

Specifications

Shaft type Torque Transducer by Optical Transformer method

★ Composition apparatus

- ① Torque Transducer Model: TMRS-□NM
- ② Exclusive signal cable Model: RC041-*M (selectable from 2m, 5m, 10m) 【Option】

★ Spec. of torque transducer

Model(Capacity indicated)	0.5NM	1NM	2NM
Performance			
Rated capacity(R.C.)	±0.5Nm	±1Nm	±2Nm
Safe overload	500 %R.C.		
Accuracy of detected value (include Nonlinearity, Hysteresis, Repeatability)	±0.03 %R.O.		
Input / Output			
Power supply	DC24V±15%		
Consumption current	0.2A or less		
Torque output	±10V Voltage output Load resistance 2kΩ or more		
Frequency response range	6 kHz		
Rotation pulse output	4 pulses/rotation open collector output R.O. : DC30V / 10mA		
Temperature			
Safe temperature range	-20 ℃ to 60 ℃		
Compensated temperature range	-10 ℃ to 50 ℃ (No condensation)		
Temperature effect on zero balance	0.1 %R.O./10 ℃		
Temperature effect on output	0.1 %LOAD/10 ℃		
Characteristics on rotation			
Maximum number of rotation[rpm]	25,000		
Others			
Material	Shaft	Stainless	
	Bearing housing	Stainless	
	Housing	Aluminum alloy	
Fatigue life	10 ⁷ times with rated load		
Body mass	Approximately 240 g		
IP class	IP40		

★ Machine characteristics(Rotor part)

Model(Capacity indicated)	0.5NM	1NM	2NM
Inertia moment [kg·mm ²]	1.46	1.48	1.52
Torsion rigidity [N·m/rad]	236	318	531
Twist angle at R.C.	[10 ⁻³ rad]	2.12	3.14
	[deg.]	0.121	0.180
Torsion peculiar pitch [kHz]	5.01	5.67	6.61
Accuracy safe bending load [N]	50	60	70
Accuracy safe thrust load [N]	5	10	20

- Accuracy safety bending/thrust load is load value(actual measurement) which generate output error 0.05%R.O.
- Accuracy safe bending load is the result of fixing the casing and applying a load on the rotating shaft 33mm from the end of the casing.
- All are the guarantee value over static load.

★ Compatible standard

The TMRS conforms to the following standards.
 EN61326-2-3:2021
 EN50581:2012

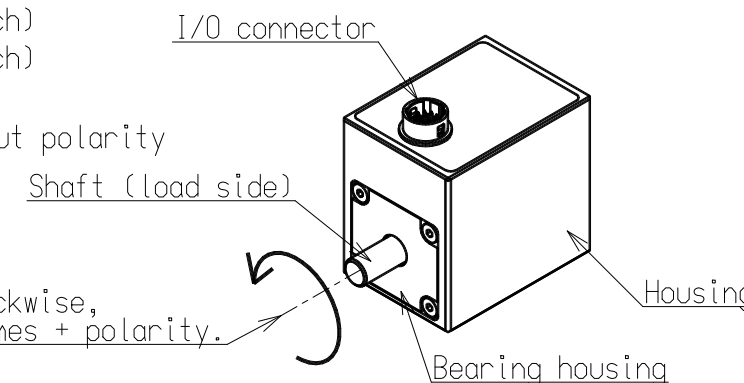
★ Accessories

- 1) Certificate
- 2) Instruction manual

★ Compatible coupling

XGT-19C (Nabeya Bi-tech)
 XGT-25C (Nabeya Bi-tech)

