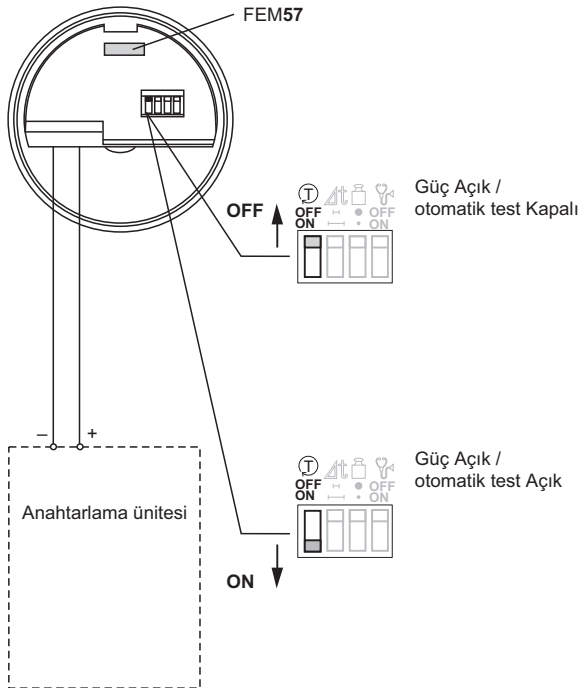


 SIL2:  
→  64

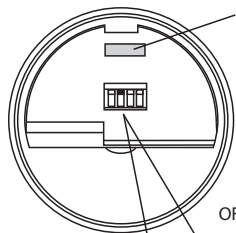
tr - Otomatik test

FEM57

(sıralama için sayfa 47, 48 ve  
anahtarlama ünitesine bakın)







FEM51, FEM52, FEM54, FEM55, FEM58

OFF ↑



155 mm  
(6,1 in)



100 mm  
(3,94 in)



0,5 s

0,5 s



150 °C (300 °F):

1,5 s

1,0 s

230 °C (450 °F),

280 °C (540 °F):

2 s

ON ↓



155 mm  
(6,1 in)



100 mm  
(3,94 in)



5,0 s

5,0 s



5,0 s

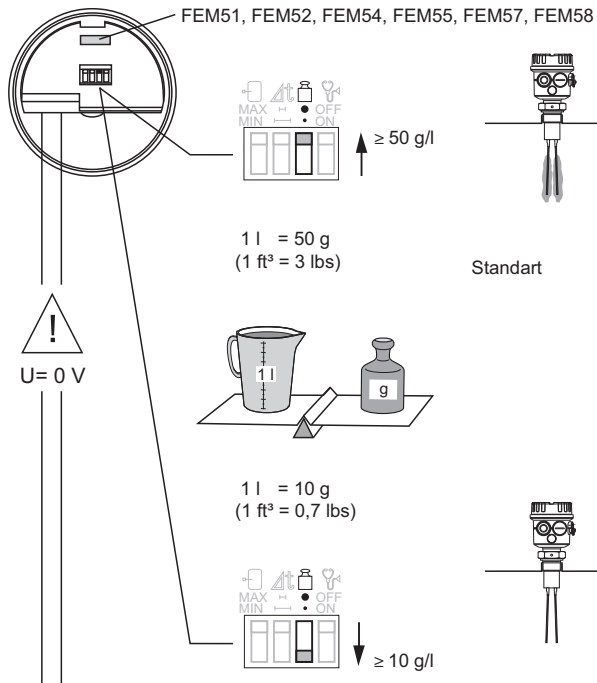
5,0 s

tr - Anahtarlama gecikmesi

SIL2:

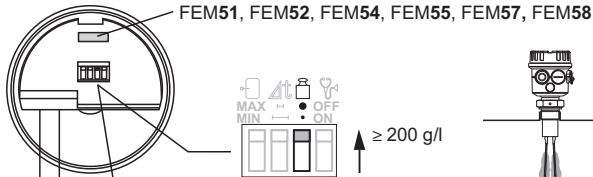


tr - Katı yoğunluğu.  
g/l olarak ölçülen yığın yoğunluğu.  
**Standart çatal için.**



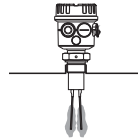
→ 52

tr - Katı yoğunluğu.  
g/l olarak ölçülen yığın yoğunluğu.  
**Kısa çatal için.**

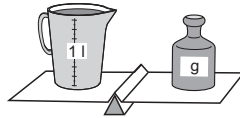


1 l = 200 g  
(1 ft<sup>3</sup> = 12 lbs)

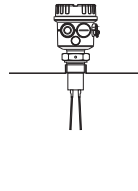
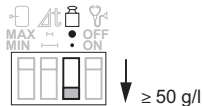
Standart



!  
U= 0 V



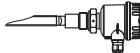




















1 l = 50 g  
(1 ft<sup>3</sup> = 3 lbs)



Tortulaşma



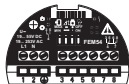
	Birikme	Aşınma
		
	●	●
		
	●	●
		
		 
		
