

General Specification

PT900 series

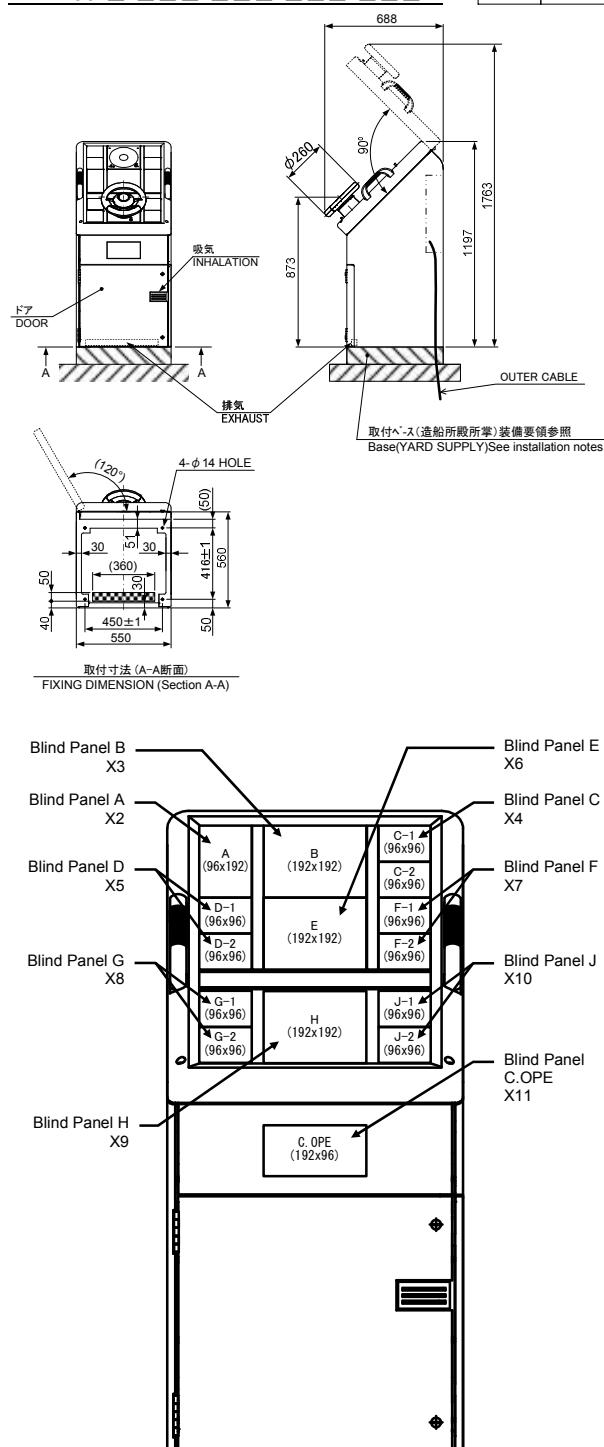
PT900

GS 80B21B03E 2nd

System components and accessories

Control stand

MPM190-□-□□□-□□□-□□□-□□□-1



Control stand

MPM190-X1...X14/Option

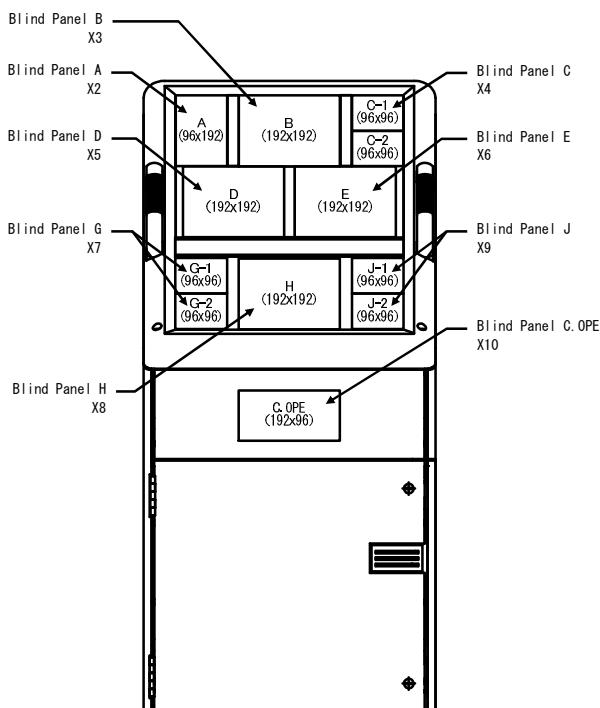
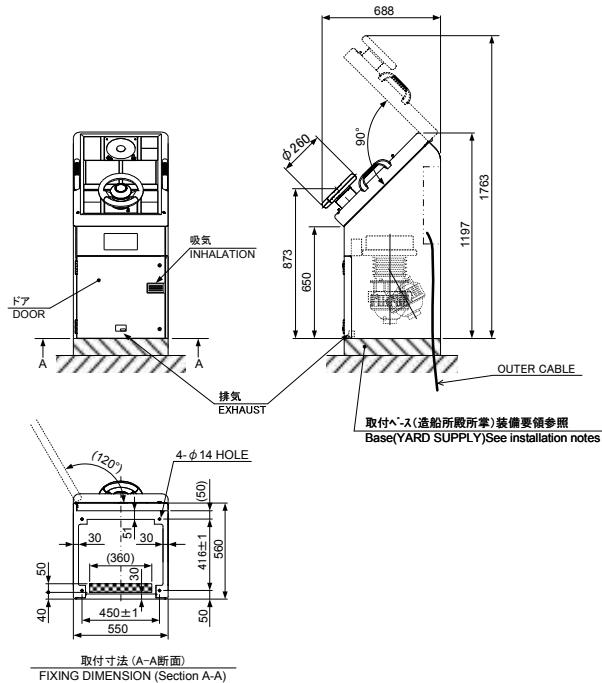
Type No.	Suffix code	Description
MPM190	CONTROL STAND
Style	-930 -940 -950 -960 -970 -980	CMZ900/Master compass separate type BuiltIn CMZ900S Master compass&Control box (MKC326) BuiltIn CMZ900S Master compass&Control box (MKC327) BuiltIn CMZ900Master compass BuiltIn Control box(MKC326) BuiltIn Control box (MKC327)
X1	-1 N	With Without
Blind panel A X2	1 N	With Without
Blind panel B X3	1 2 3 N	With C-1,C-2 With C-1 With C-2 Without
Blind panel C X4	-1 -2 -3 -N	With D-1,D-2 With D-1 With D-2 Without
Blind panel D X5	1 N	With F-1,F-2 With F-1 With F-2 Without
Blind panel E X6	1 N	With Without
Blind panel F X7	1 2 3 N	With G-1,G-2 With G-1 With G-2 Without
Blind panel G X8	-1 -2 -3 -N	With J-1,J-2 With J-1 With J-2 Without
Blind panel H X9	1 N	With Without
Blind panel J X10	1 2 3 N	With Without
Blind panel C.OPE X11	-1 -N	With Without
Standards	1 2 3	JG MED CCS
Name plate X13	1 2	Japanese & English English
