

**DE** Kurzbetriebsanleitung

FCS-G...NAEX.../A... | FCS-N...NAEX.../A...

**Weitere Unterlagen**

Ergänzend zu diesem Dokument finden Sie im Internet unter [www.turck.com](http://www.turck.com) folgende Unterlagen:

- Datenblätter
- Konformitätserklärungen
- Zulassungen

**Zu Ihrer Sicherheit**

**Bestimmungsgemäße Verwendung**

Die Geräte erfassen Strömungsgeschwindigkeiten von gasförmigen Medien in explosionsgefährdeten Bereichen. Die Geräte sind für den Betrieb in Zone 1 bzw. 21 geeignet. Die Geräte dürfen nur an einer Auswerteelektronik angeschlossen werden, die für den explosionsgefährdeten Bereich zugelassen ist.

Die Geräte dürfen nur wie in dieser Anleitung beschrieben verwendet werden. Jede andere Verwendung gilt als nicht bestimmungsgemäß. Für daraus resultierende Schäden übernimmt Turck keine Haftung.

**Allgemeine Sicherheitshinweise**

- Nur fachlich geschultes Personal darf das Gerät montieren, installieren, betreiben, parametrieren und instand halten.
- Das Gerät erfüllt die EMV-Anforderungen für den industriellen Bereich. Bei Einsatz in Wohnbereichen Maßnahmen treffen, um Funkstörungen zu vermeiden.
- Nur Geräte miteinander kombinieren, die durch ihre technischen Daten für den gemeinsamen Einsatz geeignet sind.
- Dichtung vor Inbetriebnahme auf Korrosionsbeständigkeit und Druckfestigkeit prüfen.
- Metallische Prozessanschlussteile in den örtlichen Potenzialausgleich einbeziehen.

**Hinweise zum Ex-Schutz**

- Bei Einsatz des Gerätes in Ex-Kreisen muss der Anwender über Kenntnisse im Explosionsschutz (IEC/EN 60079-14 etc.) verfügen.
- Das Gerät nur innerhalb der zulässigen Betriebs- und Umgebungsbedingungen (siehe Datenblatt und Auflagen durch die Ex-Zulassung) einsetzen.
- Statische Aufladungen an Kunststoffteilen und Kabeln verhindern.
- Abgeschirmte Kabel für die Verlängerung von Anschlussleitungen verwenden.
- Maximalwerte für Kapazität und Induktivität der angeschlossenen Auswerteelektronik beachten.
- Leitungswiderstand zwischen Sensor und Auswerteelektronik < 3 Ω einhalten.

**Produktbeschreibung**

**Funktionen und Betriebsarten**

Die Strömungssensoren sind zum Einsatz in gasförmigen Medien geeignet. Für den Betrieb der Sensoren stehen die Auswertegeräte der FMX-Serie zur Verfügung, die mit Transistor-, Relais- oder Analogausgängen ausgestattet sind:

- FMX-IM-3UP63X
- FMX-IM-3UR38X
- FMX-IM-2UPLI63X

**EN** Quick Start Guide

FCS-G...NAEX.../A... | FCS-N...NAEX.../A...

**Other documents**

Besides this document the following material can be found on the Internet at [www.turck.com](http://www.turck.com):

- Data sheets
- Declarations of conformity
- Approvals

**For your safety**

**Intended use**

The devices detect flow rates of gaseous media in potentially explosive areas. The devices are suitable for use in Zone 1 or 21. The devices may be connected only to an evaluation electronics unit that is approved for the potentially explosive atmosphere.

The devices must only be used as described in these instructions. Any other use is not in accordance with the intended use. Turck accepts no liability for any resulting damage.

**General safety instructions**

- The device must only be fitted, installed, operated, parameterized and maintained by trained and qualified personnel.
- The device meets the EMC requirements for industrial areas. When used in residential areas, take measures to prevent radio interference.
- Only combine devices where the technical data indicates that they are suitable for joint use.
- Check the seal for corrosion resistance and compressive strength before commissioning the device.
- Incorporate metal process connectors into the local equipotential bonding connection.

**Notes on explosion protection**

- When using the device in Ex circuits, the user must have knowledge of explosion protection (IEC/EN 60079-14, etc.).
- Only use the device within the permissible operating and ambient conditions (see data sheet and Ex approval specifications).
- Avoid static charging on plastic parts and cables.
- Use shielded cables for extending connection cables.
- Observe the maximum values for the capacitance and inductance of the connected evaluation electronics unit.
- Maintain a line resistance between the sensor and the evaluation electronics unit of < 3 Ω.