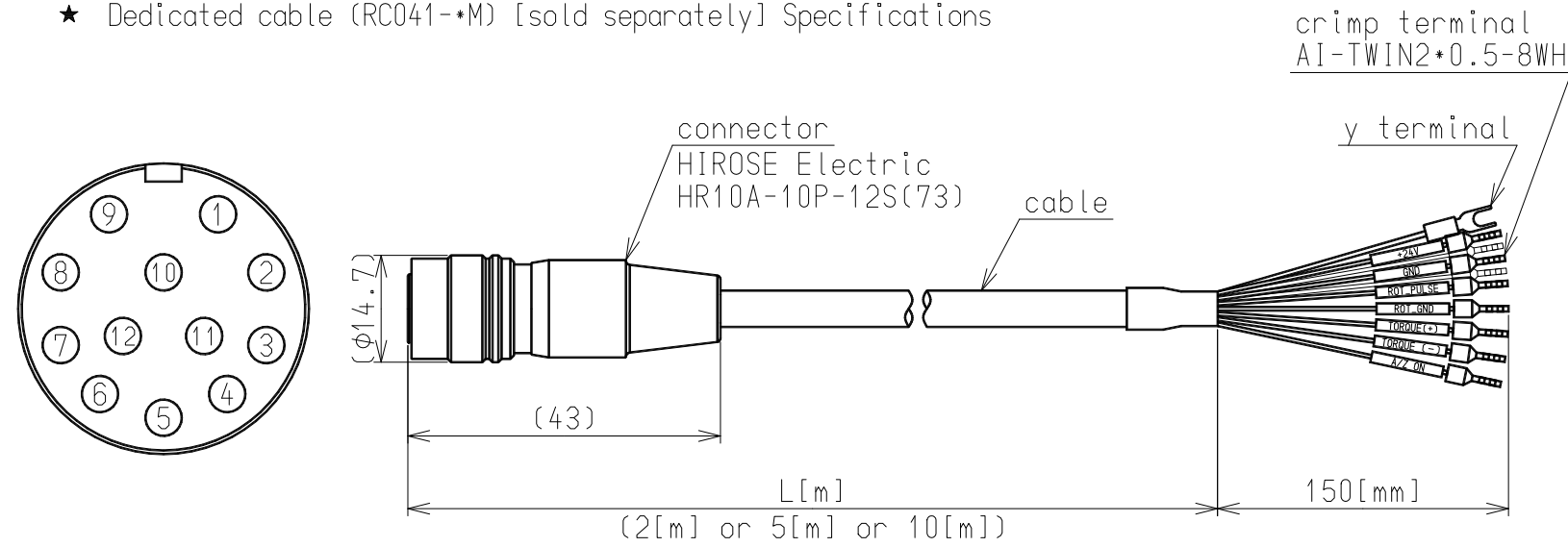
★ Part names · Torque output polarity



By twisting counterclockwise, the torque output becomes + polarity.

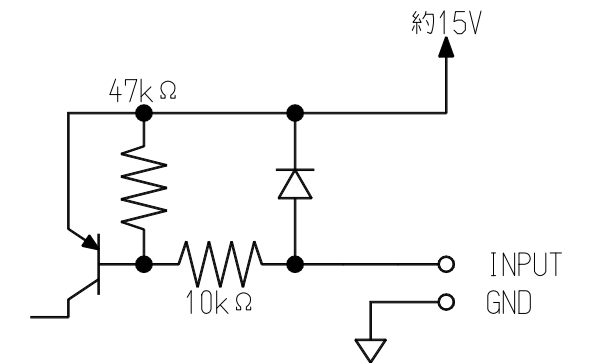
					ミネベアミツミ株式会社 MinebeaMitsumi Inc.		単位 UNIT mm 尺度 SCALE FREE	材質 MATERIAL	作成日 DATE 2024.03.25	
					センシングデバイス事業部 Sensing Device Business Unit			表面粗さ SURF.ROUGH.	品名 DESCRIPTION	
							DIMENSION L TOL	-	OUTLINE	
								熱処理 HEAT TREAT.		
-	2024.03.29	New		S.UCHIBORI	F.IDE	APPROVED	公差 TOL	-	TMRS	1 / 3
符号 MARK	日付 DATE	変更事項 REASON	ECN NO.	担当 ENGINEER	承認 APPROVED	F.IDE	<L ≤ 6	表面処理 FINISH	図番 DRAWING NO.	改訂 REV.
						S.UCHIBORI	6 < L ≤ 30	-	KT56058-2	-
						S.島本	30 < L ≤ 120			
							120 < L ≤ 400			
							400 < L ≤ 1000			
							角度 DEG			
							±0.1			
							±0.2			
							±0.3			
							±0.5			
							±0.8			
							±0.5			

