

Minebea

***Power Conversion box
for flange type torque transducer
DBX-001***

Instruction Manual

Foreword

Thank you very much for your purchasing Minebea's power conversion box for flange type torque transducer model DBX-001.

This manual for DBX-001 explains the procedures and checkpoints in operation. We would like you to read through this instruction manual with much care for the best use of our product to avoid malfunctions.

Marks and references described in this manual.

In this instruction manual, the following marks are used to understand the matters that indicate "Don't do this", "Caution", and "For reference".

Please be sure to read following descriptions for safety.



Warning

This sign forewarns the presence of hazards that could result in serious injury or fatality when incorrectly handled.
Be sure to read to prevent from malfunction.



Caution

This sign forewarns the presence of hazard that the user may result in serious injury.



This sign describes an attention and a limitation, etc.,
Please read to master the performance of this unit enough to prevent the malfunction.

- The contents of this manual may subject to change without notice.

For safe operation

Be sure to read this manual before use.

(1) Location of installation



Warning

Use the Instrument under the following conditions.

- Environmental temperature : -10 °C ~ 50 °C
- Environmental humidity : 85 %RH or less. (Non-condensing)

(2) Environments not to set up.



Caution

Do not install the Instrument in following places. It may cause damage to the Instrument.

- Places exposed to direct sunlight and/or places in the high temperature.
- Places in a highly humid area.
- Places where the instrument is directly affected by vibrations or mechanical shocks.
- Environments with full of dust or coarse particulates.
- Environments containing of corrosive gas or salt.
- Environments with raid change in temperature and/or humidity.
- Near the devices which generate magnetism or electromagnetic waves.
- Environments vulnerable to radioactivity or radioactivity rays.
- Environments where chemical reaction may take place such as a laboratory.

(3) Note for mounting



This is the notes in mounting. Be sure to read the followings before mounting.

- Please fix firmly so that the screw should not loosen when this unit is mounted.
- Please secure and set up an enough space between the device generating heat and this unit.

(4) Power supply



Warning

Be sure to check that power supply is OFF when installing each cable.

If an operator works with power ON, operator may have an electric shock or the instrument may be destroyed.

(5) Note for usage

 **Warning**

Before using a new instrument, or when exchanging a strain gage applied transducer for a new one, be sure to make calibration. If neglected, it may cause incorrect results in measurement or malfunction in the instrument and moreover may cause damage to peripheral equipments. When similar trouble occurs after calibration, be sure to make calibration again, even if calibration has completed.

 **Warning**

When using the instrument, check that wires are connected properly. If neglected, correct measurement cannot be obtained and it may cause malfunction in the instrument or cause damage to peripheral devices or a critical accident.

 **Warning**

Improper change of setting during operation may cause incorrect measurement or malfunction, or cause damage to peripheral equipments.

 **Warning**

Do not give the instrument such a shock as throwing something at it. It may cause damage or destroy electrical circuits and even have loose resistance to environment or operability.

Revision history

Date	Reference No.	Revised reason (Contents)
2014/03	DRW. NO.294-1629	Created.
2016/06	DRW. NO.294-1629-A	Due to ECN FN16-02057 - Deletion- Delete 'Minebea Co., LTD. Measuring Components Business Unit' from the front cover.

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1. General

This unit is a power conversion box for the customer who uses our transmitter model CSA-562B and torque transducer model TMHF, TMHFB, TMOFA or TMOFB to use transmitter model OPT-563B for the optical transmission method torque transducer.

This unit is needed when OPT-563B is combined with TMHF, TMHFB, TMOFA or TMOFB because the power feeding system to the torque transducer is different in CSA-562B and OPT-563B.