**Product description**

**Functions and operating modes**

The flow sensors are suitable for use in gaseous media. FMX evaluation units equipped with transistor, relay, or analog outputs are available to operate the sensors:

- FMX-IM-3UP63X
- FMX-IM-3UR38X
- FMX-IM-2UPLI63X

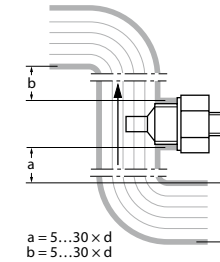
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Flow Sensors  
Quick Start Guide  
Doc. no. 100040159  
Additional information see

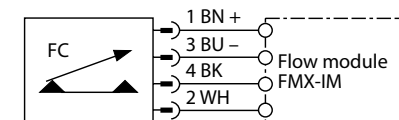


2



Types	Length	Thread size	Wrench size	Group
FCS-G1/2A4-NAEX-H1141/AL065...	65 mm	G1/2	27	4
FCS-G1/2A4-NAEX-...AL100	100 mm	G1/2	27	4
FCS-G1/2A4-NAEX-H1141/AL140	140 mm	G1/2	27	4
FCS-G1/2A4-NAEX-H1141/AL220	220 mm	G1/2	27	4
FCS-GL1/2A4-NAEX...A...	48 mm	G1/2	27	2
FCS-N1/2A4-NAEX-H1141/A	40 mm	N1/2	27	2

**Wiring diagram**



**DE** Kurzbetriebsanleitung

**Montieren**

- ▶ Minimale Eintauchtiefe des Sensorstifts von 25 mm (FCS-G1.../AL065) bzw. 15 mm (FCS-...1...) beachten.
- ▶ Abstand zur gegenüberliegenden Rohrwand und freie Strecken vor und hinter dem Sensor einhalten (siehe Abb. 2).
- ▶ Bei FCS-G...: Die mitgelieferte Flachdichtung verwenden.
- ▶ Turck-Logo auf Schlüsselfläche rechtwinklig zur Strömung ausrichten.
- ▶ Geräte unter Berücksichtigung des Gewindes und der Schlüsselweite montieren (siehe „Types“).

**Anschließen**

- ▶ Geräte gemäß „Wiring diagram“ anschließen.

**In Betrieb nehmen**

Nach Anschluss der Leitungen und Aufschalten der Versorgungsspannung geht das Gerät automatisch in Betrieb.

**Einstellen**

Das Einstellen des Erfassungsbereichs bzw. Schaltpunkts entnehmen Sie der Betriebsanleitung der Auswertelektronik.

**Instand halten**

- ▶ Staubablagerungen auf dem Gerät vermeiden. Gerät und Sensorstift regelmäßig reinigen.

**Reparieren**

Das Gerät ist nicht zur Reparatur vorgesehen. Defekte Geräte außer Betrieb nehmen und zur Fehleranalyse an Turck senden. Bei Rücksendung an Turck beachten Sie bitte unsere Rücknahmebedingungen.

**Entsorgen**

Die Geräte müssen fachgerecht entsorgt werden und gehören nicht in den normalen Hausmüll.

**EN** Quick Start Guide

**Installing**

- ▶ Observe the minimum immersion depth of the sensor pin of 25 mm (FCS-G1.../AL065) or 15 mm (FCS-...1...).
- ▶ Maintain a clearance to the opposite pipe wall and open sections upstream and downstream of the sensor (see fig. 2).
- ▶ For FCS-G...: Use the supplied flat seal.
- ▶ Align the Turck logo on the wrench flat perpendicular to the flow.
- ▶ Mount the devices taking into account the thread and wrench size (see “Types”).

**Connection**

- ▶ Connect the devices as shown in “Wiring diagram”.

**Commissioning**

The device is operational automatically once the cables are connected and the power supply is switched on.

**Setting**

For information on setting the sensing range or switching point, refer to the instructions for use for the evaluation electronics unit.

**Maintenance**

- ▶ Avoid dust build-up on the device. Clean the device and sensor pin regularly.

**Repair**

The device is not intended for repair. Take defective devices out of operation and send them to Turck for fault analysis. Observe our return acceptance conditions when returning the device to Turck.

