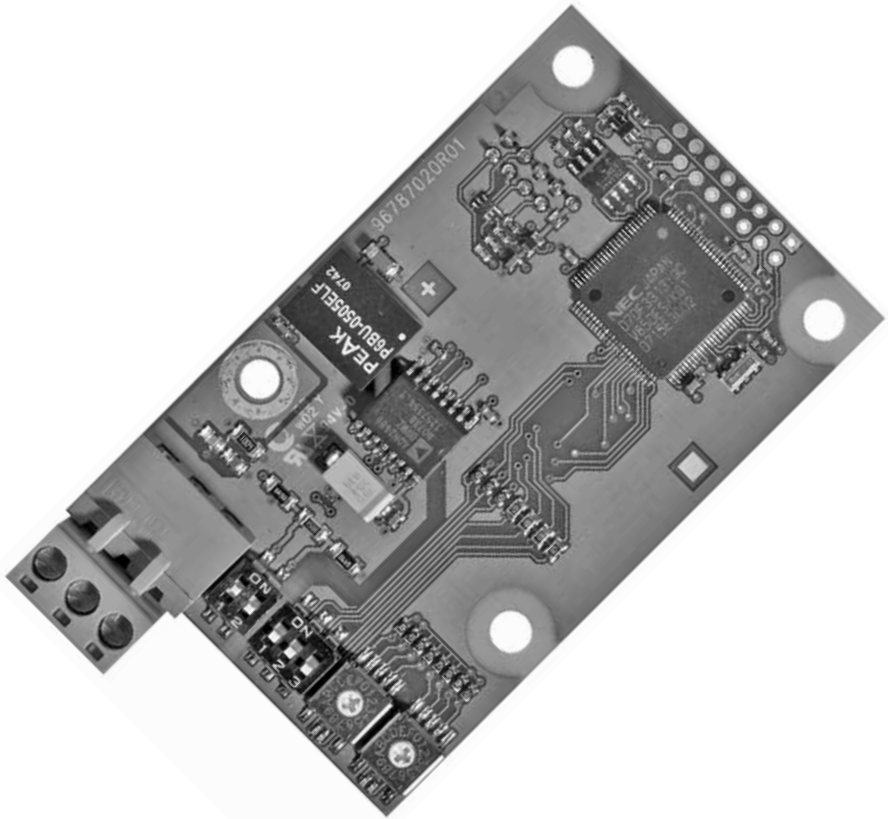


CIM 2XX Modbus module

Installation and operating instructions



English (GB)	
Installation and operating instructions	7
Български (BG)	
Упътване за монтаж и експлоатация	15
Čeština (CZ)	
Montážní a provozní návod	24
Dansk (DK)	
Monterings- og driftsinstruktion	33
Deutsch (DE)	
Montage- und Betriebsanleitung	41
Ελληνικά (GR)	
Οδηγίες εγκατάστασης και λειτουργίας	50
Español (ES)	
Instrucciones de instalación y funcionamiento	58
Français (FR)	
Notice d'installation et de fonctionnement	66
Hrvatski (HR)	
Montažne i pogonske upute	74
Italiano (IT)	
Istruzioni di installazione e funzionamento	83
Latviešu (LV)	
Uzstādīšanas un ekspluatācijas instrukcija	91
Lietuviškai (LT)	
Įrengimo ir naudojimo instrukcija	99
Magyar (HU)	
Szerelési és üzemeltetési utasítás	107
Nederlands (NL)	
Installatie- en bedieningsinstructies	116
З повагою (UA)	
Інструкції з монтажу та експлуатації	124
Polski (PL)	
Instrukcja montażu i eksploatacji	132
Русский (RU)	
Руководство по монтажу и эксплуатации	141
Română (RO)	
Instrucţiuni de instalare şi utilizare	150

Slovenčina (SK)	
Návod na montáž a prevádzku	158
Slovensko (SI)	
Navodila za montažo in obratovanje	167
Srpski (RS)	
Uputstvo za instalaciju i rad	176
Suomi (FI)	
Asennus- ja käyttöohjeet	185
Svenska (SE)	
Monterings- och driftsinstruktion	193
Türkçe (TR)	
Montaj ve kullanım kılavuzu.	201
中文 (CN)	
安装和使用说明书	211
日本語 (JP)	
取扱説明書	219
한국어 (KO)	
설치 및 작동 지침	227

(GB) Declaration of Conformity

We **Grundfos** declare under our sole responsibility that the product **CIM 2XX Modbus module**, to which this declaration relates, is in conformity with these Council Directives on the approximation of the laws of the EC Member States:

- Low Voltage Directive (2006/95/EC).
Standard used: EN 61010-1: 2001.
- EMC Directive (2004/108/EC).
Standard used: EN 61326-1: 2006.