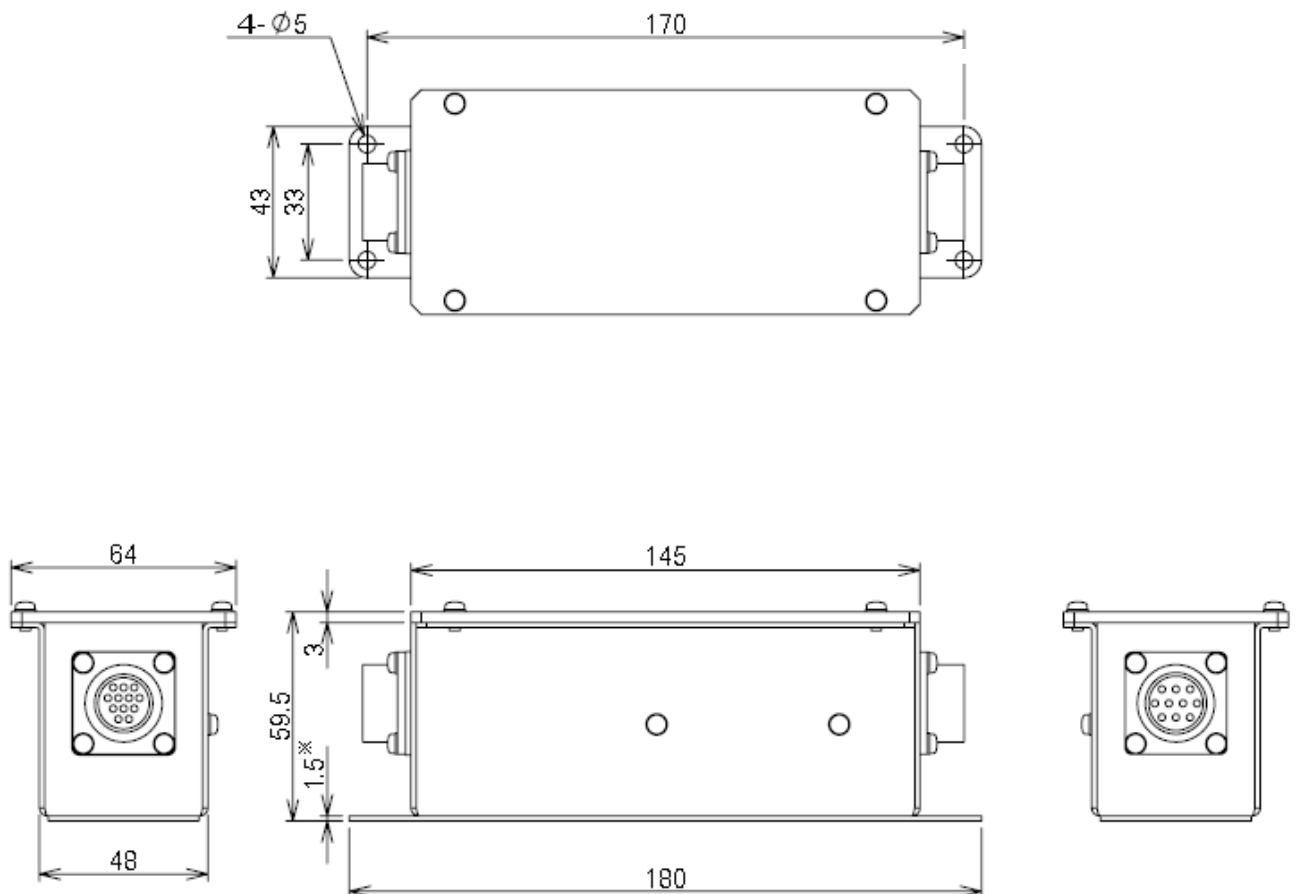
2. Note before using the system

When you change the composition of CSA-562B which is used to the composition of OPT-563B and DBX-001, the recalibration is necessary for OPT-563B and torque transducer. Please return that torque transducer (stator and rotor) to MINEBEA to calibrate with OPT-563B.

3. Mounting method

Please mount this unit in the same control board as OPT-563B.

The size of each part is as follows.

