

Digitales I/O-Modul DM80EX

Weitere Unterlagen

Ergänzend zu diesem Dokument finden Sie im Internet unter www.turck.com folgende Unterlagen:

- Datenblatt
- Handbuch excom – Remote I/O für eigensichere Stromkreise
- Zulassungen
- Konformitätserklärungen (aktuelle Version)

Zu Ihrer Sicherheit

Bestimmungsgemäße Verwendung

Das Gerät ist ein Betriebsmittel der Zündschutzart „Eigensicherheit“ (IEC/EN 60079-11) und darf nur innerhalb des excom-I/O-Systems für eigensichere Stromkreise mit den zugelassenen Modulträgern MT...G (PTB 00 ATEX 2194 U bzw. IECEx PTB 13.0040 U) betrieben werden. Das 8-kanalige, digitale I/O-Modul DM80EX dient zum Anschluss von NAMUR-Sensoren (EN 60947-5-6), mechanischen Kontakten oder digitalen eigensicheren Aktuatoren wie Kleinleistungsventilen oder Anzeigeelementen. Das Gerät ist für den Einsatz in Zone 1 geeignet. Die Zündschutzart der Ein- und Ausgänge ist Ex ia IIC bzw. Ex ia IIIC. 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, einstellen 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.

Hinweise zum Ex-Schutz

- Bei Einsatz des Gerätes in Ex-Kreisen muss der Anwender über Kenntnisse im Explosionsschutz (IEC/EN 60079-14 etc.) verfügen.
- Nationale und internationale Vorschriften für den Explosionsschutz beachten.
- Gerät nur innerhalb der zulässigen Betriebs- und Umgebungsbedingungen (siehe Technische Daten und Vorgaben durch die Ex-Zulassung) einsetzen.

Bei Einsatz in Zone 1 und Zone 2:

- Geräte in ein separat zugelassenes Gehäuse nach IEC/EN 60079-0 mit einer Schutzart mind. IP54 nach IEC/EN 60529 montieren.

Bei Einsatz im sicheren Bereich:

- Wenn Verschmutzungsgrad 2 nicht eingehalten wird: Gerät in ein Schutzgehäuse mind. IP54 einbauen.

Produktbeschreibung

Geräteübersicht

Siehe Abb. 1: Geräteansicht, Abb. 2: Abmessungen

Funktionen und Betriebsarten

Pro Kanal kann ein Sensor oder Aktuator angeschlossen werden. Alle Anschlusspunkte lassen sich paarweise als Ein- oder Ausgänge konfigurieren. Möglich sind folgende Konfigurationen:

Anzahl Eingänge	Anzahl Ausgänge
8	0
6	2
4	4
2	6
0	8

Die Ein-/Ausgänge sind untereinander nicht galvanisch getrennt. Alle Ein-/Ausgänge liegen auf einem gemeinsamen Potenzial.

Montieren

Mehrere Geräte können unmittelbar nebeneinander auf den Modulträger gesteckt werden. Ein Wechsel der Geräte ist auch während des laufenden Betriebs möglich.

- ▶ Montageort gegen Wärmestrahlung, schnelle Temperaturschwankungen, Staub, Schmutz, Feuchtigkeit und andere Umwelteinflüsse schützen.
- ▶ Gerät in die dafür vorgesehene Position auf dem Modulträger stecken und deutlich spürbar einrasten lassen.

Anschließen

Durch Aufstecken auf den Modulträger ist das Gerät mit der internen Energieversorgung und Datenkommunikation des Modulträgers verbunden. Zum Anschluss der Feldgeräte können Klemmenblöcke in Schraubanschluss- oder Federzugtechnik verwendet werden.

- ▶ Feldgeräte gemäß „Wiring diagram“ anschließen.
- ▶ Bei Verwendung mechanischer Kontakte: Widerstandsbeschaltung über das Modul WM1 (ID 0912101) vornehmen, wenn Drahtbruch- oder Kurzschlussüberwachung aktiviert sind.

In Betrieb nehmen

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

Betreiben

Das Gerät ist ein rein eigensicheres Betriebsmittel und kann daher während des laufenden Betriebs auf den zugelassenen Modulträger gesteckt oder gezogen werden.

LED-Anzeigen

LED	Anzeige	Bedeutung
Status	aus	Energieversorgung fehlerhaft
	blinkt rot	Modul nicht für aktuellen Steckplatz konfiguriert
	grün	Energieversorgung und Kommunikation fehlerfrei
	blinkt grün (langsam: 0,5 Hz)	Modul noch nicht vom Gateway konfiguriert, wartet auf Konfigurationsdaten
	blinkt grün (1,0 Hz asym.)	Modul im Fail-Safe-Modus
	blinkt grün (schnell: 2,0 Hz)	Modul konfiguriert, noch kein Datenaustausch zwischen Modul und Master
1...8 (Kanal)	aus	Kanal nicht aktiv (nicht geschaltet)
	gelb	Kanal aktiv (geschaltet)
	rot	Kanalfehler (Drahtbruch, Kurzschluss): Kanaldiagnose liegt vor

Digitales I/O-Modul DM80EX

Other documents

Besides this document the following material can be found on the Internet at www.turck.com:

- Data sheet
- excom manual — remote I/O for intrinsically safe circuits
- Approvals
- Declarations of conformity (current version)

For your safety

Intended use

The device is a piece of equipment from ignition protection type “Intrinsic safety” (IEC/EN 60079-11) and may be used only as part of the excom I/O system for intrinsically safe circuits with the approved module racks MT...G (PTB 00 ATEX 2194 U or IECEx PTB 13.0040 U). The 8-channel digital I/O module DM80EX is designed for the connection of NAMUR sensors (EN 60947-5-6), mechanical contacts or digital, intrinsically safe actuators such as low-power valves or display elements. The device is suitable for operation in Zone 1. The inputs and outputs feature ignition protection type Ex ia IIC or Ex ia IIIC.

Any other use is not in accordance with the intended use. Turck accepts no liability for any resulting damage.

General safety instructions

- The device may only be mounted, installed, operated, configured and maintained by professionally trained personnel.
- The device meets the EMC requirements for the industrial sector. For residential use, take measures to prevent radio interference.
- Only combine devices for which the technical data is suitable for joint use.

Notes on explosion protection

- When using the device in Ex circuits, the user must have knowledge of explosion protection (IEC/EN 60079-14 etc.).
- Observe national and international regulations for explosion protection.
- Only use the device within the permissible operating and ambient conditions (see technical data and Ex approval specifications).

Use of devices in Zone 1 and Zone 2:

- Mount the devices in a separately approved enclosure in accordance with IEC/EN 60079-0 with a degree of protection of at least IP54 as per IEC/EN 60529.

When used in safe areas:

- If pollution degree 2 is not complied with: Install the device in a protective housing with a degree of protection of at least IP54.