(F) Déclaration de Conformité

Nous, **Grundfos**, déclarons sous notre seule responsabilité, que le produit **Module CIM 2XX Modbus**, auquel se réfère cette déclaration, est conforme aux Directives du Conseil concernant le rapprochement des législations des Etats membres CE relatives aux normes énoncées ci-dessous :

- Directive Basse Tension (2006/95/CE).
Norme utilisée : EN 61010-1: 2001.
- Directive Compatibilité Electromagnétique (2004/108/CE).
Norme utilisée : EN 61326-1: 2006.

(E) Declaración de Conformidad

Nosotros **Grundfos** declaramos bajo nuestra propia respons. que el producto **Módulo CIM 2XX Modbus**, al cual se refiere esta declaración, está conforme con las Directrices del Consejo en la aproximación de las leyes de los Estados Miembros del EM:

- Directiva de Baja Tensión (2006/95/CE).
Norma aplicada: EN 61010-1: 2001.
- Directiva EMC (2004/108/CE).
Norma aplicada: EN 61326-1: 2006.

(GR) Δήλωση Συμμόρφωσης

Εμείς, η **Grundfos**, δηλώνουμε με αποκλειστική δική μας ευθύνη ότι τα προϊόντα **Μονάδα CIM 2XX Modbus**, στα οποία αναφέρεται η παρούσα δήλωση, συμμορφώνονται με τις εξής Οδηγίες του Συμβουλίου περί προσεγγίσης των νομοθεσιών των κρατών μελών της ΕΕ:

- Οδηγία χαμηλής τάσης (2006/95/ΕΚ).
Πρότυπο που χρησιμοποιήθηκε: EN 61010-1: 2001.
- Οδηγία Ηλεκτρομαγνητικής Συμβατότητας (EMC) (2004/108/ΕΚ).
Πρότυπο που χρησιμοποιήθηκε: EN 61326-1: 2006.

(S) Försäkrän om överensstämmelse

Vi, **Grundfos**, försäkrar under ansvar att produkten **CIM 2XX Modbus-modul**, som omfattas av denna försäkrän, är i överensstämmelse med rådets direktiv om inbördes närmande till EU-medlemsstaternas lagstiftning, avseende:

- Lågspänningsdirektivet (2006/95/EC).
Tillämpad standard: EN 61010-1: 2001.
- EMC-direktivet (2004/108/EC).
Tillämpad standard: EN 61326-1: 2006.

(DK) Overensstemmelseserklæring

Vi **Grundfos** erklærer under ansvar, at produktet **CIM 2XX Modbus-modul**, som denne erklæring omhandler, er i overensstemmelse med disse af Rådets direktiver om indbyrdes tilnærmelse til EF medlemsstaternes lovgivning:

- Lavspændingsdirektivet (2006/95/EF).
Anvendt standard: EN 61010-1: 2001.
- EMC-direktivet (2004/108/EF).
Anvendt standard: EN 61326-1: 2006.

(RU) Декларация о соответствии

Мы, компания **Grundfos**, со всей ответственностью заявляем, что изделия **Модуль CIM 2XX Modbus**, к которым относится настоящая декларация, соответствуют следующим Директивам Совета Евросоюза об унификации законодательных предписаний стран-членов ЕС:

- Низковольтное оборудование (2006/95/EC).
Применявшийся стандарт: EN 61010-1: 2001.
- Электромагнитная совместимость (2004/108/EC).
Применявшийся стандарт: EN 61326-1: 2006.

(D) Konformitätserklärung

Wir, **Grundfos**, erklären in alleiniger Verantwortung, dass das Produkt **CIM 2XX Modbus Modul**, auf das sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmt:

- Niederspannungsrichtlinie (2006/95/EG).
Norm, die verwendet wurde: EN 61010-1: 2001.
- EMV-Richtlinie (2004/108/EG).
Norm, die verwendet wurde: EN 61326-1: 2006.

(I) Dichiarazione di Conformità

Grundfos dichiara sotto la sua esclusiva responsabilità che il prodotto **Modulo Modbus CIM 2XX**, al quale si riferisce questa dichiarazione, è conforme alle seguenti direttive del Consiglio riguardanti il ravvicinamento delle legislazioni degli Stati membri CE:

- Direttiva Bassa Tensione (2006/95/CE).
Norma applicata: EN 61010-1: 2001.
- Direttiva EMC (2004/108/CE).
Norma applicata: EN 61326-1: 2006.