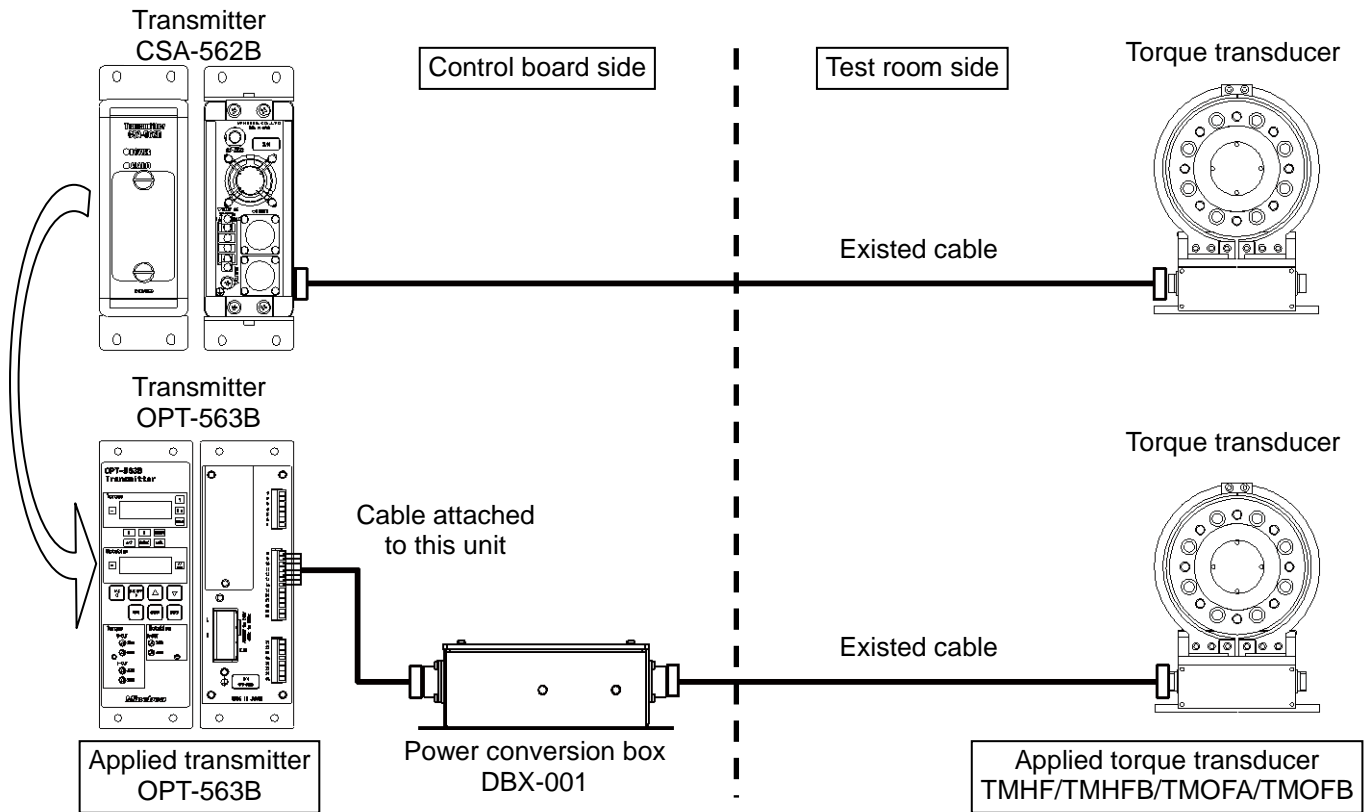


Unit: mm

4. Wiring

4-1. Wiring

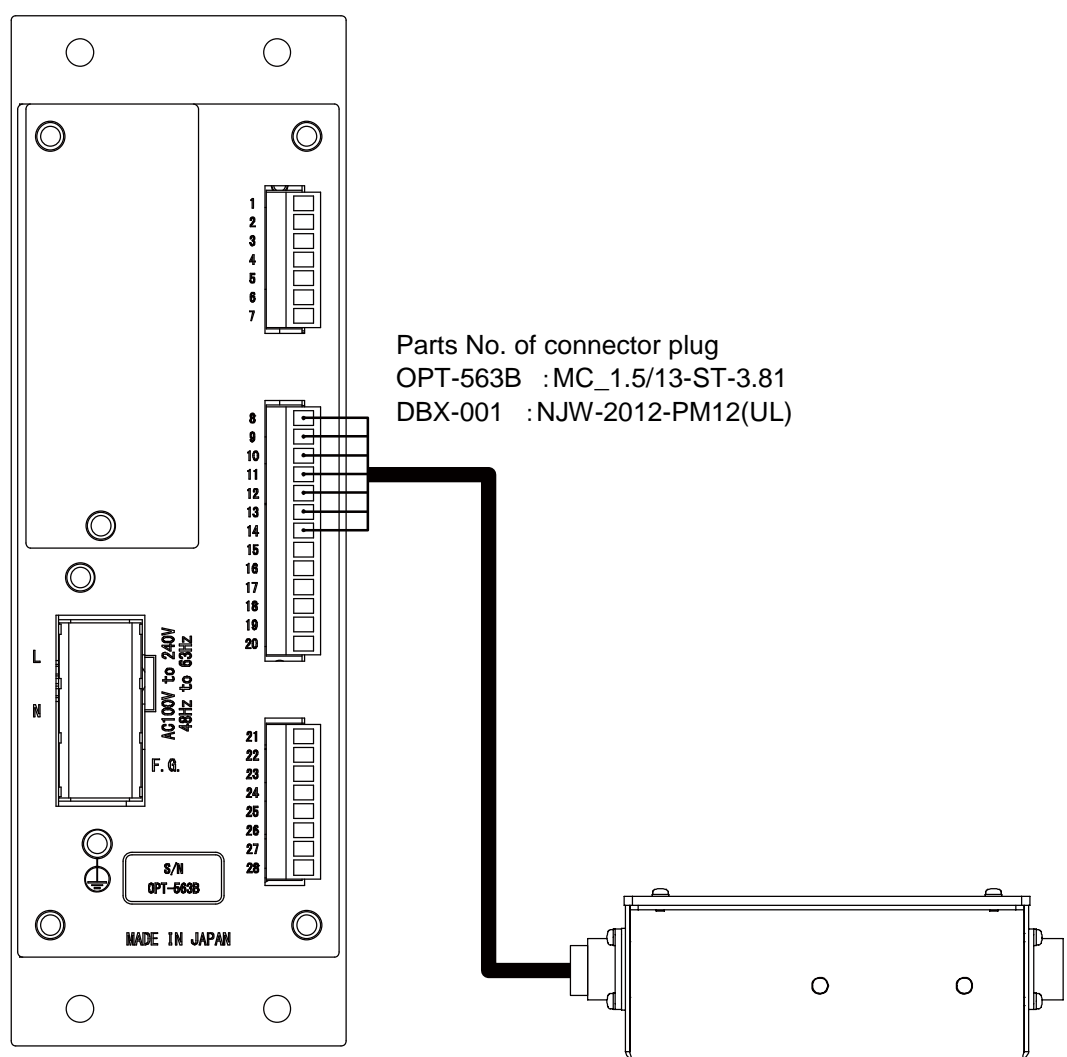
- (1) After detaching the existed CSA-562B, connect OPT-563B and DBX-001 with torque transducer showing below.