**Disposal**

The devices must be disposed of correctly and must not be included in general household garbage.

**Certification data**

**Approvals and markings**

<b>Approvals</b>	TÜV 99 ATEX 1518	Ex II 2 G Ex ib IIC T6...T3 Gb
		Ex II 2 D Ex ib IIC TX °C Db
		TX °C (see table below)

**Electrical data**

<b>Sensor circuit</b>	(fixed cable or plug-in contact)	Only for connection to certified intrinsically safe circuits
intrinsic safety		Maximum values:
Ex ib IIC/IIC		U <sub>i</sub> = 13.65 V
		I <sub>i</sub> = 200 mA
		P <sub>i</sub> = 690 mW
		L <sub>i</sub> *) = 1.80 µH
		C <sub>i</sub> *) = 0.45 nF

\*) This information complies only to the types with plug and a fixed cable of max. 2 m in length. Longer versions are possible taking into account the line parameters, refer to the instructions of the manufacturer (manual) are observed.

The sensors are arranged in the following four device groups:

Group	Description
1	Probes made of stainless steel with one measuring pin
2	Probes made of stainless steel with two measuring pins and probes made of special alloys with one measuring pin
3	Probes made of Messing MS58 with one measuring pin
4	Probes made of stainless steel with one long measuring pin, Probes made of special alloys with one long measuring pin
Special alloys	Nickel-molybdenum alloys, e.g. Hastelloy
	Nickel-copper alloys, e.g. Monel 2.4360

For use in areas with potentially explosive gas atmosphere, the permissible range of ambient and media temperature as a function of the device group and temperature class is given in the following tables:

Types FCS-...-NAEX(-H1141)/(A)(L...)/(D...)(...M)				
Group	T6	T5	T4	T3
1	-20...+40 °C	-20...+55 °C	-20...+85 °C	-20...+85 °C
2	-20...+35 °C	-20...+50 °C	-20...+85 °C	-20...+85 °C
3	-20...+55 °C	-20...+70 °C	-20...+85 °C	-20...+85 °C
4			-20...+70 °C	-20...+85 °C

Types FCS-...-NAEX(-H1141)/(A)(L...)/D100/(D...)(...M)				
Group	T6	T5	T4	T3
1	-20...+40 °C	-20...+55 °C	-20...+90 °C	-20...+120 °C
2	-20...+35 °C	-20...+50 °C	-20...+85 °C	-20...+120 °C
3	-20...+55 °C	-20...+70 °C	-20...+105 °C	-20...+120 °C

For use in areas with potentially explosive dust atmosphere, the permissible range of ambient and media temperature as a function of the device group and temperature class is given in the following tables:

Group	T125 °C	T130 °C	T110 °C	T145 °C
1	-20...+85 °C			
2	-20...+85 °C			
3	-20...+85 °C			
4	-20...+85 °C			

**FR** Guide d'utilisation rapide

FCS-G...NAEX.../A... | FCS-N...NAEX.../A...

**Documents supplémentaires**

Vous trouverez les documents suivants contenant des informations complémentaires à la présente notice sur notre site Web [www.turck.com](http://www.turck.com) :

- Fiches techniques
- Déclarations de conformité
- Homologations

**Pour votre sécurité**

**Utilisation conforme**

Les appareils détectent les vitesses du débit de milieux gazeux dans les zones à risque d'explosion. Les appareils sont conçus pour un fonctionnement en zone 1 ou 21. Les appareils ne peuvent être raccordés qu'à un système d'électronique de traitement homologué pour les zones à risque d'explosion.

Les appareils doivent exclusivement être utilisés conformément aux indications figurant dans la présente notice. Toute autre utilisation est considérée comme non conforme. La société Turck décline toute responsabilité en cas de dommages causés par une utilisation non conforme.

**Consignes de sécurité générales**

- Seul un personnel qualifié est habilité à monter, installer, faire fonctionner, paramétrer et effectuer la maintenance de l'appareil.
- L'appareil répond aux exigences CEM pour le domaine industriel. En cas d'utilisation dans une zone résidentielle, prendre des mesures pour éviter les interférences radio.
- Ne raccordez des appareils entre eux que si leurs caractéristiques techniques le permettent.
- Vérifiez la résistance à la corrosion et à la pression du joint avant la mise en service.
- Veillez à intégrer les pièces métalliques de raccordement au processus dans la compensation du potentiel locale.

