High Precision Proximity Sensor (Multifunction type) MS-550

●The multi-functional by 8-way switch
A variety of applications can be solved by MS-550.

●High accuracy, high stability
Extremely low temperature drift

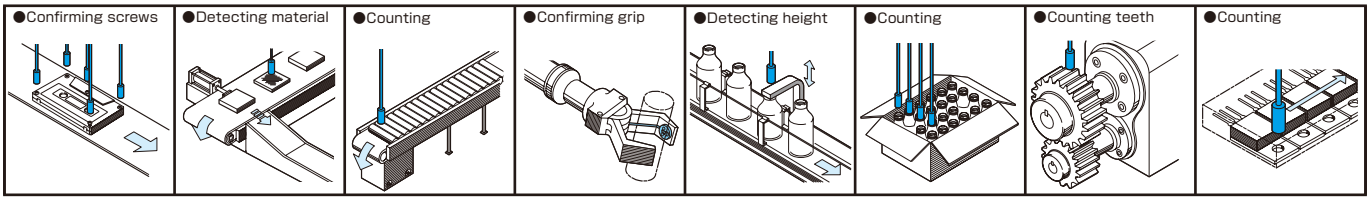
●Free power
AC100 / 200V is switched internally automatically.

●Controller adoption of DIN standard
One-touch mounting on a DIN rail.

●Long detection range
Special coil can detect the target in the distance stably.

●Potentiometer dial (MS-550-DP/AP)
10 rotation sensitivity

APPLICATIONS



CONTROLLER SPECIFICATIONS

SPEC \ TYPE		MS-550-DT	MS-550-DP	MS-550-AT	MS-550-AP
POWER SUPPLY		DC10～30V, ripple 10% or less		AC80～240V 50/60Hz	
CONSUMPTION		60mA		2VA	
CONTROL OUTPUT	RELAY OUT	———		AC250V 2A(resistive),1C	
	NON-CONTACT	NPN open-collector out 60V 150mA max. or Voltage out 0.5V/8V, selectable by switch			
RESPONSE TIME	RELAY OUT	———		10msec	
	NON-CONTACT	1msec			
FUNCTIONS	SENSITIVITY ADJ.	22 turn trimmer	10 turn dial pot. ※1	22 turn trimmer	10 turn dial pot. ※1
	HEAD SELECTOR	Mode selectable by 3 DIP switch(1-6)			
	INTERFERENCE	Protected by selectable excitation frequency(A-B)			
	SYNCHRO SWITCH	Direct action / Reverse action, selectable(SY-SY)			
	OFF DELAY	0/100msec, selectable(non-contact out only)(0-100)			
	OUTPUT	NO-NC, selectable(NO-NC)			
INDICATION		Red LED for output			
AMBIENT TEMPERATURE		−10～60° C			
AMBIENT HUMIDITY		35～85%RH, non-condensing			

※1 Dial pot can be locked.

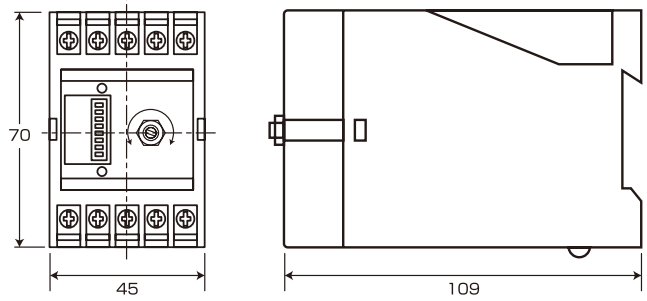
SENSOR HEAD SPECIFICATIONS

TYPE \ ITEM		TYPE	OUTSIDE DIA.(mm)	STABLE DISTANCE(mm)	DISTANCE MAX.(mm)※2	HYSTERESIS (mm)※3	REPEATABILITY ※4	STABILITY ※5	WORKING TEMPERATURE
CYLINDEICAL (SEALED)	HA-20※6		φ2.8	0~0.8	2	0.03	0.002	0.3	−10℃~ 60℃
	HA-30		φ3.6	0~1	3	0.03	0.001	0.2	
	HA-50		φ5.4	0~1.5	3.5	0.03	0.001	0.05	
	HA-80		φ8.0	0~2.5	6	0.02	0.001	0.05	
SCREWED (SEALED)	HA-101		M10	0~2.5	6	0.02	0.001	0.05	
	HA-141		M14	0.2~5	11	0.02	0.002	0.04	
	HA-181		M18	0.2~6	15	0.02	0.002	0.05	
NON-SEALED	HA-162		M16	0.2~7	16	0.02	0.002	0.04	
	HA-182		M18	0.2~10	22	0.03	0.004	0.05	
	HA-222		φ22	0.2~12	30	0.05	0.005	0.06	
	HA-302		φ30	0.8~17	40	0.08	0.01	0.06	
	HA-552		φ55	0.8~25	50	0.1	0.05	0.08	
THIN	HA-225		4.5t	0.5~5	12	0.02	0.002	0.04	