		 
		

Simge referansları /





Elektronik hatası



Kırmızı LED sinyalleri (hata) /



Elektrik parça FEL58  
(NAMUR) /

LED'ler



Bekleme



Anahtarlama durumu (FEM57: Kapama)



Hata, alarm



açık



yanıp söner



kapalı



Seviye



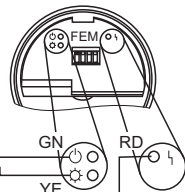
Çıkış sinyali

$I_L$

Yük akımı (anahtarlانmış)

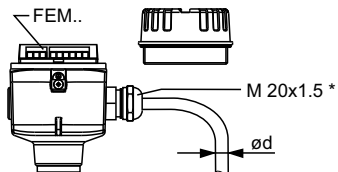
$I_R$

Artık akım (bloke)



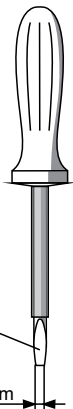
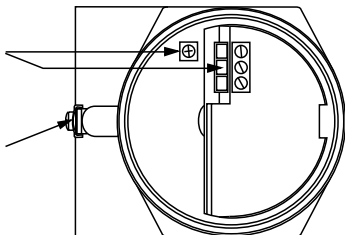


Ulusal düzenlemelere uyun!



max. 2,5 mm<sup>2</sup>  
(max. AWG 14)

max. 4 mm<sup>2</sup>  
(max. AWG 12)



## tr - Bağlantılar

### \*Kablo girişi

Nikel kaplamalı pirinç:

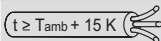
ø = 7...10,5 mm (0,28...0,41 in)

Plastik:

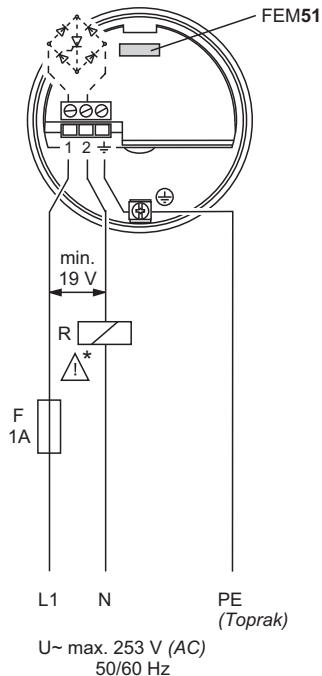
ø = 5...10 mm (0,2...0,38 in)

Paslanmaz çelik:

ø = 7...12 mm (0,28...0,47 in)



tr - Bağlantılar FEM51  
İki kablolu AC bağlantısı













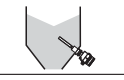



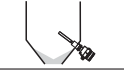










\* Harici yük R  
bağlanmalıdır



$I_L \text{ max. } 1,5 \text{ A}$	
$I_L \text{ max. } 350 \text{ mA}$	
max. 89 VA / 253 V max. 8,4 VA / 24 V	
min. 2,5 VA / 253 V (10 mA) min. 0,5 VA / 24 V (20 mA)	





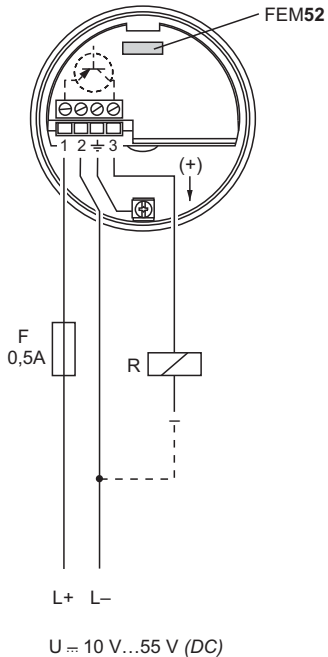
		 FEM51	GN	YE	RD
MAX		1 $\xrightarrow{I_L}$ 2 $\Delta U$			
		1 $\xrightarrow{I_R}$ 2			
MIN		1 $\xrightarrow{I_L}$ 2 $\Delta U$			
		1 $\xrightarrow{I_R}$ 2			
*1		1 $\xrightarrow{I_L / I_R}$ 2			
*2		1 $\xrightarrow{I_R}$ 2			