(P) Declaração de Conformidade

A **Grundfos** declara sob sua única responsabilidade que o produto **Módulo CIM 2XX Modbus**, ao qual diz respeito esta declaração, está em conformidade com as seguintes Directivas do Conselho sobre a aproximação das legislações dos Estados Membros da CE:

- Directiva baixa tensão (2006/95/CE).
Norma utilizada: EN 61010-1: 2001.
- Directiva EMC (compatibilidade electromagnética) (2004/108/CE).
Norma utilizada: EN 61326-1: 2006.

(NL) Overeenkomstigheidsverklaring

Wij **Grundfos** verklaren geheel onder eigen verantwoordelijkheid dat het product **CIM 2XX Modbus module** waarop deze verklaring betrekking heeft, in overeenstemming is met de Richtlijnen van de Raad in zake de onderlinge aanpassing van de wetgeving van de EG lidstaten betreffende:

- Laagspannings Richtlijn (2006/95/EG).
Gebruikte norm: EN 61010-1: 2001.
- EMC Richtlijn (2004/108/EG).
Gebruikte norm: EN 61326-1: 2006.

(FIN) Vaatimustenmukaisuusvakuutus

Me **Grundfos** vakuutamme omalla vastuullamme, että tuote **CIM 2XX Modbus-moduuli**, jota tämä vakuutus koskee, on EY:n jäsenvaltioiden lainsäädännön yhdenmukaistamiseen tähtäävien Euroopan neuvoston direktiivien vaatimusten mukainen seuraavasti:

- Pienjännitedirektiivi (2006/95/EY).
Sovellettu standardi: EN 61010-1: 2001.
- EMC-direktiivi (2004/108/EY).
Sovellettu standardi: EN 61326-1: 2006.

(PL) Deklaracja zgodności

My **Grundfos**, oświadczamy z pełną odpowiedzialnością, że nasze wyroby **Modul CIM 2XX Modbus**, których deklaracja niniejsza dotyczy, są zgodne z następującymi wytycznymi Rady d/s jednolitości przepisów prawnych krajów członkowskich WE:

- Dyrektywa Niskonapięciowa (LVD) (2006/95/EG).
Zastosowana norma: EN 61010-1: 2001.
- Dyrektywa EMC (2004/108/EG).
Zastosowana norma: EN 61326-1: 2006.

(H) Megfelelősségi nyilatkozat

Mi, a **Grundfos**, egyedüli felelősséggel kijelentjük, hogy a **CIM 2XX Modbus modul** termék, amelyre jelen nyilatkozik vonatkozik, megfelel az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi előírásainak:

- Kisfeszültségű Direktíva (2006/95/EK).
Alkalmazott szabvány: EN 61010-1: 2001.
- EMC Direktíva (2004/108/EK).
Alkalmazott szabvány: EN 61326-1: 2006.

(SI) Izjava o skladnosti

V **Grundfosu** s polno odgovornostjo izjavljamo, da so naši izdelki **CIM 2XX Modbus modul**, na katere se ta izjava nanaša, v skladu z naslednjimi direktivami Sveta o približevanju zakonodaje za izenačevanje pravnih predpisov držav članic ES:

- Direktiva o nizki napetosti (2006/95/EG).
- Uporabljena norma: EN 61010-1: 2001.
- Direktiva o elektromagnetni združljivosti (EMC) (2004/108/EG).
- Uporabljena norma: EN 61326-1: 2006.

(SER) Deklaracija o konformitetu

Mi, **Grundfos**, izjavljamo pod vlastitom odgovornostjo da je proizvod **Modul CIM 2XX Modbus**, la care se referă această declarație, sunt în conformitate cu aceste Directive de Consiliu asupra armonizării legilor Statelor Membre CE:

- Direktiva niskog napona (2006/95/EG).
- Korišćen standard: EN 61010-1: 2001.
- EMC direktiva (2004/108/EG).
- Korišćen standard: EN 61326-1: 2006.

(BG) Декларация за съответствие

Ние, фирма **Grundfos**, заявяваме с пълна отговорност, че продукта **CIM 2XX Modbus модул**, за който се отнася настоящата декларация, отговаря на следните указания на Съвета за уеднаквяване на правните разпоредби на държавите членки на ЕС:

- Директива за нисковолтови системи (2006/95/EO).
- Приложен стандарт: EN 61010-1: 2001.
- Директива за електромагнитна съвместимост (2004/108/EO).
- Приложен стандарт: EN 61326-1: 2006.

(SK) Prehlásenie o konformite

My firma **Grundfos** prehlasujeme na svoju plnu zodpovednost, že výrobok **Modul CIM 2XX Modbus**, na ktorý sa toto prehlásenie vzťahuje, je v súlade s ustanovením smernice Rady pro sblíženie právnych predpisov členských štátov Európskeho spoločenstva v oblastiach:

- Smernica pre nízkonapäťové aplikácie (2006/95/EG).
- Použitá norma: EN 61010-1: 2001.
- Smernica pre elektromagnetickú kompatibilitu (2004/108/EG).
- Použitá norma: EN 61326-1: 2006.