Product description

Device overview

See fig. 1: device view, fig. 2: dimensions

Functions and operating modes

One sensor or actuator per channel can be connected. All connection points can be configured as paired inputs or outputs. The following configurations are possible:

Number of inputs	Number of outputs
8	0
6	2
4	4
2	6
0	8

The inputs/outputs are not galvanically isolated from each other. All inputs/outputs are at the same potential.

Installing

Multiple devices can be inserted directly next to each other in a module rack. The devices can also be changed during operation.

- ▶ Protect the installation location from radiated heat, sudden temperature fluctuations, dust, dirt, humidity and other ambient influences.
- ▶ Fit the device at the position intended for it on the rack and snap it fully into position.

Connection

When plugged into the module rack, the device is connected to the module rack's internal power supply and data communication. Screw connection terminal blocks or terminal blocks with spring technology can be used to connect the field devices.

- ▶ Connect the field devices in accordance with the “Wiring diagram.”
- ▶ When using mechanical contacts: Connect with resistor circuitry via module WM1 (ID 0912101) if wire-break or short-circuit monitoring is active.

Commissioning

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

Operation

The device is a piece of equipment that is purely intrinsically safe and can therefore be plugged in or unplugged from the approved module rack during operation.

LEDs

LED	Indication	Meaning
Status	Off	Power supply faulty
	Red flashing	Module not configured for current slot
	Green	Power supply and communication fault free
	Green flashing (slow: 0.5 Hz)	Module not yet configured by the gateway, awaiting configuration data
	Green flashing (1.0 Hz asym.)	Module in Failsafe mode
	Green flashing (Fast: 2.0 Hz)	Module configured; no data exchange yet between the module and the master
1...8 (channel)	Off	Channel not active (not switched)
	Yellow	Channel active (switched)
	Red	Channel error (wire break, short circuit): Channel diagnostics available

①

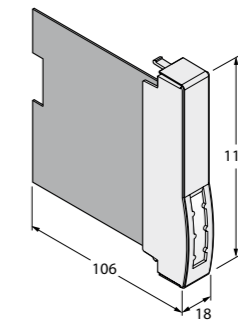


DM80EX
Digital I/O Module
Quick Start Guide
Doc. no. D300335 2208

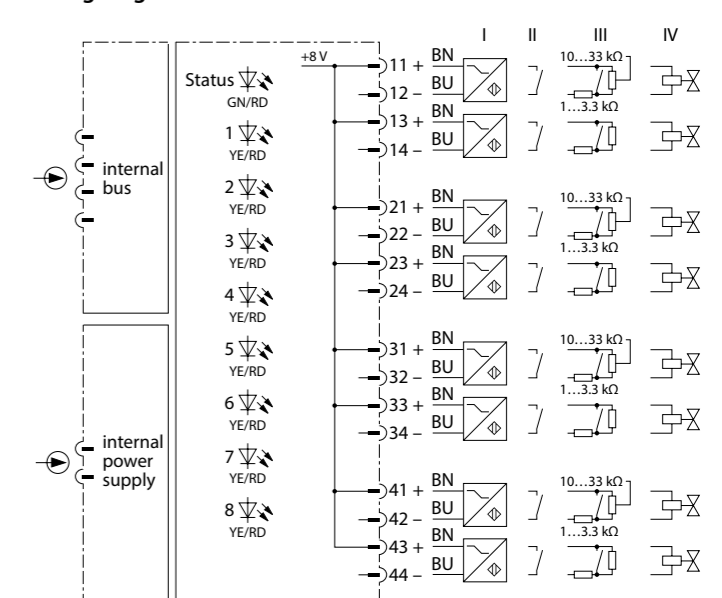
Additional information see



②



Wiring diagram



Einstellen

Das Verhalten der Eingänge wird je nach übergeordnetem Feldbusssystem über ein zugehöriges Konfigurationstool, FDT-Frame oder Webserver parametrisiert. Für jeden Kanal können u. a. folgende Parameter eingestellt werden:

- Kurzschlussüberwachung
- Drahtbruchüberwachung
- Ersatzwertstrategie
- Wirkrichtung
- Polarität
- Entprellen

Reparieren

Das Gerät ist nicht zur Reparatur durch den Benutzer vorgesehen. Sollte das Gerät defekt sein, nehmen Sie es außer Betrieb. Bei Rücksendung an Turck beachten Sie bitte unsere Rücknahmebedingungen.

Entsorgen

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

Setting

The behavior of the inputs is parameterized via an associated configuration tool, FDT frame or web server, depending on the higher-level fieldbus system. The following parameters can be set for each channel:

- Short-circuit monitoring
- Wire-break monitoring
- Failsafe mode
- Effective direction
- Polarity
- Debouncing

Repair

The device must not be repaired by the user. The device must be decommissioned if it is faulty. 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.

Declarations of conformity

EU-Konformitätserklärung Nr.
UK Declaration of Conformity No. 5001-4M
EU Declaration of Conformity No.:

TURCK

Wir / We Hans Turck GmbH & Co. KG
Witzlebenstr. 7, 45472 Mülheim an der Ruhr, Germany

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product

Frequenzmessmodul / Frequency Measurement Module

Digitales I/O-Modul / Digital I/O Module

für das / for the: Remote – I/O – System excom®

Typ / Type: **DF20EX** ID: **6884061**
DM80EX ID: **6884006**

Ex-Kennzeichnung / Ex-marking:

Gas / gas Ⓜ II 2 (1) G Ex ib [ia Ga] IIC T4 Gb or Ex ib [ia Ga] IIC T4
Staub / dust Ⓜ II (1) D [Ex ia Da] IIIC or [Ex ia] IIIC

auf die in der von uns in Verkehr gebrachten Ausführung sich diese Erklärung bezieht, den Anforderungen der folgenden EU-Richtlinien und den Anforderungen der folgenden UK- Statutory Instruments durch Einhaltung der folgenden harmonisierten / designierten Normen genügen:

to which this declaration relates in the configuration placed on the market by us, are in conformity with the requirements of the following EU-directives and the requirements of the following UK Statutory Instruments by compliance with the following harmonized / designated standards:

Richtlinie / Directive EMC **2014 / 30 / EU**
EMC SI* and part. sign. changes** **SI 2016/1081** **26. Feb. 2014**
EN 61326-1:2013

Richtlinie / Directive ATEX **2014 / 34 / EU**
ATEX SI* and part. sign. changes** **SI 2016/1107** **26. Feb. 2014**
EN IEC 60079-0:2018 EN 60079-11:2012

Richtlinie / Directive RoHS **2011 / 85 / EU**
RoHS SI* and part. sign. changes **SI 2012/3032** **08. Jun. 2011**
EN IEC 63000:2018 **and SI 2019/188**

*: SI = Statutory Instrument **: SI 2019/696, SI 2020/1460

Weitere Normen, Bemerkungen / additional standards, remarks:

Die aufgeführten benannten Stellen haben die Konformitätsbewertung durchgeführt und Zertifikate ausgestellt:
The listed notified bodies have carried out conformity assessment and issued certificates:

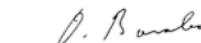
EU-Baumusterprüfbescheinigung (Modul B) / EU-type examination certificate (module B): PTB 00 ATEX 2178
ausgestellt von / issued by: Physikalisch Technische Bundesanstalt, Kenn-Nr. / ID no.: 0102
Bundesallee 100, 38116 Braunschweig, Germany

Zertifizierung des QS-Systems (Modul D) / Certification of the QS-system (module D):
ausgestellt von / issued by: Physikalisch Technische Bundesanstalt, Kenn-Nr. / ID no.: 0102
Bundesallee 100, 38116 Braunschweig, Germany

UK-Baumusterprüfbescheinigung / UK-type examination certificate : TÜV 21 UKEX 7054
ausgestellt von / issued by: TÜV Rheinland Industrie Service GmbH, Kenn-Nr. / ID no.: 0035
Alfredstraße 81, 45130 Essen, Germany

UK Erklärung zur Qualitätssicherung / UKCA Quality Assurance Notification:
ausgestellt von / issued by: Eurofins E&E CML Limited, Kenn-Nr. / ID no.: 2503,
New Port Road, Ellesmere Port CH65 4LZ, United Kingdom

Mülheim, den 02.05.2022



i.V. O. Barabas, Zulassungsbeauftragter /
Certification Representative

Ort und Datum der Ausstellung /
Place and date of issue


Name, Funktion und Unterschrift des Befugten /
Name, function and signature of authorized person

FM 7.3-12

09.11.21

Certification data | Technical data

Approvals and markings

Approvals	
PTB 00 ATEX 2178	Ⓜ II 2 (1) G Ex ib [ia Ga] IIC T4 Gb Ⓜ II (1) D [Ex ia Da] IIIC
TÜV 21 UKEX 7054	
IECEX PTB 13.0041	Ex ib [ia Ga] IIC T4 Gb [Ex ia Da] IIIC
 FM18US0068X, FM18CA0033X	인증서발급기관명: 한국산업안전보건공단 안전인증번호: 13-AV4BO-0133 안전한 사용을 위한 조건: 발급된 인증서 참조 Class I, Division 2, Groups A, B, C, D; T4; Associated Nonincendive for Class I, Division 2, Groups A, B, C, D; NIFW; Associated Intrinsically Safe for Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; Entity Class I Zone 1 AEx ib [ia], Group IIC; T4; Entity

Ambient temperature T_{amb}: -20...+70 °C

Electrical data

Max. output voltage U ₀	≤ 9.6 V		
Max. output current I ₀	≤ 44 mA		
Max output power P ₀	≤ 106 mW		
Characteristic	Linear		
Internal inductance L _l / capacitance C _l	Negligibly small		
External inductance L ₀ / capacitance C ₀	L ₀	IIC C ₀	IIB C ₀
	2.0 mH	0.9 µF	5.1 µF
	1.0 mH	1.1 µF	6.1 µF
	0.5 mH	1.3 µF	7.3 µF
	0.2 mH	1.7 µF	9.6 µF
	0.1 mH	2 µF	12 µF

Technical data

Type designation	DM80EX
ID	6884006
Supply voltage	Via module rack, main power supply
Power consumption	1 W
Galvanic isolation	To int. bus and supply circuit
Number of channels	8-channel
Input circuits	Acc. to EN 60947-5-6 (NAMUR) Intrinsically safe acc. to IEC/EN 60079-11
No-load voltage	8 VDC
Short-circuit current	4 mA
Switching threshold on/off	Type 1.8 mA / type 1.4 mA
Switching frequency	≤ 100 Hz (MT08..., MT16..., MT18...) ≤ 50 Hz (MT24... or GEN)
Short-circuit	< 367 Ω
Wire-break	< 0.2 mA
Ouput circuits	For low-power actuators
No-load voltage	8 VDC
Nominal current	4 mA
Internal resistance R _i	320 Ω
Short circuit	< 367 Ω
Wire break	< 0.2 mA
Connection mode	Module, plugged on rack
Protection class	IP20
Relative humidity	≤ 93 % at 40 °C acc. to EN 60068-2-78
EMC	Acc. to EN 61326-1 Acc. to NAMUR NE21

Module E/S numérique DM80EX

Documents supplémentaires

Vous trouverez les documents suivants contenant des informations complémentaires à la présente notice sur notre site Web www.turck.com :

- Fiche technique
- Manuel de l'excom – Système E/S déporté pour circuits à sécurité électrique intrinsèque
- Homologations
- Déclarations de conformité (version actuelle)

Pour votre sécurité

Utilisation conforme

L'appareil est un équipement appartenant au mode de protection « sécurité intrinsèque » (CEI/EN 60079-11) et ne peut être exploité qu'au sein du système E/S excom pour des circuits électriques à sécurité intrinsèque avec les supports de modules autorisés MT...G (PTB 00 ATEX 2194 U ou IECEx PTB 13.0040 U). Le module d'E/S numérique DM80EX 8 canaux est utilisé pour raccorder des capteurs NAMUR (EN 60947-5-6), des contacts mécaniques ou des actionneurs numériques à sécurité intrinsèque tels que des vannes à faible puissance ou des éléments d'affichage. L'appareil est destiné à une utilisation en zone 1. Le mode de protection des entrées et sorties est de Ex ia IIC ou Ex ia IIIC. 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, utiliser, configurer et entretenir l'appareil.
- L'appareil répond aux exigences CEM pour le domaine industriel. Lorsqu'il est utilisé dans des zones résidentielles, prenez des mesures pour éviter les interférences radio.
- Ne raccordez des appareils entre eux que si leurs caractéristiques techniques le permettent.

Indications relatives à la protection contre les explosions

- 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.).
- Respectez les consignes nationales et internationales relatives à la protection contre les explosions.
- Utilisez l'appareil uniquement dans un environnement et dans les conditions de fonctionnement autorisés (voir les caractéristiques techniques et les directives imposées par l'homologation Ex).

Utilisation en zone 1 et en zone 2 :

- Montez les appareils dans un boîtier séparé homologué conformément à la norme CEI/EN 60079-0 et avec un indice de protection IP54 minimum, conformément à la norme CEI/EN 60529.

Utilisation en zone sécurisée :

- Si le degré de pollution 2 n'est pas respecté : Installez l'appareil dans un boîtier de protection d'indice IP54 minimum.