※1 Stable distance: satisfying accurate detection range.
※2 Max distance : longest range that sensor can detect for the ideal target(SS400,φ90,t=5) without accuracy assurance.
※3 Hysteresis : the difference distance between the return operation and detection operation.
※4 Repeatability is the range of actual positions the sensor takes while being repeatedly commanded to the same location under identical conditions.
※5 STABILITY : Movable value of detecting distance in operating temperature.(The above value are at the half of detection distance.)
※6 HA-20 controller cannot use other sensor heads.
**Specification applies to using the standard cable (3m). Extension cable make the distance shorter.

CONTROLLER DIMENSIONS

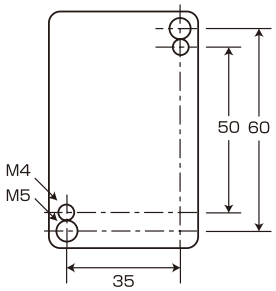
●Controller



*The drawing shows MS-550-□T.

MOUNTING DIMENSIONS

●Mounting Dimensions

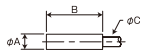


DIN rail mountable
(Conform to DIN46277)

SENSOR-HEAD DIMENSIONS

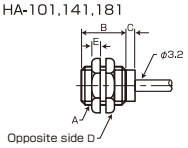
●Sensor-Head

HA-20~80



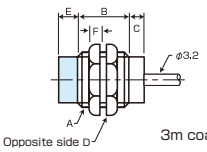
MARK / TYPE	A	B	C
HA-20	2.8	15	1.9
HA-30	3.6	15	2.6
HA-50	5.4	15	3.2
HA-80	8	15	3.2

HA-101,141,181



MARK / TYPE	A	B	C	D	E
HA-101	M10,P=1.0	12	3	14	3
HA-141	M14,P=1.0	15	5	19	3
HA-181	M18,P=1.0	25	5	24	4

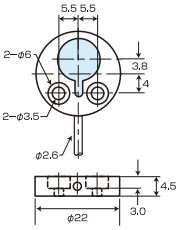
HA-162,182



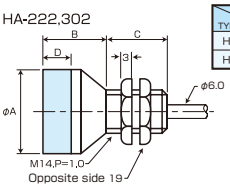
MARK / TYPE	A	B	C	D	E	F
HA-162	M16,P=1.0	14	5	21	6	3
HA-182	M18,P=1.0	17	5	24	8	4

3m coaxial cable (standard cable)

HA-225

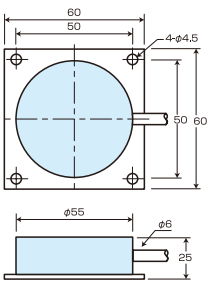


HA-222,302



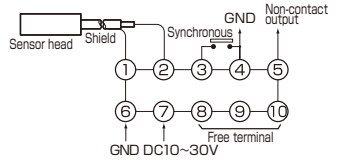
MARK / TYPE	A	B	C	D
HA-222	22	18	14	8
HA-302	30	24	14	10