\*1 Bakım gerekli

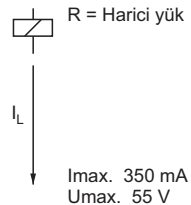
\*2 Enstrüman arızası

 $\Delta U_{FEM51}$  = maks. 12 V

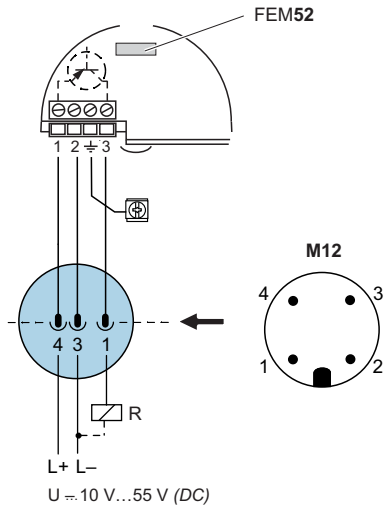
tr - Bağlantılar FEM52  
Kablo rakoru



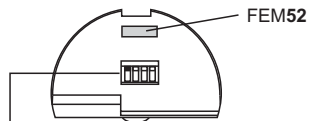
Ayrıca DI modülleri için  
EN 61131-2



tr - Bağlantılar FEM52  
M12 Tapa



tr - Fonksiyon FEM52

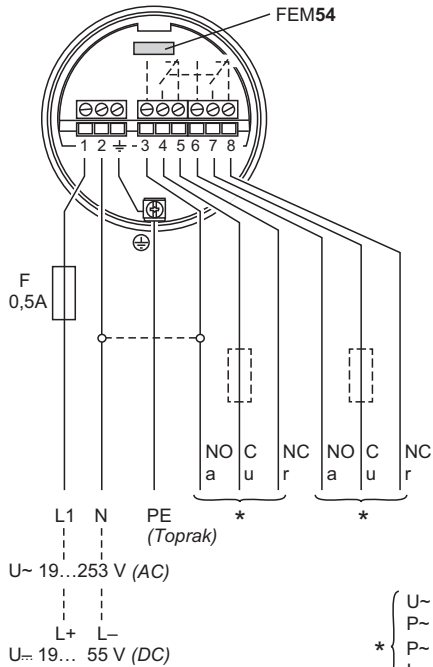


\*1 Bakım gerekli

\*2 Enstrüman arızası

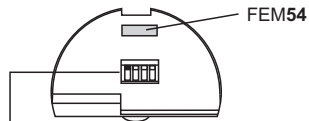
$$\Delta U_{FEM52} = \text{maks. } 3 \text{ V}$$

		FEM52	GN	YE	RD
MAX					
MIN					
*1					
*2					





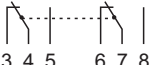









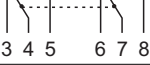




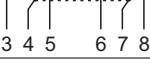











tr - Bağlantılar FEM54  
Kablo rakoru  
Üniversal bağlantısı  
Röle çıkışı

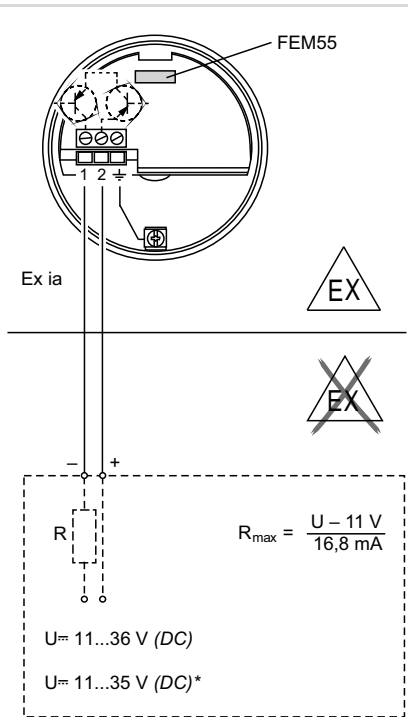
$\left\{ \begin{array}{l} U\sim \text{max. } 253 \text{ V, } I\sim \text{max. } 6 \text{ A} \\ P\sim \text{max. } 1500 \text{ VA, } \cos \varphi = 1 \\ * P\sim \text{max. } 750 \text{ VA, } \cos \varphi > 0,7 \\ I\sim \text{max. } 6 \text{ A, } U\sim < 30 \text{ V} \\ I\sim \text{max. } 0,2 \text{ A, } U\sim < 125 \text{ V} \end{array} \right.$



\*1 Bakım gerekli

\*2 Enstrüman arızası

		 FEM54	GN	YE	RD
MAX					
					
MIN					
					
*1					
*2					



**tr** - Bağlantılar FEM55  
Kablo rakoru  
Çıkış 8/16 mA

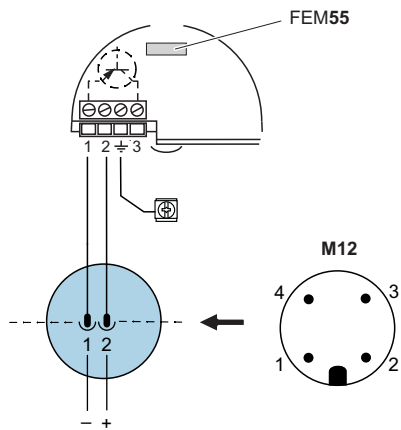
Sadece güvenlik galvanik ayırmaya sahip güç beslemesi üniteleri kullanın (örn. SELV)!