Description du produit

Aperçu de l'appareil

Voir fig. 1 : Vue de l'appareil, fig. 2 : Dimensions

Fonctions et modes de fonctionnement

Il est possible de raccorder un détecteur ou un actuateur par canal. Tous les points de raccordement sont configurés par paires, comme entrées ou sorties. Les configurations possibles sont les suivantes :

Nombre d'entrées	Nombre de sorties
8	0
6	2
4	4
2	6
0	8

Les entrées/sorties ne sont pas séparées galvaniquement l'une de l'autre. Toutes les entrées/sorties reposent sur un potentiel commun.

Montage

Plusieurs appareils peuvent être branchés directement en parallèle sur le support de module. Un changement d'appareils est également possible pendant le fonctionnement.

- ▶ Protégez la zone de montage contre les rayonnements thermiques, les variations rapides de température, la poussière, l'humidité et d'autres facteurs ambiants.
- ▶ Branchez l'appareil dans la position prévue à cet effet sur le support de module et emboîtez-le jusqu'à enclenchement.

Raccordement

Lors de sa fixation sur le support de module, l'appareil est connecté à l'alimentation interne et à la communication de données du support de module. Pour le raccordement des appareils de terrain, des borniers de raccordement à vis ou à ressort peuvent être employés.

- ▶ Raccordez les appareils de terrain conformément au schéma de câblage (« Wiring diagram »).
- ▶ Si des contacts mécaniques sont utilisés : un circuit à résistance doit être posé sur le module WM1 (ID 0912101), lorsque la surveillance de rupture de câble ou de court-circuit est activée.

Mise en service

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

Fonctionnement

L'appareil est un dispositif à sécurité intrinsèque pur et peut donc être branché ou débranché du support de module autorisé en cours de fonctionnement.

Affichage LED

LED	Indication	Signification
Status	Éteinte	Alimentation en énergie défectueuse
	Clignote rouge	Module non configuré pour l'emplacement actuel
	Vert	Alimentation et communication sans défaut
	Clignote vert (lent : 0,5 Hz)	Module pas encore configuré par la passerelle, en attente de données de configuration
	Clignote vert (1,0 Hz asym.)	Module en mode Failsafe
	Clignote vert (rapide : 2,0 Hz)	Module configuré, pas encore de partage de données entre le module et le maître
1...8 (canal)	Éteinte	Canal non actif (non connecté)
	Jaune	Canal actif (connecté)
	Rouge	Erreur au niveau du canal (rupture de câble, court-circuit) : Diagnostic des canaux effectué

Módulo de E/S digital DM80EX

Outros documentos

Além deste documento, o seguinte material pode ser encontrado na Internet em www.turck.com:

- Folha de dados
- manual do excom – terminais de E/S remotos para circuitos intrinsecamente seguros
- Homologações
- Declarações de conformidade (versão atual)

Para sua segurança

Finalidade de uso

O dispositivo é um equipamento da categoria de proteção contra explosões "Segurança intrínseca" (IEC/EN 60079-11) e deve ser usado apenas como parte do sistema de E/S excom para circuitos intrinsecamente seguros com os racks de módulo aprovados MT...G (PTB 00 ATEX 2194 U ou IECEx PTB 13.0040 U). O módulo de E/S digital de 8 canais DM80EX foi projetado para a conexão de sensores NAMUR (EN 60947-5-6), contatos mecânicos ou atuadores digitais intrinsecamente seguros, como válvulas ou elementos de exibição de baixa potência. O dispositivo também é adequado para uso na Zona 1. As entradas e saídas são dotadas de tipo de proteção contra ignição Ex ia IIC ou Ex ia IIIC.

Qualquer outro uso está fora de concordância com o uso pretendido. A Turck se exime de qualquer responsabilidade por danos resultantes.

Instruções gerais de segurança

- O dispositivo só pode ser montado, instalado, operado, configurado e mantido por pessoal profissionalmente treinado.
- O dispositivo atende aos requisitos de EMC para a área industrial. Para uso residencial, tome medidas para evitar interferência de rádio.
- Somente combine dispositivos nos quais os dados técnicos são adequados para uso conjunto.

Notas de proteção contra explosão

- Ao usar o dispositivo em circuitos Ex, o usuário deverá ter conhecimento prático sobre proteção contra explosões (IEC/EN 60079-14, etc.).
- Observe os regulamentos nacionais e internacionais para proteção contra explosão.
- Use o dispositivo somente em condições ambientais e de operação permitidas (consulte os dados técnicos e os requisitos de homologação Ex).

Uso dos dispositivos nas Zonas 1 e 2:

- Monte os dispositivos em um gabinete separado aprovado de acordo com a IEC/EN 60079-0, com um grau de proteção de, pelo menos, IP54 de acordo com a IEC/EN 60529.

Quando usado em áreas seguras:

- Se o grau de poluição 2 não estiver em conformidade com: Instale o dispositivo em um gabinete com um tipo de proteção de pelo menos IP54.

Descrição do produto

Visão geral do produto

Veja a fig. 1: Visão do dispositivo, fig. 2: Dimensões

Funções e modos de operação

Um sensor ou atuador por canal pode ser conectado. Todos os pontos de conexão podem ser configurados como entradas ou saídas emparelhadas. As seguintes configurações são possíveis:

Número de entradas	Número de saídas
8	0
6	2
4	4
2	6
0	8

As entradas/saídas não são galvanicamente isoladas umas das outras. Todas as entradas/saídas estão no mesmo potencial.

Instalação

Vários dispositivos podem ser inseridos diretamente um ao lado do outro em um rack de módulo. Também é possível alterar os dispositivos durante a operação.

- ▶ Proteja o local de instalação contra irradiação de calor, alterações de temperatura repentinas, poeira, sujeira, umidade e outras influências ambientais.
- ▶ Insira o dispositivo na posição designada no rack, e encaixe-o totalmente na posição.

Conexão

Quando conectado ao rack de módulo, o dispositivo é conectado à alimentação e aos dados internos do rack de módulo. É possível usar blocos terminais de conexão por parafusos ou blocos terminais com tecnologia de mola para conectar os dispositivos de campo.

- ▶ Conecte os dispositivos de campo de acordo com o "Wiring diagram".
- ▶ Quando estiver usando contatos mecânicos: Conecte com o circuito do resistor através do módulo WM1 (ID 0912101) se o monitoramento de quebra de fio ou curto-circuito estiver ativo.

Comissionamento

O dispositivo fica automaticamente operacional assim que os cabos são conectados e a fonte de alimentação ligada.

Operação

O dispositivo é um equipamento que é puro e intrinsecamente seguro e, logo, pode ser conectado ou desconectado do rack de módulo aprovado durante a operação.