HA-552

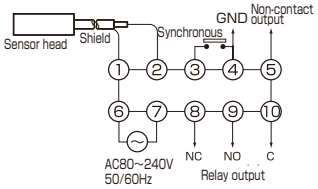


WIRING CONNECTION

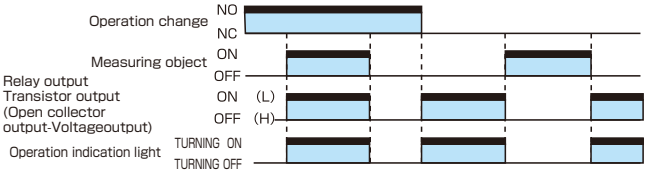
MS-550-D□



MS-550-A□

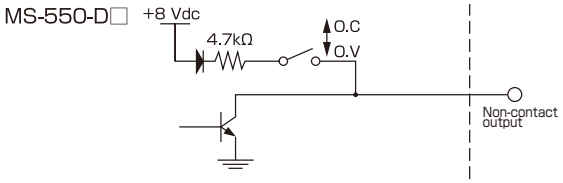


TIME CHART

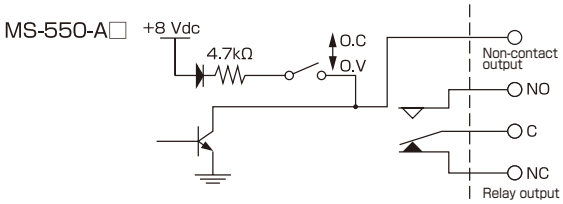


OUTPUT

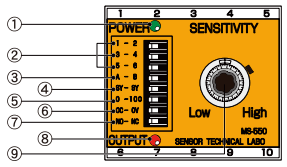
MS-550-D□



MS-550-A□



CONTROLLER FRONT VIEW



①Power indicator Green

②Senser head selector

HA-30	HA-50	HA-80以上
1–2 3–4 5–6	1–2 3–4 5–6	1–2 3–4 5–6

③Interference protection
A : Standard B : Another

④Synchronous mode selector

SY-SY	Reverse action
SY-SY	Direct action

⑤Off delay timing selector (Non-contact out only)

O-100	Offdelay Omsec
O-100	Offdelay 100msec

⑥Non-contact output mode selector

O.C-O.V	NPN open-collector out
O.C-O.V	Voltage output(0.5V/8V)

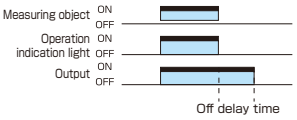
⑦Relay output mode selector

NO-NC	Trip at detection
NO-NC	Trip at non-detection

⑧Output indicator
Red

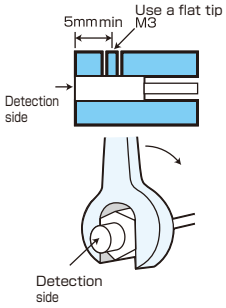
⑨Sensitivty adjusting trimmer:22turns (10turn potentionmeter optinally)

※Off delay: The function which the output is continuously kept even detection object is gone.



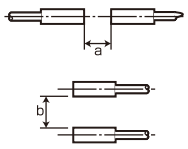
CAUTION IN USE

●SENSOR HEAD MOUNTING



TYPE	MAX. TORQUE
HA-20	0.1Nm or less
HA-30	0.2Nm or less
HA-50	0.5Nm or less
HA-80	0.8Nm or less
HA-101	4Nm or less
HA-141	15Nm or less
HA-162	30Nm or less
HA-182	50Nm or less
HA-222	15Nm or less
HA-225	1Nm or less
HA-302	15Nm or less
HA-552	1Nm or less

●MUTUAL INTERFERENCE



Please refer to the right table. Please use Synchronous mode selector at the distance "b".

mm

MARK / TYPE	a	b
HA-30	10	5
HA-50	10	3
HA-80	16	4
HA-101	16	2
HA-141	20	3
HA-225	20	1
HA-162	30	9
HA-181	25	2
HA-182	32	12
HA-222	40	13
HA-302	55	15

※Please ask us about HA-20 and HA-552 data.

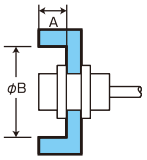
●VHF COAXIAL CABLE & CONNECTORS MATERIALS

・Do not wire with power line, solo-wiring is required.
・High frequency co-axial cable (Impedance 50Ω) is required for extension within 10m Max.

TYPE	COAXIAL CABLE	COAXIAL CONNECTOR
HA-30 HA-225	RG-174U or equiv.	BNC-P-1.5,J-1.5 or equiv.
HA-50～ HA-182	1.5D-QEV or equiv.	
HA-222～ HA-552	3D-QEV or equiv.	BNC-P-3,J-3 or equiv.

※Measuring distance may be changed by cable extension.