★ Dedicated cable (RC041-*M) [sold separately] Specifications

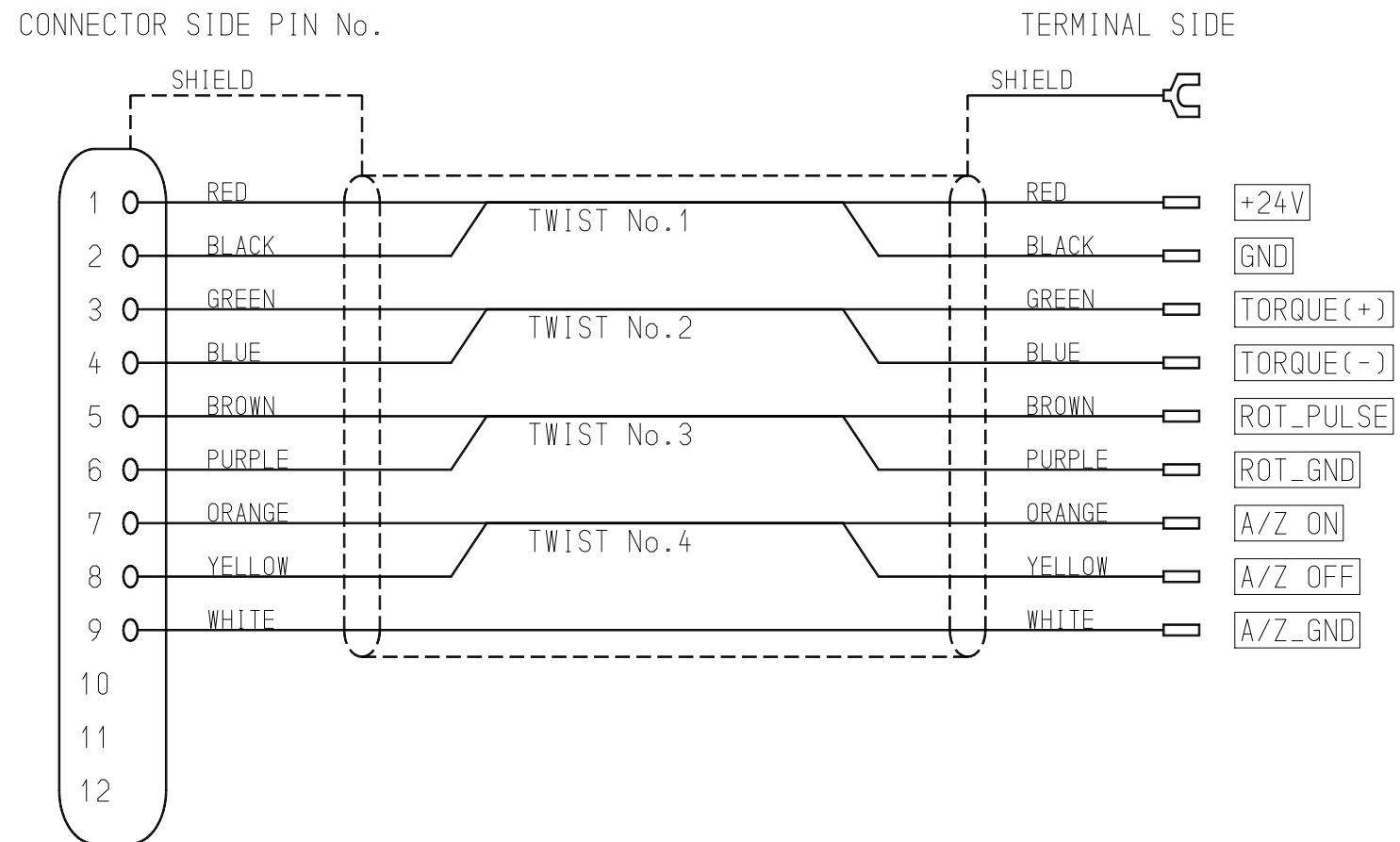


★ External control input signal

A/Z ON : With pulse signal input, turn A/Z ON
 A/Z OFF : With pulse signal input, turn A/Z OFF



★ Dedicated cable (RC041-*M) [sold separately] Pin arrangement/wiring diagram

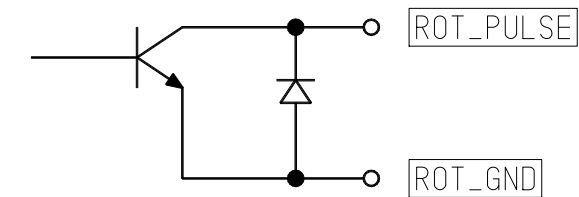


★ Rotation pulse output signal

It detects the magnetic force of the magnets (4 equally spaced) placed on the shaft and outputs 4 rotation pulse signals per rotation.