**Remarques sur la protection Ex**

- En cas d'utilisation de l'appareil dans des zones à risque d'explosion, vous devez en outre disposer des connaissances requises en matière de protection contre les explosions (CEI/EN 60079-14, etc.).
- Utilisez uniquement l'appareil dans le respect le plus strict des conditions ambiantes et des conditions d'exploitation autorisées (voir fiche technique et consignes relatives à l'homologation Ex).
- Evitez les charges statiques sur les pièces en plastique et les câbles.
- Utilisez des câbles blindés pour rallonger les câbles de raccordement.
- Respectez les valeurs maximales de capacité et d'inductance de l'électronique de traitement raccordée.
- Veillez à ce que la résistance de ligne entre le capteur et l'électronique de traitement soit < 3 Ω.

**Description du produit**

**Fonctions et modes de fonctionnement**

Les capteurs de débit sont adaptés à une utilisation dans les milieux gazeux. Des analyseurs de la série FMX équipés de sorties analogiques, de relais et transistors permettent de faire fonctionner les capteurs :

- FMX-IM-3UP63X
- FMX-IM-3UR38X
- FMX-IM-2UPLI63X

**ES** Quick Start Guide

FCS-G...NAEX.../A... | FCS-N...NAEX.../A...

**Documentos adicionales**

Además de este documento, el siguiente material se puede encontrar en Internet en [www.turck.com](http://www.turck.com):

- Hojas de datos
- Declaración de conformidad
- Aprobaciones

**Para su seguridad**

**Uso correcto**

Los dispositivos detectan los índices de flujo de los medios gaseosos en áreas potencialmente explosivas. Los dispositivos son adecuados para su uso en zona 1 o 21. Los dispositivos solo se pueden conectar a una unidad electrónica de evaluación aprobada para la atmósfera potencialmente explosiva.

Los dispositivos solo se deben usar como se describe en estas instrucciones. Ninguna otra forma de uso corresponde al uso previsto. Turck no se responsabiliza de los daños derivados de dichos usos.

**Instrucciones generales de seguridad**

- Solo personal capacitado profesionalmente puede montar, instalar, operar, parametrizar y dar mantenimiento al dispositivo.
- El dispositivo cumple los requisitos de EMC para las zonas industriales. Cuando se utilice en zonas residenciales, tome medidas para evitar interferencias de radio.
- Combine únicamente dispositivos en los que los datos técnicos indiquen que son adecuados para el uso conjunto.
- Revise el sello para ver si hay resistencia a la corrosión y resistencia a la compresión antes de poner en marcha el dispositivo.
- Incorpore conectores de proceso metálicos en la conexión equipotencial local.

**Notas de protección contra explosiones**

- Cuando se utiliza el dispositivo en circuitos con riesgos de explosiones, el usuario debe tener conocimiento de la protección contra explosiones (norma IEC/EN 60079-14, etc.).
- Utilice el dispositivo solo dentro de las condiciones ambientales y de funcionamiento admisibles (consulte la hoja de datos y las especificaciones de aprobación contra explosiones).
- Evite la carga estática de piezas y cables de plástico.
- Utilice cables blindados para extender los cables de conexión.
- Observe los valores máximos de capacitancia e inductancia de la unidad electrónica de evaluación conectada.
- Mantenga una resistencia de la tubería entre el sensor y la unidad electrónica de evaluación de < 3 Ω.

**Descripción del producto**

**Funciones y modos de operación**

Los sensores de flujo son adecuados para su uso en medios gaseosos. Las unidades de evaluación FMX equipadas con salidas de transistor, relé o analógicas están disponibles para operar los sensores:

- FMX-IM-3UP63X
- FMX-IM-3UR38X
- FMX-IM-2UPLI63X

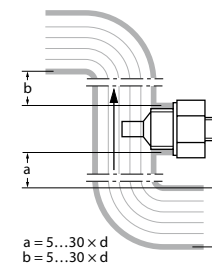
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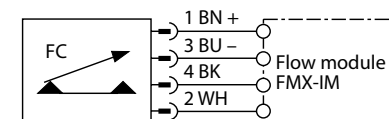