(EE) Vastavusdeklaratsioon

Meie, **Grundfos**, deklareerime enda ainuvastutuse, et toode **CIM 2XX Modbus moodul**, mille kohta käesolev juhend käib, on vastavuses EÜ Nõukogu direktiividega EMÜ liikmesriikide seaduste ühtilamise kohta, mis käsitlevad:

- Madalpinge direktiiv (2006/95/EC).
- Kasutatud standard: EN 61010-1: 2001.
- Elektromagnetilise ühilduvuse (EMC direktiiv) (2004/108/EC).
- Kasutatud standard: EN 61326-1: 2006.

(LV) Paziņojums par atbilstību prasībām

Sabiedrība **GRUNDFOS** ar pilnu atbildību dara zināmu, ka produkts **Modulis CIM 2XX MODBUS**, uz kuru attiecas šīs paziņojums, atbilst šādām Padomes direktīvām par tuvināšanas EK dalībvalstu likumdošanas normām:

- Zema sprieguma direktīva (2006/95/EK).
- Piemērotais standarts: EN 61010-1: 2001.
- Elektromagnētiskās saderības direktīva (2004/108/EK).
- Piemērotais standarts: EN 61326-1: 2006.

(ZH) 产品合格声明书

我们格朗富在我们的全权责任下声明，产品 **CIM 2XX Modbus 模块**，即该合格证所指之产品，符合欧共体使其成员国法律趋于一致的以下欧共体指令：

- 低电压指令 (2006/95/EC)。
- 所用标准：EN 61010-1: 2001。
- 电磁兼容性指令 (2004/108/EC)。
- 所用标准：EN 61326-1: 2006。

(KO) 적합성 선언

Grundfos에서는 자사의 단독 책임에 따라 이 선언과 관련된 **CIM 2XX Modbus 모듈** 제품 이 EC 회원국 법률에 기반한 다음 이사회 지침을 준수함을 선언합니다:

- 저전압 지침 (2006/95/EC).
- 사용된 표준: EN 61010-1: 2001.
- EMC 지침 (2004/108/EC).
- 사용된 표준: EN 61326-1: 2006.

(HR) Izjava o usklađenosti

Mi, **Grundfos**, izjavljujemo pod vlastitom odgovornošću da je proizvod **CIM 2XX Modbus modul**, na koji se ova izjava odnosi, u skladu s direktivama ovog Vijeća o usklađivanju zakona država članica EU:

- Direktiva za niski napon (2006/95/EZ).
- Korištena norma: EN 61010-1: 2001.
- Direktiva za elektromagnetsku kompatibilnost (2004/108/EZ).
- Korištena norma: EN 61326-1: 2006.

(RO) Declarație de Conformitate

Noi **Grundfos** declarăm pe propria răspundere că produsele **Modul CIM 2XX Modbus**, la care se referă această declarație, sunt în conformitate cu aceste Directive de Consiliu asupra armonizării legilor Statelor Membre CE:

- Directiva Tensiune Joasă (2006/95/EC).
- Standard utilizat: EN 61010-1: 2001.
- Directiva EMC (2004/108/EC).
- Standard utilizat: EN 61326-1: 2006.

(CZ) Prohlášení o shodě

My firma **Grundfos** prohlašujeme na svou plnou odpovědnost, že výrobek **Modul CIM 2XX Modbus**, na nějž se toto prohlášení vztahuje, je v souladu s ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství v oblastech:

- Směrnice pro nízkonapěťové aplikace (2006/95/EG).
- Použitá norma: EN 61010-1: 2001.
- Směrnice pro elektromagnetickou kompatibilitu (EMC) (2004/108/EG).
- Použitá norma: EN 61326-1: 2006.

(TR) Uygunluk Bildirgesi

Grundfos olarak bu beyannameye konu olan **CIM 2XX Modbus modülü** ürünlerimizin, AB Üyesi Ülkelerimiz kanunlarını birbirine yaklaştırmaya üzerine Konsey Direktifleriyle uyumlu olduğunun yalnızca bizim sorumluluğumuz altında olduğuna beyan ederiz:

- Düşük Voltaj Yönetmeliği (2006/95/EC).
- Kullanılan standart: EN 61010-1: 2001.
- EMC Direktifi (2004/108/EC).
- Kullanılan standart: EN 61326-1: 2006.