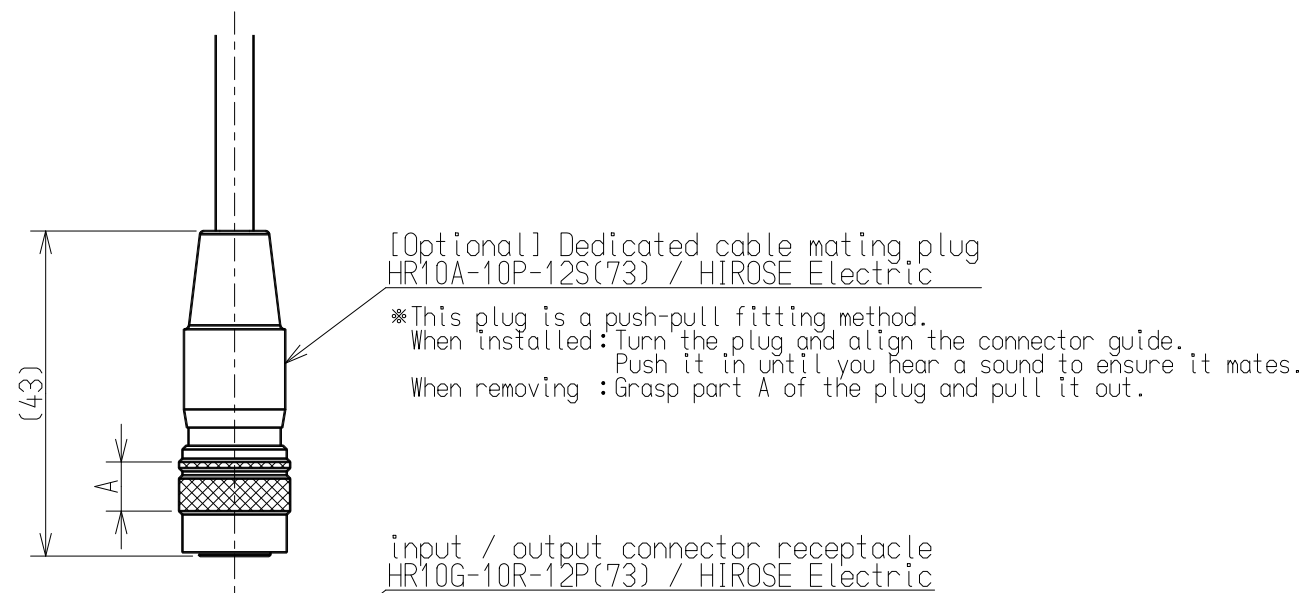
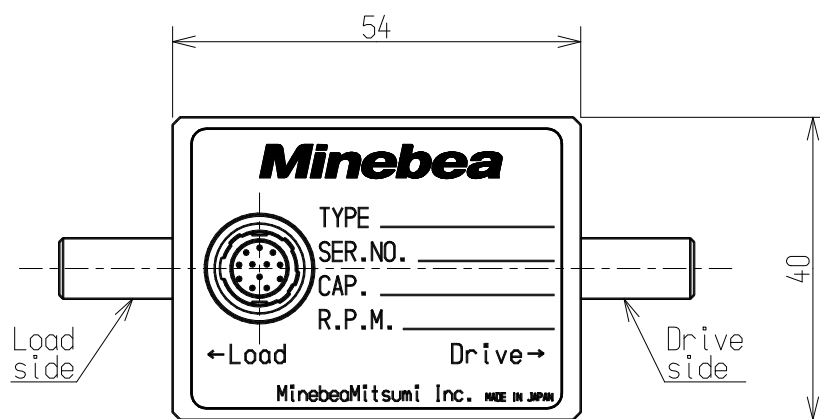
When magnet is not detected : Open collector ON
 When detecting magnet : Open collector OFF

Open collector rating $V_{ce}=DC30V_{max}$, $I_c=DC10mA_{max}$
 ※The internal circuit is insulated by a photocoupler