●EFFECT OF SURROUNDING FERROUS MATERIALS

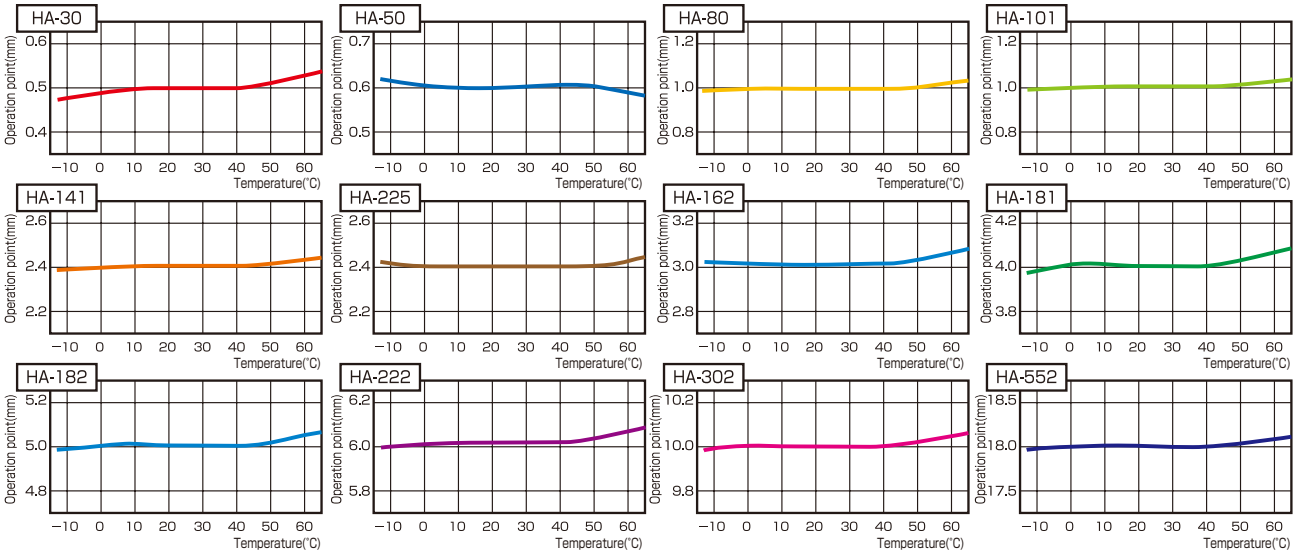


mm

MARK / TYPE	A	øB
HA-162	9	30
HA-182	10	32
HA-222	18	42
HA-302	24	60
HA-552	25	100

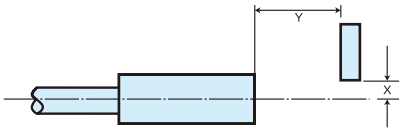
DATE

DATA (TEMPERATURE)