(LT) Atitikties deklaracija

Mes, **Grundfos**, su visa atsakomybe pareiškiame, kad gaminys **CIM 2XX "Modbus" modulis**, kuriam skirta ši deklaracija, atitinka šias Tarybos Direktyvas dėl Europos Ekonominės Bendrijos šalių narių įstatymų suderinimo:

- Žemų įtampų direktyva (2006/95/EC).
- Taikomas standartas: EN 61010-1: 2001.
- EMS direktyva (2004/108/EC).
- Taikomas standartas: EN 61326-1: 2006.

(UA) Свідчення про відповідність вимогам

Компанія **Grundfos** заявляє про свою виключну відповідальність за те, що продукт **Модуль CIM 2XX Modbus**, на який поширюється дана декларація, відповідає таким рекомендаціям Ради з уніфікації правових норм країн - членів ЕС:

- Низька напруга (2006/95/EC).
- Стандарти, що застосовувалися: EN 61010-1: 2001.
- Електромагнітна сумісність (2004/108/EC).
- Стандарти, що застосовувалися: EN 61326-1: 2006.

(JP) 適合宣言

Grundfos は、その責任の下に、**CIM 2XX Modbus モジュール** 製品が EC 加盟諸国の法規に関連する、以下の評議会指令に適合していることを宣言します：

- 低電圧指令 (2006/95/EC)。
- 適用規格：EN 61010-1: 2001。
- EMC 指令 (2004/108/EC)。
- 適用規格：EN 61326-1: 2006。

Bjerringbro, 1st February 2010

Jan Strandgaard
Technical Director

Original installation and operating instructions.

CONTENTS

	Page
1. Symbols used in this document	7
2. Applications	7
2.1 CIM 2XX Modbus module	8
3. Installation	8
3.1 Connecting the Modbus	8
3.2 Setting the Modbus address	9
3.3 Termination resistor	10
3.4 Setting the parity	10
3.5 Setting the Modbus transmission speed	11
4. LEDs	11
5. Fault finding	12
6. Technical data	14
7. Service	14
7.1 Service documentation	14
8. Disposal	14

2. Applications

The CIM 2XX Modbus module (CIM = Communication Interface Module), which is a Modbus slave, enables data transmission between a Modbus RTU network and a Grundfos product.

The CIM 2XX is fitted in the product to be communicated with or in a CIU 2XX unit (CIU = Communication Interface Unit).

Retrofitting of the CIM 2XX is described in the installation and operating instructions of the Grundfos product.

Further information

For further information about configuration and functionality of the CIM 2XX, see the specific functional profile on the CD-ROM supplied with the product.

Warning



Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.

1. Symbols used in this document

Warning



If these safety instructions are not observed, it may result in personal injury!

Caution

If these safety instructions are not observed, it may result in malfunction or damage to the equipment!

Note

Notes or instructions that make the job easier and ensure safe operation.

2.1 CIM 2XX Modbus module

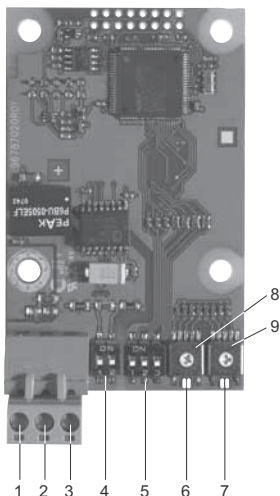


Fig. 1 CIM 2XX Modbus module

Pos.	Designation	Description
1	D1	Modbus terminal D1 (positive data signal)
2	D0	Modbus terminal D0 (negative data signal)
3	Common/GND	Modbus terminal Common/GND
4	SW1/SW2	On/off switches for termination resistor
5	SW3/SW4/SW5	Switches for selection of Modbus parity and transmission speed
6	LED1	Red/green status LED for Modbus communication
7	LED2	Red/green status LED for internal communication between the CIM 2XX and the Grundfos product
8	SW6	Hex switch for setting the Modbus address (four most significant bits)
9	SW7	Hex switch for setting the Modbus address (four least significant bits)

TM04 1697 0908

3. Installation



Warning

The CIM 2XX must only be connected to SELV or SELV-E circuits.

3.1 Connecting the Modbus

A screened, twisted-pair cable must be used. The cable screen must be connected to protective earth at both ends.

Recommended connection

Modbus terminal	Colour code	Data signal
D1	Yellow	Positive
D0	Brown	Negative
Common/GND	Grey	Common/GND

Fitting the cable

Procedure:

See fig. 3.

1. Connect the yellow conductor(s) to terminal D1 (pos. 1).
2. Connect the brown conductor(s) to terminal D0 (pos. 2).
3. Connect the grey conductor(s) to terminal Common/GND (pos. 3).
4. Connect the cable screens to earth via the earth clamp (pos. 4).

