MC201

Serial Converter Introduction

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【Introduction】

MC201 is a CAN bus to fiber converter. It designs specially to deal with the short transmission distance of CAN bus, the subjection to electromagnetic interference and other issues. CAN bus transfer to fiber is able to provide the user with transparent data transmission of CAN bus to fiber. It is working in pairs, is more convenient to put the CAN signal revert to the CAN signal through fiber transmission.

MC201 serial converter integrates an optical interface and a 2KVAC electrically isolated CAN bus interface, is able to receive/store/
transmit different rates between 2 CAN network data. CAN bus interface of MC201 supports various of standard communication baud rate recommended by CiA, is capable for detecting and matching automatical baud rate and defining baud rate by user, the baud rate ranges from 2.5Kbps to 1Mbps; it can connect external termination resistors at the same time.Its single-model fiber interface can be used in high-interference environment and has concentrated energy , which is more suitable for long-distance transmission , is better to extend the network communication distance.

MC201 adopts EMC protection design, supports wall and panel mounting. It can be used at the harsh environment from -40℃ to
85℃.

【Packing List】

The first time use this product, please check the packaging is intact or not and the attachment is complete or not at first.

◎ 3onedata MC201 Serial Converter (with terminals)x1

◎ User manual x1

◎ Warranty card x1

◎ Certificate x1

◎ Accessories of wall-mounted or panel-mounted installation

If you find that the device is damaged or any parts of it is missing during transportation, please notify the Company or the Company's distributor, we will give you proper solution as soon as possible.

【Features】

◇ Support CAN2.0A and CAN2.0B protocol, conform to the ISO/DIS 11898

◇ Integrate1 UTD CAN interface and 1 optical interface

◇ CAN interface supports auto-detect baud rate and user-defined baud rate, the baud rate matches the range of 2.5k~1Mbps

◇ Support optic fiber transmit CAN network data

◇ Extend transmission distance to 15 KM

◇ CAN interface has electrical isolation protection with 2KVAC isolation voltage; Supports 8KV ESD protection(air discharge)

◇ Port Data Throughput: 1000fps

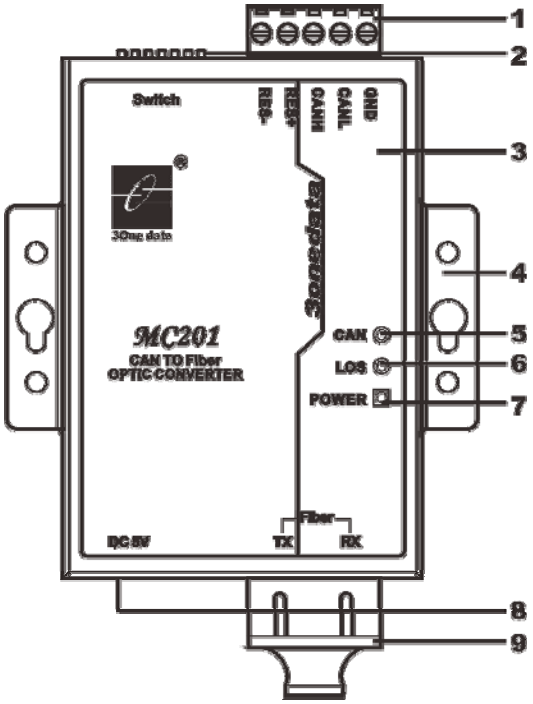
◇ Optional installation of external termination resistors

◇ Industrial design, IP40 protection

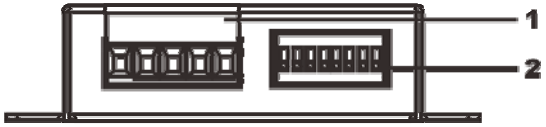
◇ Support DIN-Rail and wall mounting installation