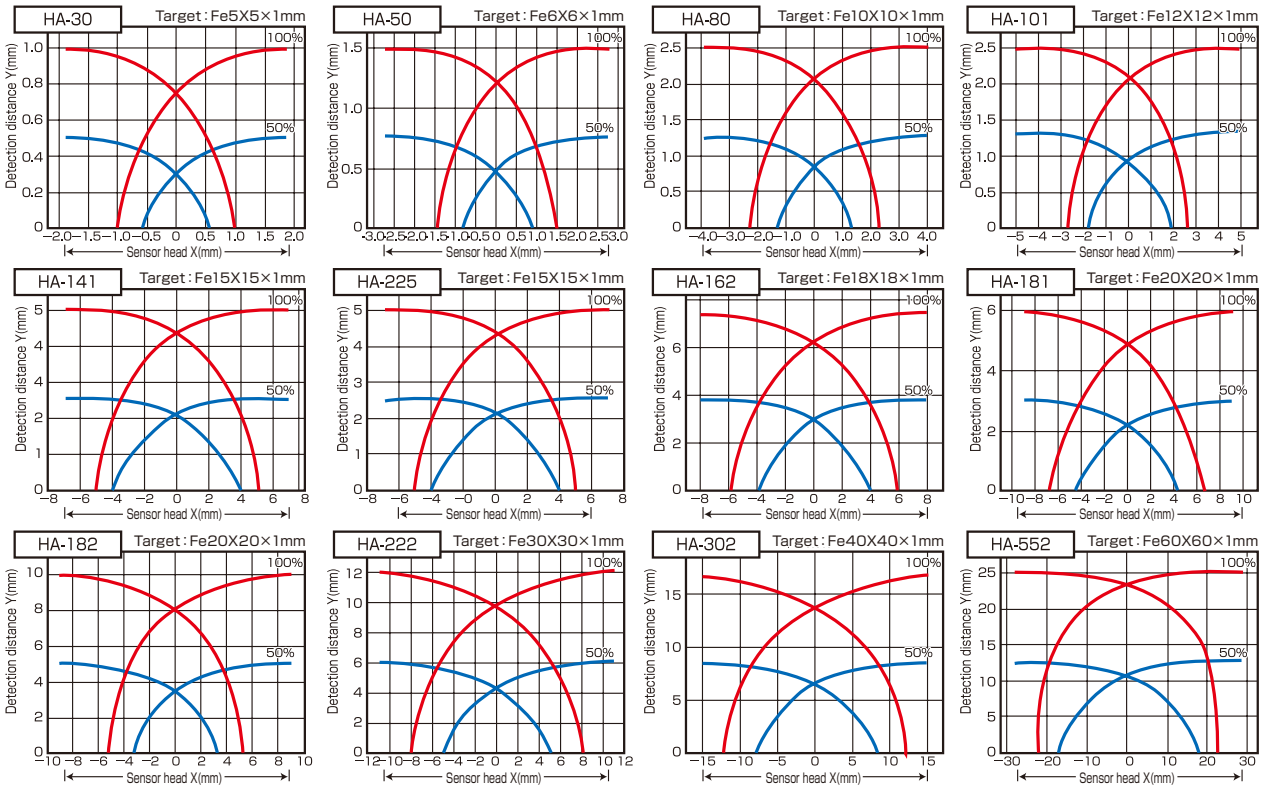


Condition of measuring :Operating distance is set by 50% of stable operating distance, fixed condition of measuring object (Feø90), the temperature shall be changed by ±10°C per hour from the basing temperature of 23°C, data is collected when the temperature is stable.

DATA(LATERAL)

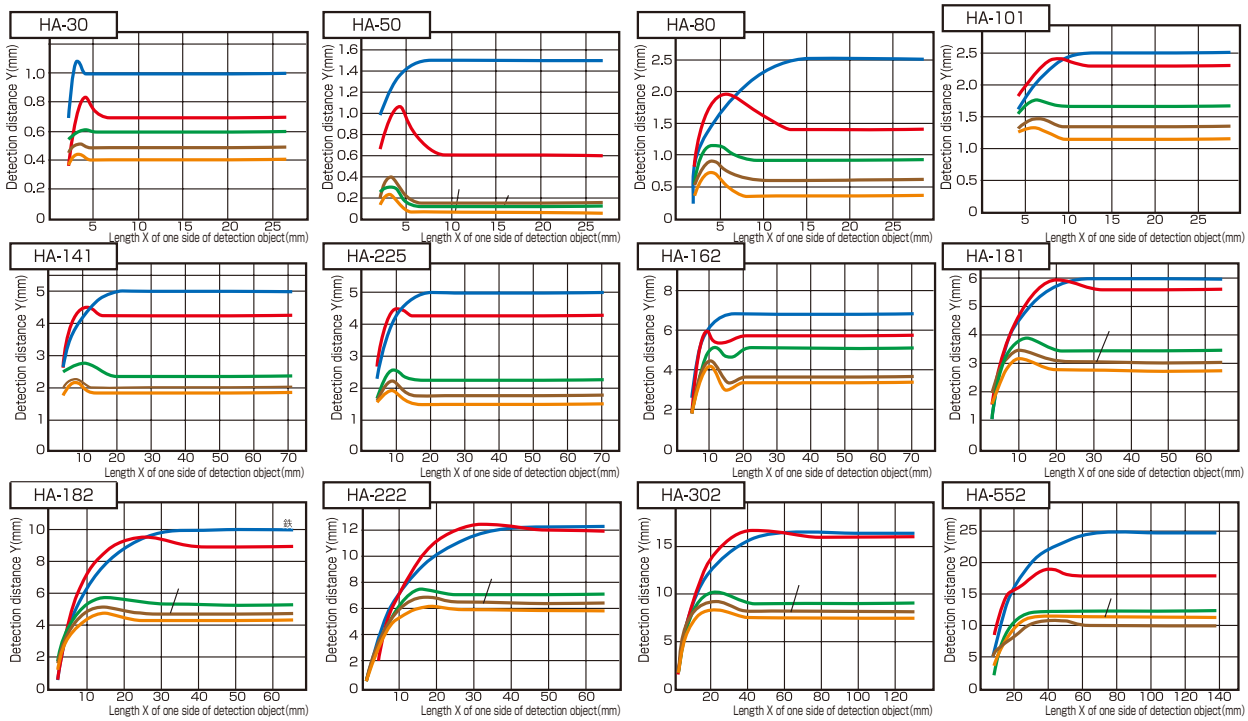


Data from lateral
The operation distance is adjusted at 50%&100% of stable detection distance.
The distance is measured from reference axis operation point by applicable object which is horizontally moved at detection face.



DATA(MATERIALS)

Detection object is square metal place with thickness of 1mm.
The operation distance is adjusted at 100% of stable detection distance.
Detection distance of Y mm is detected by changing X mm square of detection object.



※The whole data can be different depending on the operating environment.