2



Types	Length	Thread size	Wrench size	Group
FCS-G1/2A4-NAEX-H1141/AL065...	65 mm	G1/2	27	4
FCS-G1/2A4-NAEX-...AL100	100 mm	G1/2	27	4
FCS-G1/2A4-NAEX-H1141/AL140	140 mm	G1/2	27	4
FCS-G1/2A4-NAEX-H1141/AL220	220 mm	G1/2	27	4
FCS-GL1/2A4-NAEX...A...	48 mm	G1/2	27	2
FCS-N1/2A4-NAEX-H1141/A	40 mm	N1/2	27	2

**Wiring diagram**



**FR** Guide d'utilisation rapide

**Installation**

- ▶ Respectez une profondeur d'immersion minimale de la broche du capteur de 25 mm (FCS-G1.../AL065) ou 15 mm (FCS-...1...).
- ▶ Respectez la distance par rapport à la plaque tubulaire opposée et maintenez un espace libre devant et derrière le capteur (voir fig. 2).
- ▶ Pour FCS-G... : utilisez le joint plat fourni.
- ▶ Alignez le logo Turck sur la surface de la clé perpendiculairement au débit.
- ▶ Installez les appareils en tenant compte du filetage et de la largeur de la clé (voir « Types »).

**Raccordement**

- ▶ Raccordez les appareils conformément au schéma de câblage (« Wiring Diagram »).

**Mise en service**

L'appareil se met automatiquement en marche après le raccordement des câbles et l'activation de la tension d'alimentation.

**Réglages**

Vous trouverez les informations relatives au réglage de la plage de détection ou du point de commutation dans le mode d'emploi de l'électronique de traitement.

**Entretien**

- ▶ Evitez toute accumulation de poussière sur l'appareil. Nettoyez régulièrement l'appareil et la tige du capteur.

**Réparation**

L'appareil ne peut pas être réparé. Si l'appareil est défectueux, mettez-le hors service et renvoyez-le à Turck pour un diagnostic des défauts. En cas de retour à Turck, veuillez respecter les conditions de reprise.

**Mise au rebut**

Les appareils doivent être mis au rebut de manière appropriée et ne peuvent être jetés avec les ordures ménagères.

**ES** Quick Start Guide

**Instalación**

- ▶ Respete la profundidad de inmersión mínima del polo del sensor de 25 mm (FCS-G1.../AL065) o 15 mm (FCS-...1...).
- ▶ Mantenga una distancia con respecto a la pared de tubería opuesta y abra las secciones anteriores y posteriores del sensor (consulte la fig. 2).
- ▶ Para FCS-G... : Utilice el sello plano suministrado.
- ▶ Alinee el logotipo de Turck en la llave plana perpendicular al flujo.
- ▶ Monte los dispositivos teniendo en cuenta el tamaño de la rosca y de la llave (consulte el apartado "Types").

**Conexión**

- ▶ Conecte los dispositivos como se muestra en "Wiring diagram".

**Puesta en marcha**

El dispositivo se pondrá automáticamente en funcionamiento una vez que se conecten los cables y se encienda la fuente de alimentación.

**Configuración**

Para obtener información sobre cómo ajustar el rango de detección o el punto de conmutación, consulte las instrucciones de funcionamiento de la unidad electrónica de evaluación.

**Mantenimiento**

- ▶ Evite la acumulación de polvo en el dispositivo. Limpie el dispositivo y el polo del sensor con regularidad.

**Reparación**

El dispositivo no está diseñado para su reparación. Desinstale los dispositivos defectuosos y envíelos a Turck para un análisis de fallas. Consulte nuestras políticas de devolución cuando devuelva el dispositivo a Turck.

**Eliminación de desechos**

Los dispositivos se deben desechar correctamente y no se deben mezclar con desechos domésticos normales.

**Certification data**

**Approvals and markings**

<b>Approvals</b>	TÜV 99 ATEX 1518		Ex II 2 G Ex ib IIC T6...T3 Gb
			Ex II 2 D Ex ib IIIC TX °C Db
			TX °C (see table below)

**Electrical data**

<b>Sensor circuit</b>	(fixed cable or plug-in contact)	Only for connection to certified intrinsically safe circuits
intrinsic safety		Maximum values:
Ex ib IIC/IIIC		U <sub>i</sub> = 13.65 V
		I <sub>i</sub> = 200 mA
		P <sub>i</sub> = 690 mW
		L <sup>(*)</sup> = 1.80 µH
		C <sup>(*)</sup> = 0.45 nF

\*) This information complies only to the types with plug and a fixed cable of max. 2 m in length. Longer versions are possible taking into account the line parameters, refer to the instructions of the manufacturer (manual) are observed.