◇ Working Temperature: -40~85℃

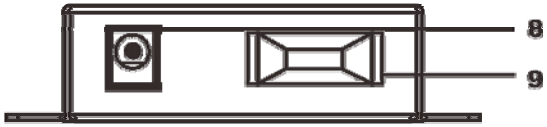
【Panel Layout】



Main view



Top view



Bottom view

1、CAN interface（5PIN terminals）

2、DIP switch

3、Company name, product line identification

4、hangers

5、CAN channel status indicator

6、Network error status indicator

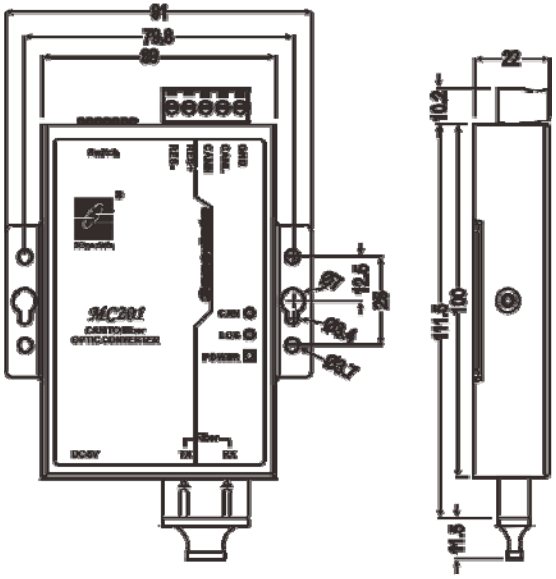
7、Power indicator

8、DC-5V Power interface

9、Fiber interface

【Dimensions】

Unit（mm）



【Power Input】

The lower panel of MC201 Serial Converter provides access port of DC power, wherein the power input is 5VDC. Recommend to use the power adapter of DC head specification with 2.5mm inner diameter and 5.5mm outer diameter.

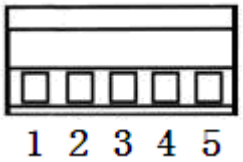
【DIP Switch】

The upper panel of MC201 provides 8 settings of DIP switch for baud rate matching, I/O1 to ON means the user's baud rate setting is valid, otherwise is automatically matched baud rate. 2~6 are status valid values of manually setting baud rate(see table below), 7, 8 as reservation.

If the set value is not within the scope of the following table, the baud rate will be set as default 1Mbps. The user changes DIP switch status are required to re-power.

IO2~IO6 Status RMS（DIP switch up represent 0, down indicates 1 ）	Identifiable baud rate (unit：bps)
111 11	1M
011 11	500K
101 11	250K
110 11	125K
111 01	100K
111 10	50K
001 11	25K
100 11	20K
110 01	10K
111 00	5K
000 11	2K5

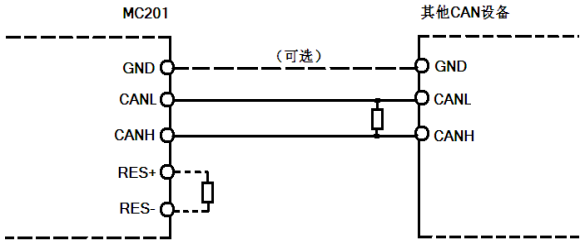
【Communication Interface】



CAN terminals

CAN Interface:

Pin NO.	Pin Name	Pin meaning
1	GND	Protective Ground
2	CANL	CANL Signal Line
3	CANH	CANH Signal Line
4	RES+	External Terminal Resistor
5	RES-	External Terminal Resistor



MC201 connects with the CAN network via twisted pair.

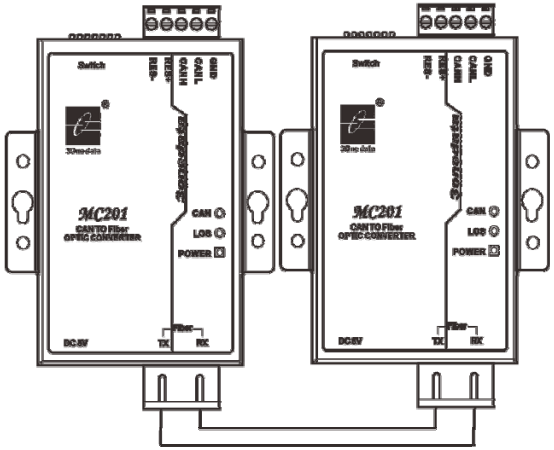
While MC201 device connects with the CAN network via twisted pair, CANL connects with CANL, CANH connects with CANH. According to the ISO11898 standard, to reduce signal reflections on the CAN bus and enhance the reliability of communication, terminal matching resistor is usually added to 2 endpoints of the bus. The size of terminal matching resistor is decided by the characteristic impedance of cable transmission, such as twisted pair's characteristic impedance is 120ohm, the 2 endpoints on the bus should be connected 120ohm terminating resistor. MC201 can set external terminating resistor, when the device is connected with the CAN network via a twisted pair, only use resistor to short circuit between the twisted pair ports RES+ and RES- to achieve terminal resistor accession, as shown above.

Fiber Interface:

Users can select single fiber or dual fiber to transmit optical signal; when choose single fiber, the optical signal only needs 1 interface through single fiber transmission, the interface is TX/RX; when choose dual fiber, the transceiver interfaces of optical signals are separate to TX and RX.