örn. PLC,

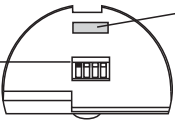
4...20 mA  
EN 61131-2






























\* Yaş konum.

tr - Bağlantılar FEM55  
M12 Tapa








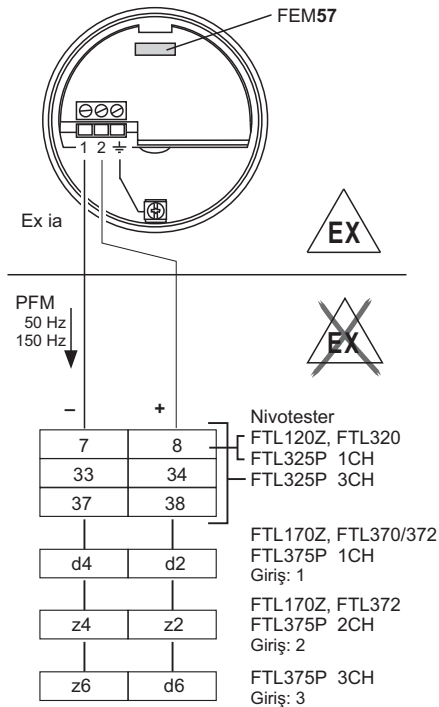
		 FEM55	GN	YE	RD
MAX		+ 2 $\xrightarrow{\sim 16 \text{ mA}}$ 1			
		+ 2 $\xrightarrow{\sim 8 \text{ mA}}$ 1			
MIN		+ 2 $\xrightarrow{\sim 16 \text{ mA}}$ 1			
		+ 2 $\xrightarrow{\sim 8 \text{ mA}}$ 1			
*1		+ 2 $\xrightarrow{8/16 \text{ mA}}$ 1			
		 *3 3,6 mA			
*2		+ 2 $\xrightarrow{3,6 \text{ mA}}$ 1			

\*1 Bakım gerekli

\*2 Enstrüman arızası

\*3 → 

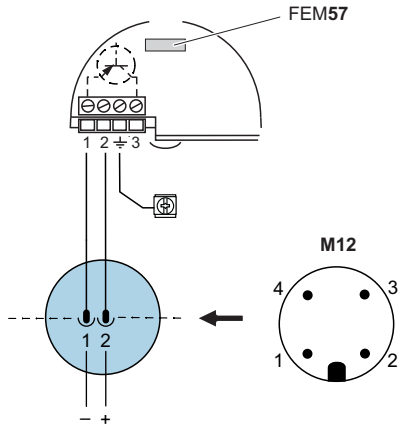
tr - Bağlantılar FEM57  
Kablo rakoru  
PFM çıkışı

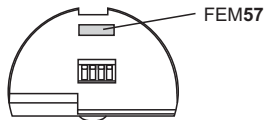









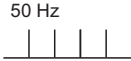














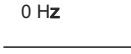



Fonksiyona  
dikkat edin!



tr - Bağlantılar FEM57  
M12 Tapa






		 FEM57	GN	YE	RD
		150 Hz 			
		50 Hz 			
*1		150 Hz 			
		 0 Hz			
*2		0 Hz 			

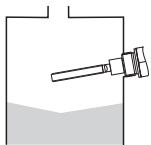
\*1 Bakım gerekli

\*2 Enstrüman arızası

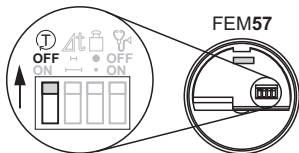
\*3 → 

Açma davranışı

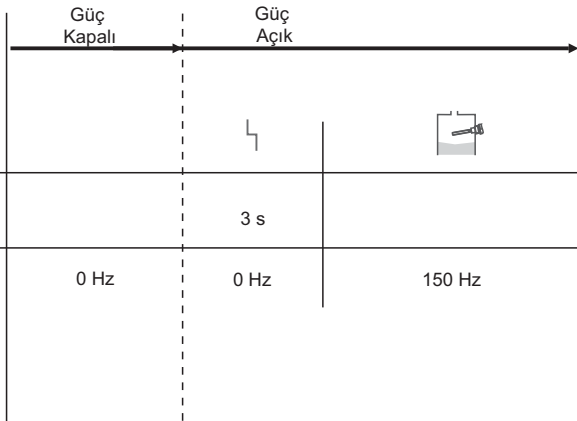
→ 



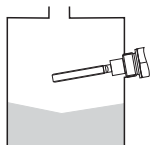
+



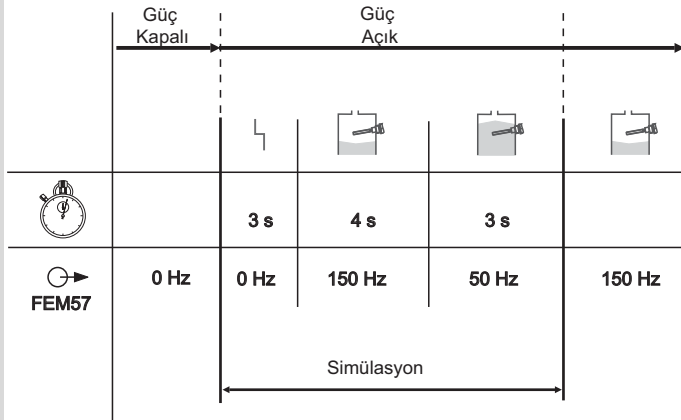
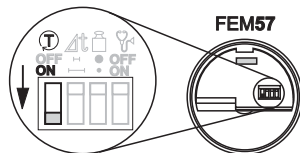
tr - Açma davranışı  
Otomatik test (Kapalı)