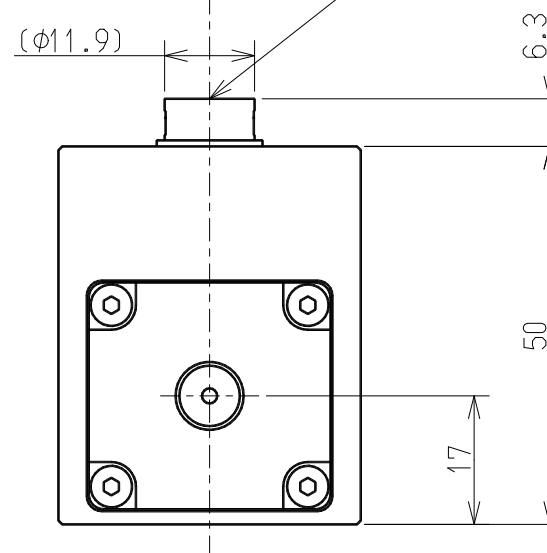
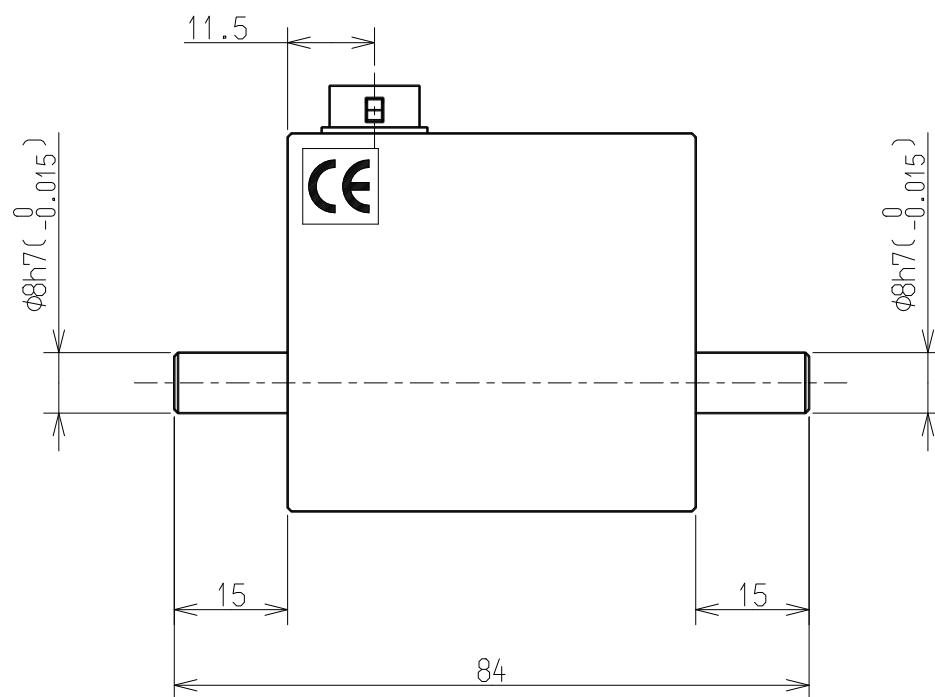


ミネベアミツミ株式会社 MinebeaMitsumi Inc. センシングデバイス事業部 Sensing Device Business Unit	作成日 DATE	2024.03.25
	品名 DESCRIPTION	OUTLINE
	型式 MODEL NAME	TMRS
	図番 DRAWING NO.	KT56058-2
	葉番 SHEET	2 / 3
	改訂 REV.	-

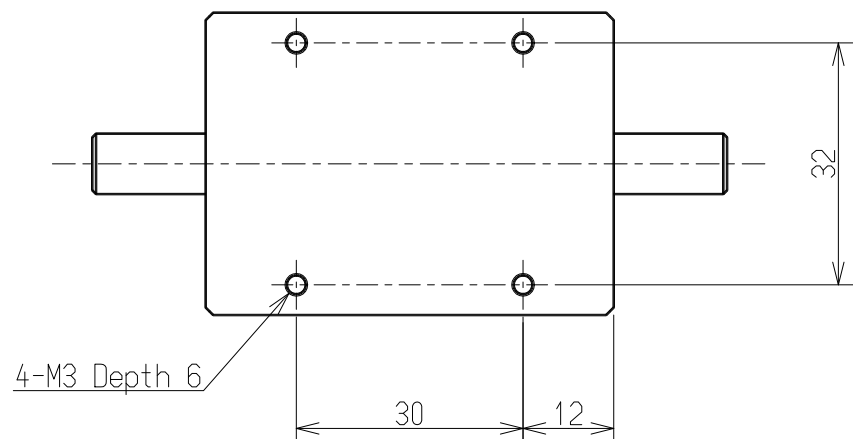
A



B



C



D

ミネベアミツミ株式会社 MinebeaMitsumi Inc. センシングデバイス事業部 Sensing Device Business Unit	作成日 DATE	2024.03.25
	品名 DESCRIPTION	OUTLINE
	型式 MODEL NAME	TMRS
図番 DRAWING NO.	KT56058-2	葉番 SHEET 3 / 3
		改訂 REV. -