It is important to connect the screen to earth through the earth clamp and to connect the screen to earth in all units connected to the bus line.

Note

Maximum cable length, see section 3.3 Termination resistor.

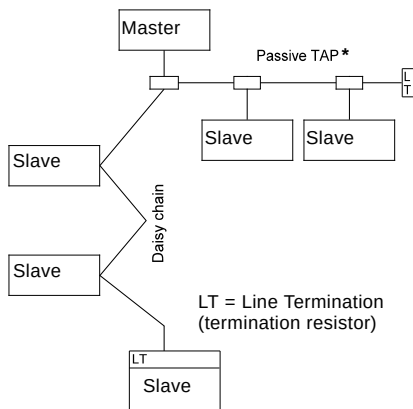


Fig. 2 Example of Modbus network with termination

* Hardware unit enabling connection to the Modbus network.

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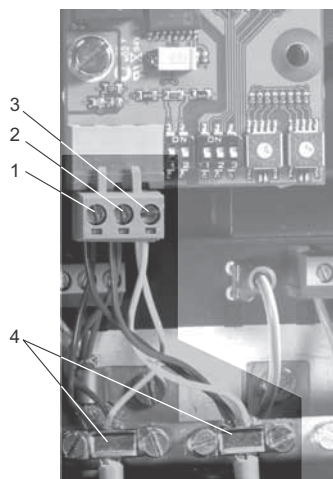


Fig. 3 Example of Modbus connection as daisy chain

Pos.	Description
1	Modbus terminal D1
2	Modbus terminal D0
3	Modbus terminal Common/GND
4	Earth clamp

3.2 Setting the Modbus address

The CIM 2XX Modbus module has two hexadecimal rotary switches for setting the Modbus address. The two switches are used for setting the four most significant bits (SW6) and the four least significant bits (SW7), respectively. See fig. 4.

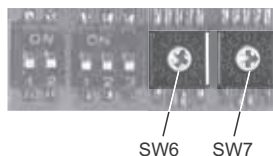


Fig. 4 Setting the Modbus address

The table below shows examples of Modbus address settings.

For a complete overview of Modbus addresses, see the table on page 235.

Note

The Modbus address must be set decimally from 1 to 247.

Modbus address	SW6	SW7
8	0	8
20	1	4
31	1	F
247	F	7

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TM04 1706 0908

3.3 Termination resistor

The termination resistor is fitted on the CIM 2XX Modbus module and has a value of 150 Ω .

The CIM 2XX has a DIP switch with two switches (SW1 and SW2) for cutting the termination resistor in and out. Figure 5 shows the DIP switches in cut-out state.



SW1 SW2

Fig. 5 Cutting the termination resistor in and out

DIP switch settings

Status	SW1	SW2
Cut-in	ON	ON
	OFF	OFF
Cut-out	ON	OFF
	OFF	ON

Cable length

bits/s	Maximum cable length	
	Terminated cable	Unterminated cable
	[m/ft]	[m/ft]
1200-9600	1200/4000	1200/4000
19200	1200/4000	500/1700
38400	1200/4000	250/800

To ensure a stable and reliable communication, it is important that only the termination resistor of the first and last unit in the Modbus network is cut in. See fig. 2.

Note

TM04 1701 0908

3.4 Setting the parity

The parity can be set either manually by using SW3 or via software-defined settings.

Manual setting of parity and stop bit

Default byte format (11 bits):

- 1 start bit
- 8 data bits (least significant bit sent first)
- 1 parity bit (even parity)
- 1 stop bit.

See fig. 6.



SW3

Fig. 6 Parity

DIP switch settings

Parity	SW3
Even parity, 1 stop bit [default]	OFF
No parity, 2 stop bits	ON

Software-defined parity and stop bit

When SW4 and SW5 are set to "software-defined", the value in holding registers at addresses 00009 and 00010 will override the setting of SW3. See figs 6 and 7.

Software-defined parity	Set register value 00009
No parity [default]	0
Even parity	1
Odd parity	2

Software-defined stop bit	Set register value 00010
1 stop bit [default]	1
2 stop bits	2

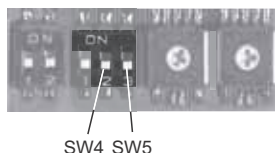
Note

Before the parity and stop bit can be set via software-defined settings, SW4 and SW5 must be set to ON.

TM04 1709 0908

3.5 Setting the Modbus transmission speed

The transmission speed must be set correctly before the CIM 2XX Modbus module is ready to communicate with the Modbus network. See fig. 7.