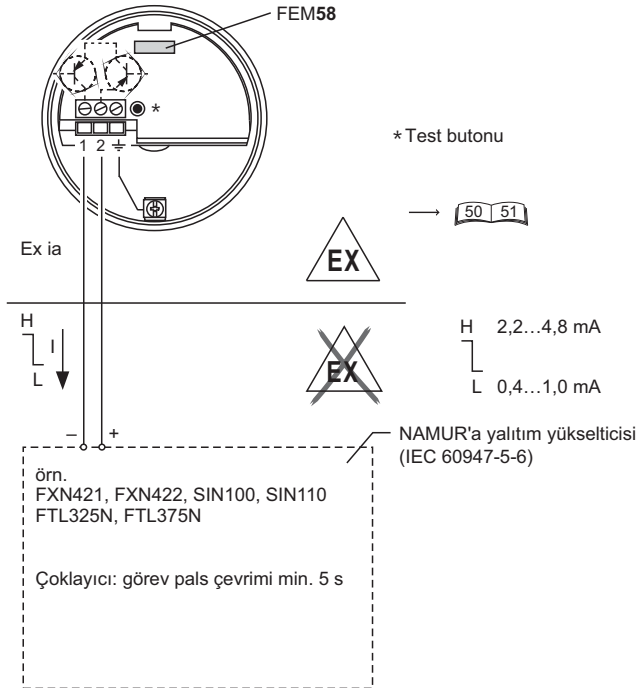
tr - Açma davranışı  
Otomatik test (Açık)



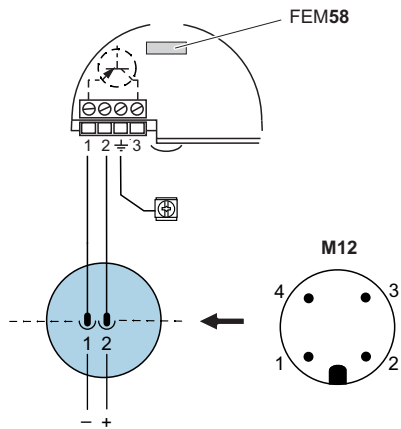
+




tr - Bağlantılar FEM58  
Kablo rakoru  
NAMUR çıkışı H-L  
> 2,2 mA / < 1,0 mA




























tr - Bağlantılar FEM58  
M12 Tapa





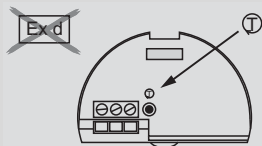


		 FEM58	GN	YE	RD
MAX		$\begin{matrix} + \\ 2 \end{matrix} \xrightarrow{2,2 \dots 4,8 \text{ mA}} 1$			
		$\begin{matrix} + \\ 2 \end{matrix} \xrightarrow{0,4 \dots 1,0 \text{ mA}} 1$			
MIN		$\begin{matrix} + \\ 2 \end{matrix} \xrightarrow{2,2 \dots 4,8 \text{ mA}} 1$			
		$\begin{matrix} + \\ 2 \end{matrix} \xrightarrow{0,4 \dots 1,0 \text{ mA}} 1$			
*1		$\begin{matrix} + \\ 2 \end{matrix} \xrightarrow{0,4 \dots 4,8 \text{ mA}} 1$			
*2		$\begin{matrix} + \\ 2 \end{matrix} \xrightarrow{0,4 \dots 1,0 \text{ mA}} 1$			