LEDs

LED	Indicação	Significado
Status	Desligado	Módulo de alimentação com defeito
	Vermelho piscando	Módulo não configurado para a porta atual
	Verde	Fonte de alimentação e comunicação livres de erros
	Verde piscando (lento: 0,5 Hz)	Módulo ainda não configurado pelo gateway, aguardando dados de configuração
	Verde piscando (1,0 Hz assimétrico)	Módulo em modo Failsafe
	Verde piscando (Rápido: 2,0 Hz)	Módulo configurado, não há ainda a troca de dados entre o módulo e o mestre
1...8 (canal)	Desligado	Canal inativo (não ligado)
	Amarelo	Canal ativo (ligado)
	Vermelho	Erro de canal (rompimento de fio, curto-circuito): Diagnóstico de canal disponível

①

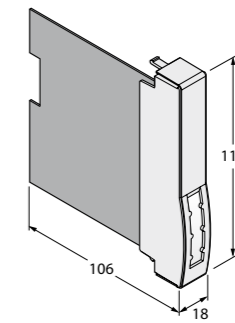


DM80EX
Digital I/O Module
Quick Start Guide
Doc. no. D300335 2208

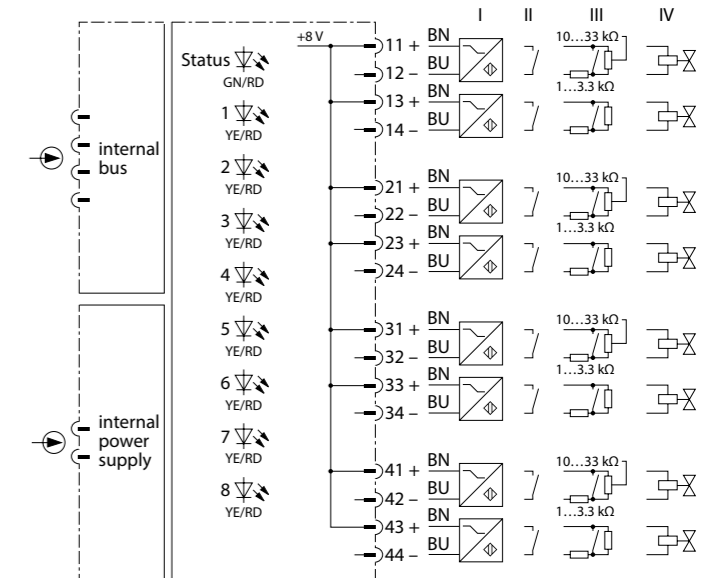
Additional information see



②



Wiring diagram



FR Guide d'utilisation rapide

Réglages

Selon le système de bus de terrain de niveau supérieur, le comportement des entrées est paramétré à l'aide d'un outil de configuration associé, d'un cadre FDT ou d'un serveur Web. Pour chaque canal, les paramètres suivants peuvent, entre autres, être réglés :

- Surveillance de court-circuit
- Surveillance de rupture de câble
- Stratégie de valeur de remplacement
- Sens d'action
- Polarité
- Anti-rebond

Réparation

L'appareil ne peut pas être réparé par l'utilisateur. En cas de dysfonctionnement, mettez l'appareil hors tension. 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 doivent pas être éliminés avec les ordures ménagères.

PT Guia de Início Rápido

Configuração

O comportamento das entradas é parametrizado por meio de uma ferramenta de configuração associada, FDT frame ou servidor web, dependendo do sistema fieldbus de nível superior. Os seguintes parâmetros podem ser definidos para cada canal:

- Monitoramento de curto-circuito
- Monitoramento de ruptura de fio
- Estratégia de valor substituto
- Modo efetivo
- Polaridade
- Debouncing

Reparo

O dispositivo não deve ser reparado pelo usuário. O dispositivo deverá ser desativado caso esteja com defeito. Observe nossas condições para aceitação de devolução ao devolver o dispositivo à Turck.

Descarte

Os dispositivos devem ser descartados corretamente e não em um lixo doméstico normal.

Declarations of conformity

EU-Konformitätserklärung Nr.
UK Declaration of Conformity No. 5001-4M
EU Declaration of Conformity No.:

TURCK

Wir / We Hans Turck GmbH & Co. KG
Witzlebenstr. 7, 45472 Mülheim an der Ruhr, Germany

erklären in alleiniger Verantwortung, dass das Produkt
declare under our sole responsibility that the product

Frequenzmessmodul / Frequency Measurement Module
Digitales I/O-Modul / Digital I/O Module

für das / for the: Remote – I/O – System excom®

Typ / Type: **DF20EX** ID: **6884061**
DM80EX ID: **6884006**

Ex-Kennzeichnung / Ex-marking:

Gas / gas Ⓜ II 2 (1) G Ex ib [ia Ga] IIC T4 Gb or Ex ib [ia Ga] IIC T4
Staub / dust Ⓜ II (1) D [Ex ia Da] IIIC or [Ex ia] IIIC

auf die in der von uns in Verkehr gebrachten Ausführung sich diese Erklärung bezieht, den Anforderungen der
folgenden EU-Richtlinien und den Anforderungen der folgenden UK- Statutory Instruments durch Einhaltung der
folgenden harmonisierten / designierten Normen genügen:

to which this declaration relates in the configuration placed on the market by us, are in conformity with the requirements of
the following EU-directives and the requirements of the following UK Statutory Instruments by compliance with the following
harmonized / designated standards:

Richtlinie / Directive EMC 2014 / 30 / EU 26. Feb. 2014
EMC SI* and part. sign. changes** SI 2016/1081
EN 61326-1:2013

Richtlinie / Directive ATEX 2014 / 34 / EU 26. Feb. 2014
ATEX SI* and part. sign. changes** SI 2016/1107
EN IEC 60079-0:2018 EN 60079-11:2012

Richtlinie / Directive RoHS 2011 / 85 / EU 08. Jun. 2011
RoHS SI* and part. sign. changes SI 2012/3032 and SI 2019/188
EN IEC 63000:2018

*: SI = Statutory Instrument **: SI 2019/696, SI 2020/1460

Weitere Normen, Bemerkungen / additional standards, remarks:

Die aufgeführten benannten Stellen haben die Konformitätsbewertung durchgeführt und Zertifikate ausgestellt:
The listed notified bodies have carried out conformity assessment and issued certificates:

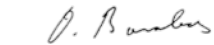
EU-Baumusterprüfbescheinigung (Modul B) / EU-type examination certificate (module B): **PTB 00 ATEX 2178**
ausgestellt von / issued by: Physikalisch Technische Bundesanstalt, Kenn-Nr. / ID no.: 0102
Bundesallee 100, 38116 Braunschweig, Germany

Zertifizierung des QS-Systems (Modul D) / Certification of the QS-system (module D):
ausgestellt von / issued by: Physikalisch Technische Bundesanstalt, Kenn-Nr. / ID no.: 0102
Bundesallee 100, 38116 Braunschweig, Germany

UK-Baumusterprüfbescheinigung / UK-type examination certificate : **TÜV 21 UKEX 7054**
ausgestellt von / issued by: TÜV Rheinland Industrie Service GmbH, Kenn-Nr. / ID no.: 0035
Alfredstraße 81, 45130 Essen, Germany