TM04 1710 0908

Fig. 7 Modbus transmission speed

DIP switch settings

Transmission speed [bits/s]	SW4	SW5
9600	OFF	ON
19200	OFF	OFF
38400	ON	OFF
Software-defined	ON	ON

Software-defined

When SW4 and SW5 are set to "software-defined", writing a value to the holding register at address 00004 will set a new transmission speed.

Use the following values for software-defined transmission speeds:

Software-defined transmission speed	Set register value 00004
1200 bits/s	0
2400 bits/s	1
4800 bits/s	2
9600 bits/s	3
19200 bits/s	4
38400 bits/s	5

Note

When software-defined transmission speed is enabled (ON), software-defined parity and stop bit are also enabled.

4. LEDs

The CIM 2XX Modbus module has two LEDs. See fig. 1.

- Red/green status LED (LED1) for Modbus communication
- Red/green status LED (LED2) for internal communication between the CIM 2XX and the Grundfos product.

LED1

Status	Description
Off.	No Modbus communication.
Flashing green.	Modbus communication active.
Flashing red.	Fault in the Modbus communication.
Permanently red.	Fault in the CIM 2XX Modbus configuration.

LED2

Status	Description
Off.	The CIM 2XX has been switched off.
Flashing red.	No internal communication between the CIM 2XX and the Grundfos product.
Permanently red.	The CIM 2XX does not support the Grundfos product connected.
Permanently green.	Internal communication between the CIM 2XX and the Grundfos product is OK.

Note

During start-up, there may be a delay of up to 5 seconds before the LED2 status is updated.

5. Fault finding

Faults in a CIM 2XX Modbus module can be detected by observing the status of the two communication LEDs. See the table below.

CIM 2XX fitted in a Grundfos product

Fault (LED status)	Possible cause	Remedy
1. Both LEDs (LED1 and LED2) remain off when the power supply is connected.	a) The CIM 2XX is fitted incorrectly in the Grundfos product.	Check that the CIM 2XX is fitted/connected correctly.
	b) The CIM 2XX is defective.	Replace the CIM 2XX.
2. The LED for internal communication (LED2) is flashing red.	a) No internal communication between the CIM 2XX and the Grundfos product.	Check that the CIM 2XX is fitted correctly in the Grundfos product.
3. The LED for internal communication (LED2) is permanently red.	a) The CIM 2XX does not support the Grundfos product connected.	Contact the nearest Grundfos company.
4. The Modbus LED (LED1) is permanently red.	a) Fault in the CIM 2XX Modbus configuration.	• Check the transmission speed (switches SW4 and SW5). If the switches are set to "software-defined", an invalid value may have been set via Modbus. Try one of the preselected transmission speeds, e.g. 19200 bits/s. • Check that the Modbus address (switches SW6 and SW7) has a valid value [1-247].
5. The Modbus LED (LED1) is flashing red.	a) Fault in the Modbus communication (fault in parity or cyclic redundancy check).	• Check the transmission speed (switches SW4 and SW5). See section 3.5. • Check the parity setting (switch SW3). See section 3.4. • Check the cable connection between the CIM 2XX and the Modbus network. • Check the termination resistor settings (switches SW1 and SW2). See section 3.3.

CIM 2XX fitted in the CIU 2XX

Fault (LED status)	Possible cause	Remedy
1. Both LEDs (LED1 and LED2) remain off when the power supply is connected.	a) The CIU 2XX is defective.	Replace the CIU 2XX.
2. The LED for internal communication (LED2) is flashing red.	a) No internal communication between the CIU 2XX and the Grundfos product.	• Check the cable connection between the Grundfos product and the CIU 2XX. • Check that the individual conductors have been fitted correctly. • Check the power supply to the Grundfos product.
3. The LED for internal communication (LED2) is permanently red.	a) The CIU 2XX does not support the Grundfos product connected.	Contact the nearest Grundfos company.
4. The Modbus LED (LED1) is permanently red.	a) Fault in the CIM 2XX Modbus configuration.	• Check the transmission speed (switches SW4 and SW5). If the switches are set to "software-defined", an invalid value may have been set via Modbus. Try one of the preselected transmission speeds, e.g. 19200 bits/s. • Check that the Modbus address (switches SW6 and SW7) has a valid value [1-247].
5. The Modbus LED (LED1) is flashing red.	a) Fault in the Modbus communication (fault in parity or cyclic redundancy check).	• Check the transmission speed (switches SW4 and SW5). See section 3.5. • Check the parity setting (switch SW3). See section 3.4. • Check the cable connection between the CIM 2XX and the Modbus network. • Check the termination resistor settings (switches SW1 and SW2). See section 3.3.