\*1 Bakım gerekli

\*2 Enstrüman arızası

tr - Fonksiyon testi butonu FEM58  
Arıza emniyetli mod MAKS



1. Normal çalışma

GN YE RD  
  
 1 Hz  
 + 2,2...  
 4,8 mA → 1

GN YE RD  
  
 1 Hz  
 + 0,4...  
 1,0 mA → 1

2. Test butonuna basın



GN YE RD  
  
 + 0 mA → 1

GN YE RD  
  
 + 0 mA → 1












3. ~ 3 s normal çalışma  
sonrasında test butonunu  
bırakın

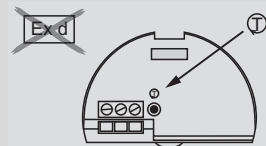


GN YE RD  
  
 1 Hz  
 + 2,2...  
 4,8 mA → 1

GN YE RD  
  
 1 Hz  
 + 0,4...  
 1,0 mA → 1

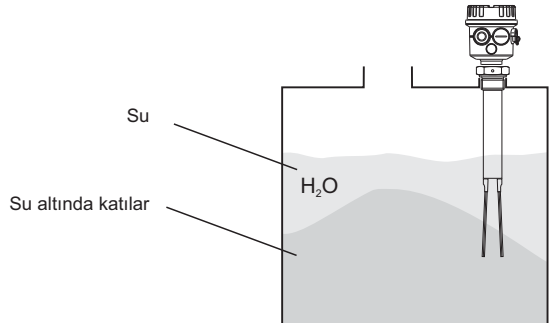
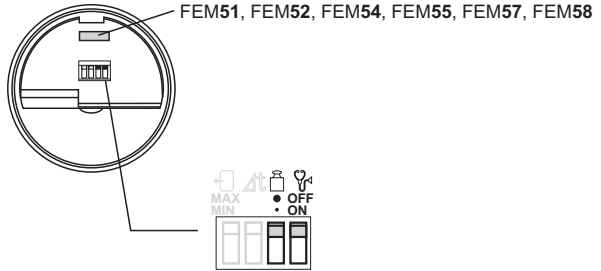
tr - Fonksiyon testi butonu FEM58  
Arıza emniyetli mod MIN

 <p><b>MIN</b></p>		
<p>1. Normal çalışma</p>	<p>GN YE RD    <b>1 Hz</b>            + 2,2...            4.8 mA → 1</p>	<p>GN YE RD    <b>1 Hz</b>            + 0,4...            1,0 mA → 1</p>
<p>2. Test butonuna basın</p>  <p>&gt;3 s</p>	<p>GN YE RD              + 0 mA → 1</p>	<p>GN YE RD              + 0 mA → 1</p>
<p>3. ~ 3 s normal çalışma sonrasında test butonunu bırakın</p> 	<p>GN YE RD    <b>1 Hz</b>            + 2,2...            4,8 mA → 1</p>	<p>GN YE RD    <b>1 Hz</b>            + 0,4...            1,0 mA → 1</p>



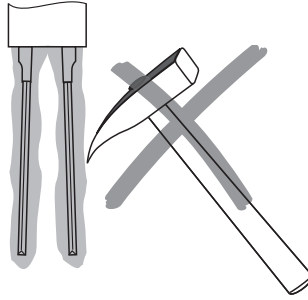
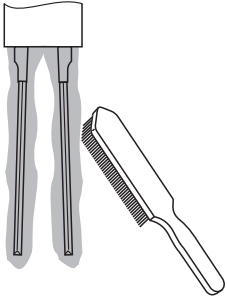
## tr - Tortulaşma

Anahtarlama noktası suya benzer sıvılardan etkilenmez

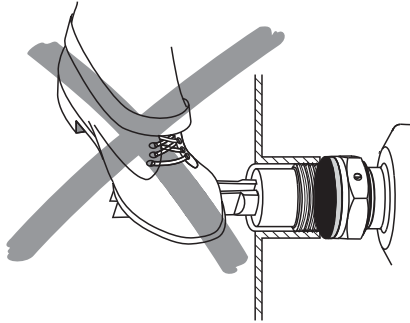


tr - Bakım

Kalın kireçlerin temizlenmesi



**Basamak olarak  
kullanmayın!**

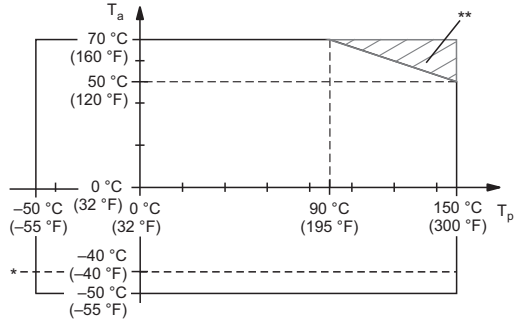
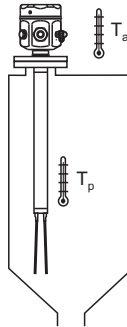


## tr - Teknik Veriler

Ortam sıcaklığı  $T_a$

Proses sıcaklığı  $T_p$

Maks. çalışma basıncı MWP



\* F16 muhafaza için

\*\* Sıcaklık ara parçası ile

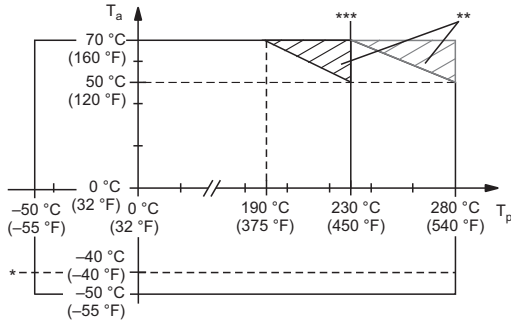
MWP = 25 bar (360 psi)