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Special alloys	Nickel-molybdenum alloys, e.g. Hastelloy alloys Nickel-copper alloys, e.g. Monel 2.4360

For use in areas with potentially explosive gas atmosphere, the permissible range of ambient and media temperature as a function of the device group and temperature class is given in the following tables:

Types FCS-...-NAEX(-H1141)/(A)(L...)/(D...)(...M)				
Group	T6	T5	T4	T3
1	-20...+40 °C	-20...+55 °C	-20...+85 °C	-20...+85 °C
2	-20...+35 °C	-20...+50 °C	-20...+85 °C	-20...+85 °C
3	-20...+55 °C	-20...+70 °C	-20...+85 °C	-20...+85 °C
4			-20...+70 °C	-20...+85 °C

Types FCS-...-NAEX(-H1141)/(A)(L...)/D100/(D...)(...M)				
Group	T6	T5	T4	T3
1	-20...+40 °C	-20...+55 °C	-20...+90 °C	-20...+120 °C
2	-20...+35 °C	-20...+50 °C	-20...+85 °C	-20...+120 °C
3	-20...+55 °C	-20...+70 °C	-20...+105 °C	-20...+120 °C

For use in areas with potentially explosive dust atmosphere, the permissible range of ambient and media temperature as a function of the device group and temperature class is given in the following tables:

Group	T125 °C	T130 °C	T110 °C	T145 °C
1	-20...+85 °C			
2		-20...+85 °C		
3			-20...+85 °C	
4				-20...+85 °C

**ZH** 快速入门指南

FCS-G...NAEX.../A... | FCS-N...NAEX.../A...

**其他文档**

除本文档之外,还可在www.turck.com网站上查看以下资料:

- 数据表
- 合规声明
- 认证

**安全须知**

**预期用途**

该装置适用于在可能有爆炸危险的区域中检测气态介质的流速。该装置适合在危险1区或危险21区使用。该装置只能连接到批准用于可能有爆炸危险的环境中的评估电子装置。

必须严格按照这些说明使用该装置。任何其他用途都不属于预期用途。图尔克公司对于由此导致的任何损坏概不承担责任。

**一般安全须知**

- 该装置只能由受过培训的合格人员进行组装、安装、操作、参数设定和维护。
- 该装置符合工业领域的EMC要求。在住宅区使用时,请采取措施以防止无线电干扰。
- 仅当技术数据支持该装置联用时,才能组合使用该装置。
- 在调试该装置之前,检查密封件的耐腐蚀性和抗压强度。
- 局部等电位联接中包括金属材质的过程接插件。

**防爆说明**

- 将该装置应用到防爆电路时,用户必须掌握防爆知识(IEC/EN 60079-14等)。
- 只可在允许的工作条件和环境条件中使用该装置(参见数据表和防爆认证规格)。
- 避免塑料部件和线缆积聚静电荷。
- 使用屏蔽线缆来延长连接线缆。
- 注意不要超过所连评估电子装置的最大电容和电感值。
- 将传感器与评估电子装置之间的线路电阻保持为 <math>< 3 \Omega</math>。

**产品描述**

**功能和工作模式**

该流量传感器适用于气态介质。FMX评估装置配备晶体管、继电器或模拟量输出,用于操作传感器:

- FMX-IM-3UP63X
- FMX-IM-3UR38X
- FMX-IM-2UPLI63X

**安装**

- ▶ 注意传感器引脚的最小浸没深度为25 mm (FCS-G1.../AL065)或15 mm (FCS-...1...)
- ▶ 与对侧的管壁和传感器上游及下游敞开部分保持一定的间隙(见图2)。
- ▶ 对于FCS-G...:使用随附的平面密封件。
- ▶ 将扳手平面上的图尔克徽标与流动方向垂直对齐。
- ▶ 安装该装置时,要考虑螺纹和扳手规格(请参见“Types”)。

**KO** 빠른 시작 가이드

FCS-G...NAEX.../A... | FCS-N...NAEX.../A...

**기타 문서**

이 문서 외에도 다음과 같은 자료를 인터넷(www.turck.com)에서 확인할 수 있습니다.