6. Technical data

Transceiver	RS-485
Cable	Screened, twisted-pair Min. 0.25 mm ² Min. 23 AWG
Maximum cable length	1200 m 4000 ft
Transmission speed	1200-38400 bits/s
Maximum number of Modbus units per segment	32
Protocol	Modbus RTU
Supply voltage	5 VDC $\pm$ 5 %, I _{max.} 200 mA
Storage temperature	-25 °C to +70 °C -13 °F to +158 °F

7. Service

7.1 Service documentation

Service documentation is available on www.grundfos.com > International website > WebCAPS > Service.

If you have any questions, please contact the nearest Grundfos company or service workshop.

8. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

Modbus addresses

Modbus Address	SW 6	SW 7	Modbus Address	SW 6	SW 7	Modbus Address	SW 6	SW 7	Modbus Address	SW 6	SW 7	Modbus Address	SW 6	SW 7
1	0	1	51	3	3	101	6	5	151	9	7	201	C	9
2	0	2	52	3	4	102	6	6	152	9	8	202	C	A
3	0	3	53	3	5	103	6	7	153	9	9	203	C	B
4	0	4	54	3	6	104	6	8	154	9	A	204	C	C
5	0	5	55	3	7	105	6	9	155	9	B	205	C	D
6	0	6	56	3	8	106	6	A	156	9	C	206	C	E
7	0	7	57	3	9	107	6	B	157	9	D	207	C	F
8	0	8	58	3	A	108	6	C	158	9	E	208	D	0
9	0	9	59	3	B	109	6	D	159	9	F	209	D	1
10	0	A	60	3	C	110	6	E	160	A	0	210	D	2
11	0	B	61	3	D	111	6	F	161	A	1	211	D	3
12	0	C	62	3	E	112	7	0	162	A	2	212	D	4
13	0	D	63	3	F	113	7	1	163	A	3	213	D	5
14	0	E	64	4	0	114	7	2	164	A	4	214	D	6
15	0	F	65	4	1	115	7	3	165	A	5	215	D	7
16	1	0	66	4	2	116	7	4	166	A	6	216	D	8
17	1	1	67	4	3	117	7	5	167	A	7	217	D	9
18	1	2	68	4	4	118	7	6	168	A	8	218	D	A
19	1	3	69	4	5	119	7	7	169	A	9	219	D	B
20	1	4	70	4	6	120	7	8	170	A	A	220	D	C
21	1	5	71	4	7	121	7	9	171	A	B	221	D	D
22	1	6	72	4	8	122	7	A	172	A	C	222	D	E
23	1	7	73	4	9	123	7	B	173	A	D	223	D	F
24	1	8	74	4	A	124	7	C	174	A	E	224	E	0
25	1	9	75	4	B	125	7	D	175	B	F	225	E	1
26	1	A	76	4	C	126	7	E	176	B	0	226	E	2
27	1	B	77	4	D	127	7	F	177	B	1	227	E	3
28	1	C	78	4	E	128	8	0	178	B	2	228	E	4
29	1	D	79	4	F	129	8	1	179	B	3	229	E	5
30	1	E	80	5	0	130	8	2	180	B	4	230	E	6
31	1	F	81	5	1	131	8	3	181	B	5	231	E	7
32	2	0	82	5	2	132	8	4	182	B	6	232	E	8
33	2	1	83	5	3	133	8	5	183	B	7	233	E	9
34	2	2	84	5	4	134	8	6	184	B	8	234	E	A
35	2	3	85	5	5	135	8	7	185	B	9	235	E	B
36	2	4	86	5	6	136	8	8	186	B	A	236	E	C
37	2	5	87	5	7	137	8	9	187	B	B	237	E	D
38	2	6	88	5	8	138	8	A	188	B	C	238	E	E
39	2	7	89	5	9	139	8	B	189	B	D	239	E	F
40	2	8	90	5	A	140	8	C	190	B	E	240	F	0
41	2	9	91	5	B	141	8	D	191	B	F	241	F	1
42	2	A	92	5	C	142	8	E	192	C	0	242	F	2
43	2	B	93	5	D	143	8	F	193	C	1	243	F	3
44	2	C	94	5	E	144	9	0	194	C	2	244	F	4
45	2	D	95	5	F	145	9	1	195	C	3	245	F	5
46	2	E	96	6	0	146	9	2	196	C	4	246	F	6
47	2	F	97	6	1	147	9	3	197	C	5	247	F	7
48	3	0	98	6	2	148	9	4	198	C	6			
49	3	1	99	6	3	149	9	5	199	C	7			
50	3	2	100	6	4	150	9	6	200	C	8			

It is very important to ensure that two devices do not have the same address on the network. If two devices have the same address, the result will be an abnormal behaviour of the whole serial bus.

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