UK Erklärung zur Qualitätssicherung / UKCA Quality Assurance Notification:
ausgestellt von / issued by: Eurofins E&E CML Limited, Kenn-Nr. / ID no.: 2503,
New Port Road, Ellesmere Port CH65 4LZ, United Kingdom

Mülheim, den 02.05.2022



i.V. O. Barabas, Zulassungsbeauftragter /
Certification Representative

Ort und Datum der Ausstellung /
Place and date of issue




Name, Funktion und Unterschrift des Befugten /
Name, function and signature of authorized person

FM 7.3-12

09.11.21

Certification data | Technical data

Approvals and markings

Approvals	
PTB 00 ATEX 2178	Ⓜ II 2 (1) G Ex ib [ia Ga] IIC T4 Gb Ⓜ II (1) D [Ex ia Da] IIIC
 TÜV 21 UKEX 7054	
IECEX PTB 13.0041	Ex ib [ia Ga] IIC T4 Gb [Ex ia Da] IIIC
	인증서발급기관명: 한국산업안전보건공단 안전인증번호: 13-AV4BO-0133 안전한 사용을 위한 조건: 발급된 인증서 참조
FM18US0068X, FM18CA0033X	Class I, Division 2, Groups A, B, C, D; T4; Associated Nonincendive for Class I, Division 2, Groups A, B, C, D; NIFW; Associated Intrinsically Safe for Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; Entity Class I Zone 1 AEx ib [ia], Group IIC; T4; Entity
	

Ambient temperature T_{amb}: -20...+70 °C

Electrical data

Max. output voltage U ₀	≤ 9.6 V		
Max. output current I ₀	≤ 44 mA		
Max output power P ₀	≤ 106 mW		
Characteristic	Linear		
Internal inductance L _i / capacitance C _i	Negligibly small		
External inductance L ₀ / capacitance C ₀	L ₀	IIC C ₀	IIB C ₀
	2.0 mH	0.9 µF	5.1 µF
	1.0 mH	1.1 µF	6.1 µF
	0.5 mH	1.3 µF	7.3 µF
	0.2 mH	1.7 µF	9.6 µF
	0.1 mH	2 µF	12 µF

Technical data

Type designation	DM80EX
ID	6884006
Supply voltage	Via module rack, main power supply
Power consumption	1 W
Galvanic isolation	To int. bus and supply circuit
Number of channels	8-channel
Input circuits	Acc. to EN 60947-5-6 (NAMUR) Intrinsically safe acc. to IEC/EN 60079-11
No-load voltage	8 VDC
Short-circuit current	4 mA
Switching threshold on/off	Type 1.8 mA / type 1.4 mA
Switching frequency	≤ 100 Hz (MT08..., MT16..., MT18...) ≤ 50 Hz (MT24... or GEN)
Short-circuit	< 367 Ω
Wire-break	< 0.2 mA
Output circuits	For low-power actuators
No-load voltage	8 VDC
Nominal current	4 mA
Internal resistance R _i	320 Ω
Short circuit	< 367 Ω
Wire break	< 0.2 mA
Connection mode	Module, plugged on rack
Protection class	IP20
Relative humidity	≤ 93 % at 40 °C acc. to EN 60068-2-78
EMC	Acc. to EN 61326-1 Acc. to NAMUR NE21

数字量I/O模块DM80EX

其他文档

除了本文档之外,还可在www.turck.com网站上查看以下资料:

- 数据表
- excom手册 — 本安电路的远程I/O
- 认证
- 合规声明(最新版本)

安全须知

预期用途

该装置是一款防燃型“本安”设备(IEC/EN 60079-11),仅作为excom I/O系统的一部分与经认证的模块机架MT...-...G(PTB 00 ATEX 2194 U或IECEx PTB 13.0040 U)一起用于本安电路。8通道数字量I/O模块DM80EX设计用于连接NAMUR传感器(EN 60947-5-6)、机械触点或低功率阀门等数字本安执行器或显示元件。该装置适合在危险1区中运行。输入和输出回路防燃类型为Ex ia IIC或Ex ia IIIC。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

- 该装置的组装、安装、操作、配置和维护只能由经过专业培训的人员执行。
- 该装置符合工业领域的EMC要求。在住宅区使用时,请采取相应的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。

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)。
- 请遵守国内和国际防爆法规。
- 只可在允许的工作条件和环境条件下使用该装置(参见技术数据和防爆认证规格)。

在危险1区和2区中使用该装置:

- 将该装置安装在经过单独认证(符合IEC/EN 60079-0标准)且防护等级至少为IP54(依据IEC/EN 60529标准)的外壳中。

在安全区域中使用:

- 如果不符合污染等级2:应将该装置安装在防护等级至少为IP54的保护外壳内。

产品描述

装置概览

见图1:装置视图,图2:尺寸

功能和工作模式

每个通道可连接一个传感器或执行器。所有连接点均可配置为成对输入或输出。可设定下列参数:

输入数	输出数
8	0
6	2
4	4
2	6
0	8

输入/输出之间非完全电隔离。所有输入/输出均具有相同的电势。

安装

可将多个装置直接毗邻安装在一个模块机架中。也可在运行过程中更换该装置。

- ▶ 应确保安装位置免受辐射热、温度骤变、灰尘、污垢、潮湿和其他环境因素的影响。
- ▶ 将该装置安装在机架上的预期位置,然后将其完全卡入到位。

连接

插入模块机架中时,该装置将连接至模块机架的内部电源和数据通信部分。螺钉连接式或弹簧式接线板可用于连接现场设备。

- ▶ 按照“Wiring diagram”连接现场设备。
- ▶ 使用机械触点时:如果断路或短路监测处于激活状态,则需在回路中接入电阻模块WM1(ID 0912101)。

调试

一旦接好线缆并接通电源,该装置将自动运行。

运行

该装置是一款纯本安设备,因此可在运行期间在经认证的模块机架上进行热插拔。

LED

LED	指示	含义
Status	熄灭	电源故障
	红灯闪烁	未针对当前插槽配置模块
	绿灯	电源和通信正常
	绿灯闪烁(缓慢:0.5 Hz)	尚未通过网关配置模块,正在等待配置数据
	绿灯闪烁(1.0 Hz非对称)	模块处于故障安全模式
	绿灯闪烁(快速:2.0 Hz)	模块已配置;模块和主设备之间尚未进行数据交换
1...8(通道)	熄灭	通道未激活(未切换)
	黄灯	通道激活(已切换)
	红灯	通道故障(断路、短路):通道诊断可用

设置

根据不同的更高级别现场总线系统,通过相关的配置工具、FDT帧或Web服务器对输入行为进行参数设定。可为每条通道设置以下参数:

- 短路监测
- 断路监测
- 替代值策略
- 有效模式
- 极性
- 去抖

디지털 I/O 모듈 DM80EX

추가 문서

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

- 데이터 시트
- excom 매뉴얼 — 본질 안전 회로용 원격 I/O
- 인증
- 적합성 선언(현재 버전)

사용자 안전 정보

사용 목적

이 장치는 점화 보호 타입 “본질 안전”(IEC/EN 60079-11) 장치이며 승인된 모듈 랙 MT...-...G(PTB 00 ATEX 2194 U 또는 IECEx PTB 13.0040 U)와 함께 본질 안전 회로용 excom I/O 시스템의 일부로만 사용할 수 있습니다. 8채널 디지털 I/O 모듈 DM80EX는 NAMUR 센서(EN 60947-5-6), 기계식 접점 또는 저전력 밸브나 디스플레이 요소와 같은 디지털 본질 안전 액추에이터를 연결하도록 설계되었습니다. 이 장치는 1종 위험 지역에서 작동하기에 적합합니다. 입력 및 출력은 점화 보호 타입 Ex ia IIC 또는 Ex ia IIIC입니다. 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 조립, 설치, 작동, 구성 및 유지보수를 수행해야 합니다.
- 이 장치는 산업 부문의 EMC 요구 사항을 충족합니다. 주거 지역에서 사용하는 경우 무선 간섭을 방지하기 위한 조치를 취하십시오.
- 기술 데이터가 공동 사용에 적합한 장치만 조합하십시오.

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.
- 폭발 방지에 관한 국내 및 국제 규정을 준수하십시오.
- 허용되는 작동 및 주변 조건 내에서만 장치를 사용하십시오(기술 데이터 및 방폭 인증서 사양 참조).

1종 및 2종 위험 지역 내 장치 사용:

- IEC/EN 60529에 따라 보호 등급이 IP54 이상인 IEC/EN 60079-0 규격의 별도 승인 외함에 장치를 설치하십시오. 안전 지역에서 사용할 경우:
- 오염도 2를 준수하지 않을 경우: IP54 이상의 보호 등급이 있는 보호 하우징에 장치를 설치하십시오.

제품 설명

장치 개요

그림 1: 장치 도면, 그림 2: 치수

기능 및 작동 모드

채널당 하나의 센서 또는 액추에이터를 연결할 수 있습니다. 모든 연결 포인트는 쌍을 이루는 입력 또는 출력으로 구성할 수 있습니다. 다음과 같은 구성이 가능합니다.

입력 수	출력 수
8	0
6	2
4	4
2	6
0	8

입력/출력은 상호 간에 갈바닉 절연 처리되지 않습니다. 모든 입력/출력은 동일한 포텐셜에 있습니다.

설치

여러 장치를 서로 맞닿게 모듈 랙에 삽입할 수 있습니다. 또한 작동 중에 장치를 변경할 수 있습니다.

- ▶ 설치 장소를 복사열과 갑작스러운 온도 변화, 먼지, 흙, 습도, 기타 주변 영향 요소로부터 보호하십시오.
- ▶ 장치를 랙의 의도한 위치에 장착하고 제자리에 완전히 끼우십시오.

연결

모듈 랙에 연결하면 장치가 모듈 랙의 내부 파워 서플라이 및 데이터 통신에 연결됩니다. 나사 연결 터미널 블록 또는 스프링 기술이 적용된 터미널 블록을 사용하여 필드 장치를 연결할 수 있습니다.

- ▶ “Wiring diagram”에 따라 필드 장치를 연결하십시오.
- ▶ 기계식 접점을 사용할 때: 단선 또는 단락 모니터링이 작동 중일 경우 모듈 WM1(ID 0912101)을 통해 저항 회로와 연결하십시오.

시운전

케이블이 연결되고 파워 서플라이가 켜지면 장치가 자동으로 작동 가능해집니다.

작동

이 장치는 순수한 본질 안전 장비이므로 작동 중에 승인된 모듈 랙에 연결하거나 분리할 수 있습니다.

LED

LED	표시	의미
Status	꺼짐	파워 서플라이 고장
	적색 점멸	모듈이 현재 슬롯에 대해 구성되지 않음
	녹색	파워 서플라이 및 통신 고장 없음
	녹색 점멸	모듈이 아직 게이트웨이에 의해 구성되지 않음, 구성 데이터 대기 중
	녹색 점멸	페일 세이프 모드의 모듈(1.0 Hz 비대칭)
	녹색 점멸	모듈이 구성됨, 모듈과 마스터 사이에 아직 데이터 교환 없음(고속: 2.0 Hz)
1...8(채널)	꺼짐	채널 비활성(전환되지 않음)
	황색	채널 활성(전환됨)
	적색	채널 오류(단선, 단락): 채널 진단 있음

설정

입력 동작은 상위 레벨의 필드버스 시스템에 따라 관련 구성 도구, FDT 프레임 또는 웹 서버를 통해 매개 변수화됩니다. 다음 매개 변수는 채널별로 설정될 수 있습니다.

- 단락 모니터링
- 단선 모니터링
- 대체값 전략
- 유효 방향
- 극성
- 디바운싱

①

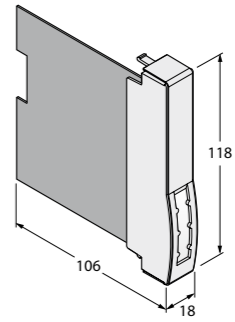


DM80EX
Digital I/O Module
Quick Start Guide
Doc. no. D300335 2208

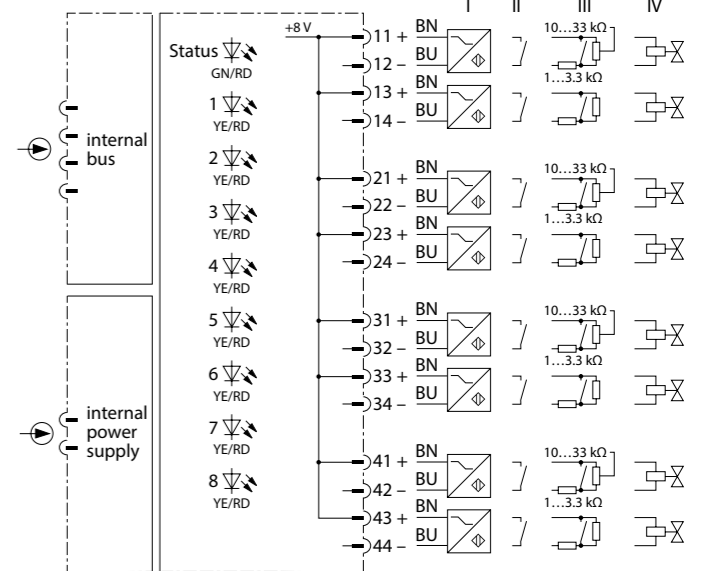
Additional information see



②



Wiring diagram



ZH 快速入门指南

维修

用户不得维修该装置。如果出现故障，必须停用该装置。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

수리

이 장치는 사용자가 수리할 수 없습니다. 이 장치에 고장이 발생한 경우 설치 해체해야 합니다. 장치를 터크에 반품할 경우, 반품 승인 조건을 준수해 주십시오.