- 데이터 시트
- 적합성 선언
- 인증

**사용자 안전 정보**

**사용 목적**

이 장치는 폭발 위험이 있는 지역에서 기체 매체의 유량을 감지합니다. 이 장치는 1종 또는 21종 폭발 위험 지역에서 사용하기에 적합합니다. 장치는 폭발 위험이 있는 환경에 대해 승인된 측정 전자 장치에만 연결할 수 있습니다.

이 장치는 이 지침에서 설명한 목적으로만 사용해야 합니다. 기타 다른 방식으로 사용하는 것은 사용 목적을 따르지 않는 것입니다. 터크는 그로 인한 손상에 대해 어떠한 책임도 지지 않습니다.

**일반 안전 지침**

- 전문적인 훈련을 받은 숙련된 기술자만이 이 장치의 장착, 설치, 작동, 매개 변수 설정 및 유지보수를 수행해야 합니다.
- 본 제품은 산업エリア의 EMC要件を満たしています。住宅地域で使用する場合は、無線干渉を防止する対策を講じてください。
- 기술 데이터가 공동 사용에 적합한 장치만 조합하십시오.
- 장치를 시운전하기 전 내부식성 및 압축 강도를 실에서 확인하십시오.
- 금속 프로세스 커넥터를 로컬 등전위 본딩 연결과 통합하십시오.

**폭발 방지 참고 사항**

- 폭발 위험 회로에서 이 장치를 사용할 경우 사용자는 폭발 방지(KS C IEC 60079-14 등)에 대한 지식이 있어야 합니다.
- 허용되는 작동 및 주변 조건에서만 장치를 사용하십시오(데이터 시트 및 방폭 인증 사양 참조).
- 플라스틱 부품 및 케이블의 정전기를 방지하십시오.
- 연장용 연결 케이블에는 실드형 케이블을 사용하십시오.
- 연결된 측정 전자 장치의 정전 용량 및 유도 용량 최대값을 준수하십시오.
- 센서와 측정 전자 장치 사이의 라인 저항은 3 Ω 미만으로 유지하십시오.

**제품 설명**

**기능 및 작동 모드**

이 유량 센서는 기체 매체에 사용하기에 적합합니다. 트랜지스터, 릴레이, 아날로그 출력을 갖춘 FMX 측정 장치를 사용하여 다음과 같은 센서를 작동할 수 있습니다.

- FMX-IM-3UP63X
- FMX-IM-3UR38X
- FMX-IM-2UPLI63X

**설치**

- ▶ 센서 핀의 최소 삽입 깊이인 25 mm(FCS-G1.../AL065) 또는 15 mm(FCS-...1...)를 준수하십시오.
- ▶ 센서의 업스트림과 다운스트림의 열린 부분과 반대쪽 파이프 벽 사이에 간격을 유지하십시오(그림 2 참조).
- ▶ FCS-G...의 경우: 제공된 플랫 실을 사용하십시오.
- ▶ 렌치의 터크 로고를 흐름과 직각이 되도록 정렬하십시오.
- ▶ 나사산과 렌치 크기를 고려하여 장치를 설치하십시오(“Types” 참조).

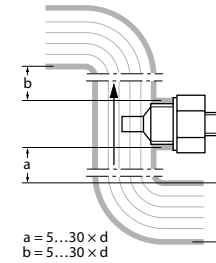
①



FCS-G...NAEX.../A...  
FCS-N...NAEX.../A...  
Flow Sensors  
Quick Start Guide  
Doc. no. 100040159  
Additional  
information see

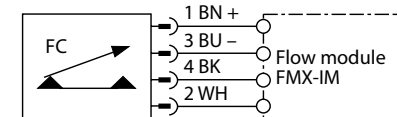


②



Types	Length	Thread size	Wrench size	Group
FCS-G1/2A4-NAEX-H1141/AL065...	65 mm	G1/2	27	4
FCS-G1/2A4-NAEX-...AL100	100 mm	G1/2	27	4
FCS-G1/2A4-NAEX-H1141/AL140	140 mm	G1/2	27	4
FCS-G1/2A4-NAEX-H1141/AL220	220 mm	G1/2	27	4
FCS-GL1/2A4-NAEX...A...	48 mm	G1/2	27	2
FCS-N1/2A4-NAEX-H1141/A	40 mm	N1/2	27	2