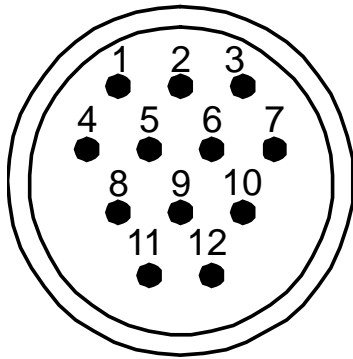


- (2) Please use the cable attached to this unit for connecting this unit with transmitter.
- (3) Please use the existed cable for connecting this unit and torque transducer.

4-2. Cable connection chart of OPT-563B

Pin No.	Cable color	Signal name	Description
8	Red and Red/White	+24V output	Cable for the exclusive use of optical transformer method flange type torque transducer. Do not use it for any other equipment.
9	Green / White	ALARM-IN1 input	Input terminal of ALARM-IN1 signal (Luminous energy decrease signal). LOW is always input from torque transducer.
10	Yellow	ALARM-IN2 input	Input terminal of ALARM-IN2 signal (Luminous energy decrease signal). When the luminous energy decreases, LOW is input from the torque transducer.
11	Yellow / White	ALARM-IN3 input	Input terminal of ALARM-IN3 signal (Luminous energy decrease signal). When the luminous energy decreases at the level by which the performance cannot be maintained, LOW is input from the torque transducer.
12	Brown	Torque differential signal (+)	Input torque differential signal (+).
13	Brown / White	Torque differential signal (-)	Input torque differential signal (-).
14	Black and Green	GND	GND of torque transducer

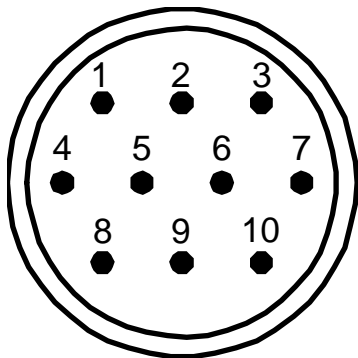




Connector for transmitter side.

Pin No.	Name	Contents
1	Differential signal of torque (+)	Output of torque signal
2	Differential signal of torque (-)	Output of torque signal
3	N.C.	Do not connect.
4	+24V	DC24V input
5	GND	Ground
6	Shield	Shield
7	GND	Ground
8	N.C.	Do not connect
9	Alarm (H)	Luminous energy decrease alarm
10	N.C.	Do not connect.
11	Alarm (M)	Luminous energy decrease alarm
12	Error	Luminous energy decrease alarm

Applicable plug NJW-2012-PM12(UL) (OMRON) or equivalent



Connector for torque transducer side

Pin No.	Name	Contents
1	Differential signal of torque (+)	Input of torque signal
2	Differential signal of torque (-)	Input of torque signal
3	+15V	DC+15V output
4	GND	Ground
5	-15V	DC-15V output
6	GND	Ground
7	ALARM	Luminous energy decrease alarm input
8	GND	Ground
9	AC	Power supply signal for rotor
10	AC	Power supply signal for rotor

Applicable plug SRCN6A16-10P (JAE) or equivalent.