폐기

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

Declarations of conformity

EU-Konformitätserklärung Nr.
UK Declaration of Conformity No. 5001-4M
 EU Declaration of Conformity No.:

Wir / We Hans Turck GmbH & Co. KG
 Witzlebenstr. 7, 45472 Mülheim an der Ruhr, Germany

erklären in alleiniger Verantwortung, dass das Produkt
 declare under our sole responsibility that the product

Frequenzmessmodul / Frequency Measurement Module

Digitales I/O-Modul / Digital I/O Module

für das / for the: Remote – I/O – System excom®

Typ / Type: **DF20EX** ID: **6884061**
DM80EX ID: **6884006**

Ex-Kennzeichnung / Ex-marking:

Gas / gas Ⓜ II 2 (1) G Ex ib [ia Ga] IIC T4 Gb or Ex ib [ia Ga] IIC T4
 Staub / dust Ⓜ II (1) D [Ex ia Da] IIIC or [Ex ia] IIIC

auf die in der von uns in Verkehr gebrachten Ausführung sich diese Erklärung bezieht, den Anforderungen der
 folgenden EU-Richtlinien und den Anforderungen der folgenden UK- Statutory Instruments durch Einhaltung der
 folgenden harmonisierten / designierten Normen genügen:

to which this declaration relates in the configuration placed on the market by us, are in conformity with the requirements of
 the following EU-directives and the requirements of the following UK Statutory Instruments by compliance with the following
 harmonized / designated standards:

Richtlinie / Directive EMC **2014 / 30 / EU** **26. Feb. 2014**
EMC SI* and part. sign. changes** **SI 2016/1091**
 EN 61326-1:2013

Richtlinie / Directive ATEX **2014 / 34 / EU** **26. Feb. 2014**
ATEX SI* and part. sign. changes** **SI 2016/1107**
 EN IEC 60079-0:2018 EN 60079-11:2012

Richtlinie / Directive RoHS **2011 / 85 / EU** **08. Jun. 2011**
RoHS SI* and part. sign. changes **SI 2012/3032** **and SI 2019/188**
 EN IEC 63000:2018

*: SI = Statutory Instrument **: SI 2019/696, SI 2020/1460

Weitere Normen, Bemerkungen / additional standards, remarks:

Die aufgeführten benannten Stellen haben die Konformitätsbewertung durchgeführt und Zertifikate ausgestellt:
 The listed notified bodies have carried out conformity assessment and issued certificates:

EU-Baumusterprüfbescheinigung (Modul B) / EU-type examination certificate (module B): **PTB 00 ATEX 2178**
 ausgestellt von / issued by: Physikalisch Technische Bundesanstalt, Kenn-Nr. / ID no.: 0102
 Bundesallee 100, 38116 Braunschweig, Germany

Zertifizierung des QS-Systems (Modul D) / Certification of the QS-system (module D):
 ausgestellt von / issued by: Physikalisch Technische Bundesanstalt, Kenn-Nr. / ID no.: 0102
 Bundesallee 100, 38116 Braunschweig, Germany

UK-Baumusterprüfbescheinigung / UK-type examination certificate : **TÜV 21 UKEX 7054**
 ausgestellt von / issued by: TÜV Rheinland Industrie Service GmbH, Kenn-Nr. / ID no.: 0035
 Alfredstraße 81, 45130 Essen, Germany

UK Erklärung zur Qualitätssicherung / UKCA Quality Assurance Notification:
 ausgestellt von / issued by: Eurofins E&E CML Limited, Kenn-Nr. / ID no.: 2503,
 New Port Road, Ellesmere Port CH65 4LZ, United Kingdom

Mülheim, den 02.05.2022

i.V. O. Barabas, Zulassungsbeauftragter /
 Certification Representative

Ort und Datum der Ausstellung /
 Place and date of issue

Name, Funktion und Unterschrift des Befugten /
 Name, function and signature of authorized person

FM 7.3-12

09.11.21

Certification data | Technical data

Approvals and markings

Approvals	
PTB 00 ATEX 2178	Ⓜ II 2 (1) G Ex ib [ia Ga] IIC T4 Gb Ⓜ II (1) D [Ex ia Da] IIIC
TÜV 21 UKEX 7054	
IECEX PTB 13.0041	Ex ib [ia Ga] IIC T4 Gb [Ex ia Da] IIIC
	인증서발급기관명: 한국산업안전보건공단 안전인증번호: 13-AV4BO-0133 안전한 사용을 위한 조건: 발급된 인증서 참조
FM18US0068X, FM18CA0033X	Class I, Division 2, Groups A, B, C, D; T4; Associated Nonincendive for Class I, Division 2, Groups A, B, C, D; NIFW; Associated Intrinsically Safe for Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; Entity Class I Zone 1 AEx ib [ia], Group IIC; T4; Entity

Ambient temperature T_{amb}: -20...+70 °C

Electrical data

Max. output voltage U _o	≤ 9.6 V		
Max. output current I _o	≤ 44 mA		
Max output power P _o	≤ 106 mW		
Characteristic	Linear		
Internal inductance L _l / capacitance C _l	Negligibly small		
External inductance L _o / capacitance C _o		IIC	IIB
	L _o	C _o	C _o
	2.0 mH	0.9 µF	5.1 µF
	1.0 mH	1.1 µF	6.1 µF
	0.5 mH	1.3 µF	7.3 µF
	0.2 mH	1.7 µF	9.6 µF
	0.1 mH	2 µF	12 µF

Technical data

Type designation	DM80EX
ID	6884006
Supply voltage	Via module rack, main power supply
Power consumption	1 W
Galvanic isolation	To int. bus and supply circuit
Number of channels	8-channel
Input circuits	Acc. to EN 60947-5-6 (NAMUR) Intrinsically safe acc. to IEC/EN 60079-11
No-load voltage	8 VDC
Short-circuit current	4 mA
Switching threshold on/off	Type 1.8 mA / type 1.4 mA
Switching frequency	≤ 100 Hz (MT08..., MT16..., MT18...) ≤ 50 Hz (MT24... or GEN)
Short-circuit	< 367 Ω
Wire-break	< 0.2 mA
Ouput circuits	For low-power actuators
No-load voltage	8 VDC
Nominal current	4 mA
Internal resistance R _i	320 Ω
Short circuit	< 367 Ω
Wire break	< 0.2 mA
Connection mode	Module, plugged on rack
Protection class	IP20
Relative humidity	≤ 93 % at 40 °C acc. to EN 60068-2-78
EMC	Acc. to EN 61326-1 Acc. to NAMUR NE21