**Wiring diagram**



**ZH** 快速入门指南

**连接**

▶ 按照“Wiring diagram”连接该装置。

**调试**

一旦连接线缆并接通电源,该装置将自动运行。

**设置**

有关设置检测距离或开关点的信息,请参阅评估电子装置的操作说明。

**维护**

▶ 避免装置上积尘。定期清洁装置和传感器针脚。

**维修**

该装置不可维修。停止使用发生故障的装置,并将其寄回图尔克进行故障分析。如果要将该装置退回给图尔克,请遵守我们的退回验收条件。

**废弃处理**

必须正确地弃置该装置,不得混入普通生活垃圾中丢弃。

**KO** 빠른 시작 가이드

**연결**

▶ “Wiring diagram”에 따라 장치를 연결하십시오.

**시운전**

케이블이 연결되고 파워 서플라이가 켜지면 장치가 자동으로 작동 가능해집니다.

**설정**

감지 범위 또는 스위치 포인트 설정에 대한 정보는 측정 전자 장치 작동 지침을 참조하십시오.

**유지보수**

▶ 장치에 먼지가 쌓이지 않도록 하십시오. 장치 및 센서 핀을 정기적으로 청소하십시오.

**수리**

이 장치는 수리 대상이 아닙니다. 결함이 있는 장치는 작동을 중지하고 고장 분석을 위해 터크로 보내십시오. 장치를 터크에 반품할 경우, 반품 승인 조건을 준수하십시오.

**폐기**

이 장치는 올바른 방법으로 폐기해야 하며 일반적인 가정 폐기물과 함께 배출해서는 안 됩니다.

Certification data

Approvals and markings

<b>Approvals</b>	TÜV 99 ATEX 1518		Ex II 2 G Ex ib IIC T6...T3 Gb
			Ex II 2 D Ex ib IIICTX °C Db
			TX °C (see table below)

Electrical data

<b>Sensor circuit</b>	(fixed cable or plug-in contact)	Only for connection to certified intrinsically safe circuits Maximum values: U <sub>i</sub> = 13.65 V I <sub>i</sub> = 200 mA P <sub>i</sub> = 690 mW L <sup>*)</sup> = 1.80 µH C <sub>i</sub> <sup>*)</sup> = 0.45 nF
intrinsic safety		
Ex ib IIC/IIIC		

\*) This information complies only to the types with plug and a fixed cable of max. 2 m in length. Longer versions are possible taking into account the line parameters, refer to the instructions of the manufacturer (manual) are observed.

The sensors are arranged in the following four device groups:

Group	Description
1	Probes made of stainless steel with one measuring pin
2	Probes made of stainless steel with two measuring pins and probes made of special alloys with one measuring pin
3	Probes made of Messing MS58 with one measuring pin
4	Probes made of stainless steel with one long measuring pin, Probes made of special alloys with one long measuring pin
Special	Nickel-molybdenum alloys, e.g. Hastelloy
alloys	Nickel-copper alloys, e.g. Monel 2.4360

For use in areas with potentially explosive gas atmosphere, the permissible range of ambient and media temperature as a function of the device group and temperature class is given in the following tables:

Types FCS-...-NAEX(-H1141)/(A)(L...)/(D...)(...M)				
Group	T6	T5	T4	T3
1	-20...+40 °C	-20...+55 °C	-20...+85 °C	-20...+85 °C
2	-20...+35 °C	-20...+50 °C	-20...+85 °C	-20...+85 °C
3	-20...+55 °C	-20...+70 °C	-20...+85 °C	-20...+85 °C
4			-20...+70 °C	-20...+85 °C

Types FCS-...-NAEX(-H1141)/(A)(L...)/D100/(D...)(...M)				
Group	T6	T5	T4	T3
1	-20...+40 °C	-20...+55 °C	-20...+90 °C	-20...+120 °C
2	-20...+35 °C	-20...+50 °C	-20...+85 °C	-20...+120 °C
3	-20...+55 °C	-20...+70 °C	-20...+105 °C	-20...+120 °C

For use in areas with potentially explosive dust atmosphere, the permissible range of ambient and media temperature as a function of the device group and temperature class is given in the following tables:

Group	T125 °C	T130 °C	T110 °C	T145 °C
1	-20...+85 °C			
2		-20...+85 °C		
3			-20...+85 °C	
4				-20...+85 °C