5. Specifications

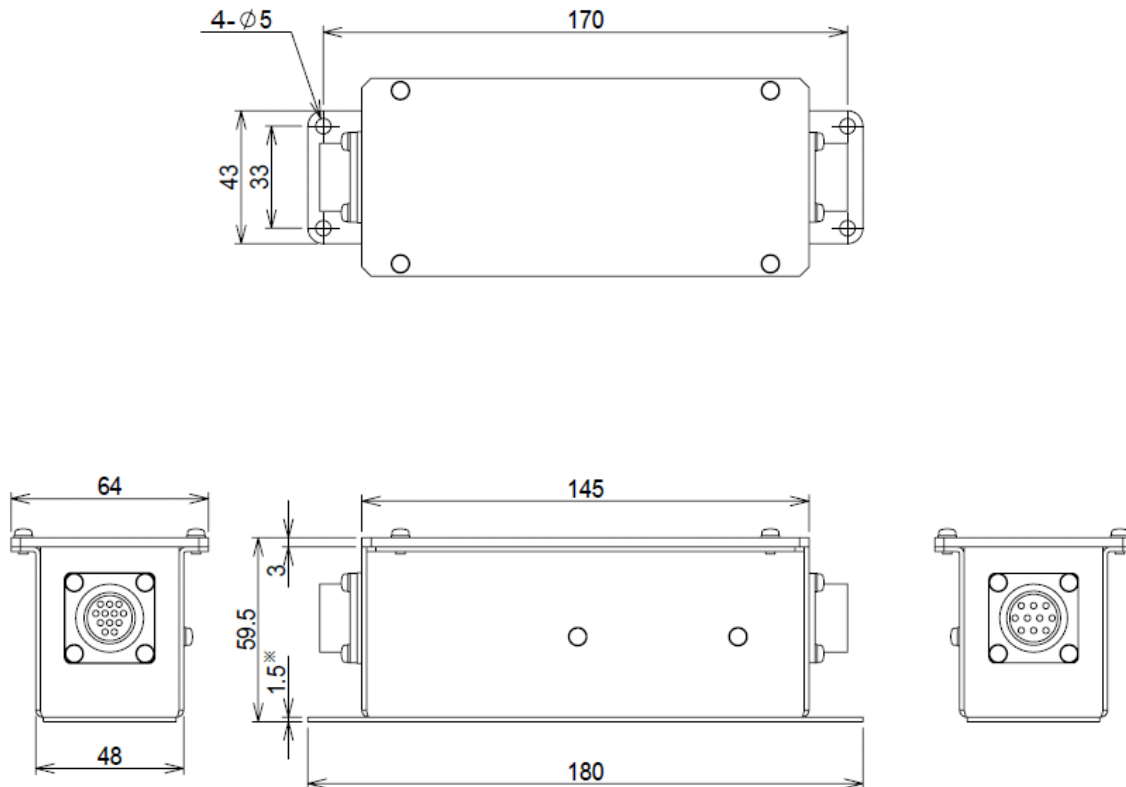
5-1. General specifications

Operating temperature humidity range	Temperature	-10 °C ~ 50°C
	Humidity	85 %RH or less (No condensing)
Storage temperature range		- 20 °C ~ 60 °C
Power supply		DC24V ± 2V 2A
Applicable transmitter		OPT-563B
Applicable torque transducer		TMHF/TMHFB/TMOFA/TMOFB
Outline dimension (W × H × D)		180 mm × 65 mm × 60 mm (without connector and protrusion parts)
Weight		Approx. 900 g

5-2. Accessories

Instruction manual	1 piece
Cable	1 piece, Length: 1 m

5-3. Outline dimensions



6. Warranty

6-1. Warranty

- The instrument is covered by a warranty for a period of one year from the date of delivery.
- As for repairs and/or after service is required during the period of warranty, contact with Minebea's sales office or sales agent from which you have purchased.

6-2. Repair

- Before asking repairs, make checks once again that the connection, setting and adjustment for the instrument have finished properly
- Especially, make checks whether the connections of sensors are disconnected or cut off.
- After that, still there may be found some defects in the instrument, contact with Minebea's sales office or sales agency from which you have purchased.

●The contents of this manual may subject to change without notice.

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