Proses bağlantısı

Yığın yoğunluğu





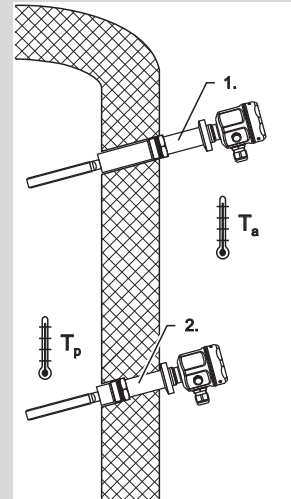
\* F16 muhafaza için

\*\* Sıcaklık ara parçası yalıtım dışı

\*\*\* Yapışma önleyici kaplama  
en fazla: max.  $230\text{ }^{\circ}\text{C}$  (max.  $450\text{ }^{\circ}\text{C}$ )

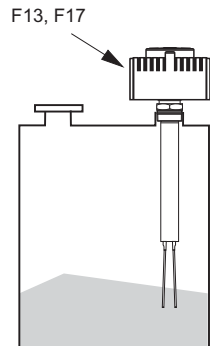
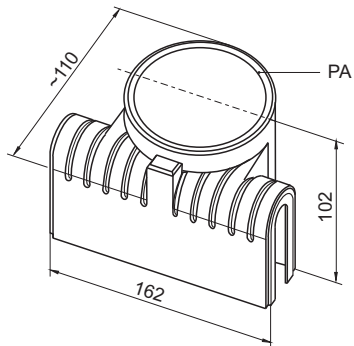
1. Yalıtım dışı

2. Yalıtım içi

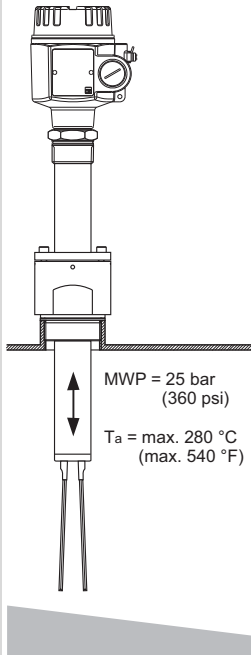


## tr - Aksesuarlar

Koruma kapağı  
ve F13 ve F17 muhafazalar için  
71040497



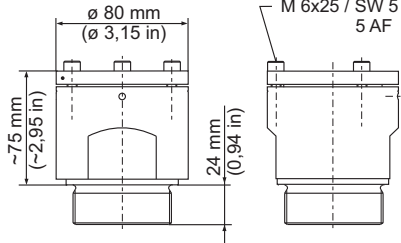




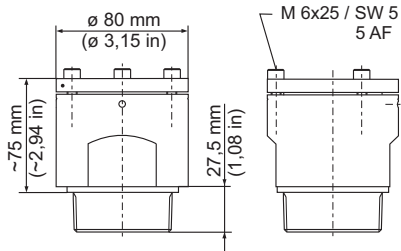
MWP = 25 bar  
(360 psi)

T<sub>a</sub> = max. 280 °C  
(max. 540 °F)

**G 2**  
DIN ISO 228/1 (316L)  
52024631



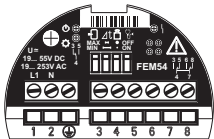
**2 NPT**  
ANSI B 1.20.1 (316L)  
52024630



tr - Kayar kovan, basınçlı  
FTM51, malzeme versiyonu A, 2,  
5 için

## tr - Sorun giderme

Neden	Anahtarlama yapmıyor	Doğru anahtarlama yapıyor	Düzensiz hatalı anahtarlama	Bakım gösterimi	Enstrüman arızası gösterimi
Besleme voltajı yok	Besleme voltajını kontrol edin				
Ters polarite	Terminal atamasını kontrol edin				
Çıkışta kısa devre				Terminal atamasını kontrol edin	
Hatalı sinyal hattı	Sinyal hattını kontrol edin				
Yanlış arıza emniyetli mod seçili		Ayar taşıma koruması için MAKS, kuru çalışma koruması için MIN			
Aşırı radyo paraziti			Blendajlı kablo kullanın		
Muhafazada su			kapak ve kablo girişlerini temizleyin ve güvenli şekilde sıkıştırın		
FEM51: Kullanılan rölenin tutma akımı çok düşük		Uygun bir röle kullanın veya opsiyonel olarak MVT 2Y1278 talep edin			
Yığın yoğunluğu çok düşük	Daha düşük yığın yoğunluğuna ayarlayın		Daha düşük yığın yoğunluğuna ayarlayın		
Aşırı dış titreşim			Anahtarlama gecikmesini 5 s olarak ayarlayın		
Birikme			Daha yüksek yığın yoğunluğuna ayarlayın	Birikmeyi temizleyin	
Hatalı elektronik parça					Elektronik parçayı değiştirin
Aşınma					Sensörü değiştirin
Sensöre bağlantı yok					Sensörü değiştirin