Name		Function
Single Fiber Interface	TX/RX	Optical signal receive and send
Dual Fiber Interface	TX	Optical signal send
	RX	Optical signal receive

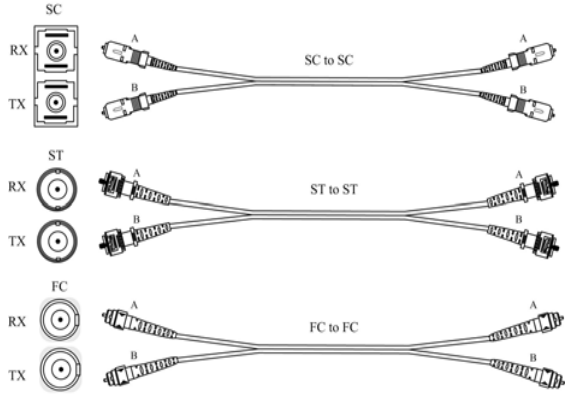
Since fiber is the point to point connection, MC201's dual fiber interface has 2 connectors of TX and RX connect with fiber, the TX of fiber interface can only connect with the other fiber interface's RX through fiber, the specific connection method is illustrated as below:



MC201 Fiber Interface connection diagram

A MC201 can connect with another MC201 or other device which has fiber interface via fiber, but it must ensure that the fiber interface of the device is compatible with the SC fiber interface of MC201.

Suggestion: Mark labels at the end of the used fibers(as shown below: A-A, B-B, also can mark A1-A2, B1-B2), for convenient.



【LED Indicator】

The LED indicator's monitoring working state of MC201 Serial Converter can fully simplify resolution of fault. Detailed states of each indicator are shown in the following table:

System Indication LED

LED	State	Description
POWER	on	Power is being supplied/working well
	off	Power is not being supplied/ not working well
LOS	on	data transmission speed of The corresponding port is too fast/the connection of fiber interface is un-normal
	off	Data transmission speed of the corresponding port is normal/he connection of fiber interface is normal
CAN	on	Idle state after power
	blinking	CAN port connects well and is receiving/ sending data
	off	Device malfunction or is not connected

【Installation】

To confirm the device's working environment before installation: the supply voltage, the installation space, the installation method, etc. Please confirm the following installation requirements carefully:

◎ Check installation needed cables and connectors

◎ Based on reasonable configuration requirements, check the cable is in place(less than 100m)

◎Product does not provide installation components, users need to prepare them according to the selected type: screws, nuts and tools to ensure reliable installation.

◎ Power: 5VDC

◎ Environment: Working Temperature: -40~85℃
Humidity: 5%~95%

◎ Installation Type: Wall-mount and Panel-mount

Cable Laying:

Cable laying should meet the following conditions:

◎ Check all cable specifications, models and quantity meet the demand or not before cable laying.

◎ Check the cable is damaged or not , whether has factory leaving record and quality assurance or other quality certificate.

◎ Required laying cables' specifications, quantity, direction, laying position are adhere to construction requirements, laying length should be based on the actual location.

◎ The laying cable do not have broken line or connector in the middle

◎ Cables should be straight int the aisle neatly inside, turning uniform, smooth and flat.

◎ Cable in the channel should be straight, not beyond the channel in order to avoid shelter other inlet and outlet holes, cable out of the groove part or cable bend part should be bundled and fixed.

◎ User cables and power cord lay separately. Cable, power cord, ground lay in the same channel can not be folded or blended. If the cable is too long, it must be placed in the middle of the cable frame regularly rather than pressed on other cables.

◎ The end of the cable should be labeled appropriately, and the identify content must be clear and concise to have convenient maintenance,.

【Specifications】

Fiber Interface

Interface Type: single optical port or dual optical port, SC/ST/FC optional

Fiber Type: single-model/multi-model

Wavelength: 1310nm

CAN Interface

Standard: CAN2.0A, CAN2.0B

CAN Signal: GND, CANL, CANH

Baud Rate: 2.5K ~ 1000K bps

Interface Resistor: 120ohm external Terminator optional

Port Node: load capacity supports 110 nodes

Interface Protection:2KVAC isolation protection, 8KV ESD protection (air discharge)

Interface Type: 5PIN terminals

Transmit Distance

CAN Interface: 40m~10Km

Single-model Fiber: 0~15Km

Indicator

CAN:CAN channel status indicator

LOS: Network error status indicator

Power: Power indicator

Power

Input Voltage: 5VDC

No-load Power: 1.385W@5VDC

Full Power:1.310W@5VDC

Mechanical Structure

Shell； IP40 protection grade, high-strength metal casing

Installation: Wall-mount and Panel-mount

Weight: 237g

Size(H*W*L): 22mm×69mm×10mm

Working Environment

Working Temperature: -40~85℃

Storage Temperature: -40~85℃

Industry Standard

EMI: FCC Part 15, CISPR(EN55022) class A

EMS: EN61000-4-2(ESD), Lece3

Shock: IEC60068-2-27

Free Fall: IEC60068-2-32

Shake: IEC60068-2-6

Warranty Period: 5 years

Approvals： CE, FCC, RoHS, UL508

Please click http://www.3onedata.com to check the latest product certification.

Enclosure: typical application

Applied in the field where need fiber transmission, extension of transmit distance, environment requirement or optoelectronic isolation. The longest transmit distance of fiber has up to 15km, the following is the typical application :