FEM51	52026497
FEM52	52026498
FEM54	52026499
FEM55	52026500
FEM57	52026501
FEM58	52026502

**Kurulum teknik özelliği:** Kurulum sırasında kendinden güvenli olmayan devrelerden enerji alan FEM57 ve FEM58 elektronik parçalarının kendinden güvenli olan devreler içerisinde artık bağlı olmayabileceklerini lütfen unutmayın.

tr **Yedek parçalar**  
Elektronik parçalar

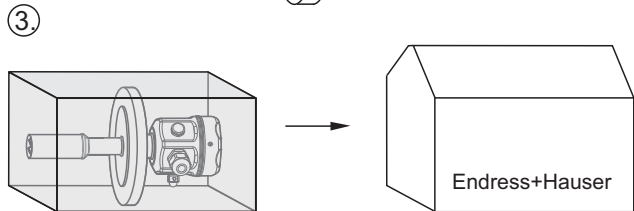
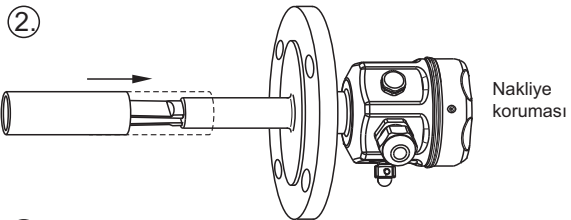
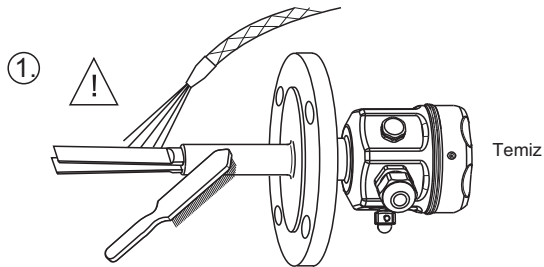
tr - Muhafaza kapakları,  
contalar

\* Sadece uygun yağları kullanın

Muhafaza / Kaplama malzemesi	Contalar	Parça numarası
F16 / PA12	EPDM *	52025790
F13, F17 / Alu 	EPDM * 	52027693
F13, F17 / Alu	EPDM * 	52002699
F13 / Alu	EPDM * 	52002698
F15 / 316L	VMQ/PTFE	52027000
F15 / 316L Sipariş Kodu FTM5# - ##### ↓ D, 2, 3, 4	VMQ/PTFE	52027708
F15 / 316L 	VMQ/PTFE	52027002
F15 / 316L  Sipariş Kodu FTM5# - ##### ↓ D, 2, 3, 4	VMQ/PTFE	52027709
T13 / Alu	EPDM *	52006903
T13 / Alu 	EPDM *	52007103

FTM50X ve FTM51X yedek sensörleri Endress+Hauser Servisi üzerinden sipariş edilebilir!

**tr** - Yedek sensörler



TI00392F Soliphant M FTM50, FTM51, FTM52

Çalıştırma Talimatı

KA00239F Soliphant M FTM51  
Kayar Kovan, basınçlı

KA00264F Soliphant M FTM50, FTM51, FTM52  
Ayrı muhafaza : Montaj ve kısaltma talimatları  
(Muhafaza tarafında)

KA00265F Soliphant M FTM50, FTM51, FTM52  
Ayrı muhafaza ve zırlı boru: Montaj ve kısaltma talimatları  
(Muhafaza tarafında)

KA00273F Soliphant M FTM50, FTM51, FTM52  
Ayrı muhafaza : Sensörün demontajı ve montajı

## Güvenlik Notları

ATEX II	Ex i	1D, 1/2D, 1G, 1/2G	XA00305F
ATEX II	Ex i (X)	1D, 1G	XA00319F
ATEX II	Ex d/Ex de/Ex t	1/2G,1D, 1/2D	XA00306F
ATEX II	Ex t	1/2D, 1/3D	XA00307F
ATEX II	Ex t, Ex n	3D, 3G	XA00331F
NEPSI	Ex t		XA00393F
NEPSI	Ex ia		XA00394F
NEPSI	Ex d, Ex t		XA00395F
IECEX	Ex ia		XA00391F
IECEX	Ex t		XA00392F
IECEX	Ex d, Ex de, Ex t		XA00633F
INMETRO	Ex t		XA01336F
INMETRO	Ex d, Ex de, Ex t		XA01354F
EAC	Ex d,Ex t	Ga/Gb, Da/Db	XA01590F
FM	IS, NI		XA01337F
CSA	IS, NI		XA01248F
CSA	XP, DIP		XA01042F



## Fonksiyonel Güvenlik

Soliphant M + FEM51	SD00203F
Soliphant M + FEM52	SD00204F
Soliphant M + FEM54	SD00205F
Soliphant M + FEM55	SD00208F
Soliphant M + FEM57 + Nivotester FTL325P	SD00207F
Soliphant M + FEM58	SD00206F







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