Paint color X14	-1	YDK Standard
Option	C SLP	Name plate(Chinese) With Plate of lower control stand(OVRD TERM, For ANALOG VF, 2pumps 2rudders)

Note: If the following equipment is required to install on the Control stand upper panel, inform the dimensional drawing of them in advance.

- Microphone
- Magnetic compass dimmer
- Rudder angle indicator

Control stand

MPM191-□-□□□-□□□-□□□□-□□1



Control stand

MPM191-X1...X13/Option

Type No.	Suffix code		Description
MPM191		CONTROL STAND
Style X1	—930		CMZ900Master compass separate type
	—940		Built-in CMZ900S Master compass&Control box (MKC326)
	—950		Built-in CMZ900S Master compass&Control box (MKC327)
	—960		Built-in CMZ900Master compass
	—970		Built-in Control box(MKC326)
	—980		Built-in Control box (MKC327)
Blind panel A	—1		With
X2	—N		Without
Blind panel B	1		With
X3	N		Without
Blind panel C X4	1 2 3 N		With C-1,C-2 With C-1 With C-2 Without
Blind panel D X5	—1 —N		With Without
Blind panel E X6	1 N		With Without
Blind panel G X7	1 2 3 N		With G-1,G-2 With G-1 With G-2 Without
Blind panel H X8	—1 —N		With Without
Blind panel J X9	1 2 3 N		With J-1,J-2 With J-1 With J-2 Without
Blind panel C.OPE X10	1 N		With Without
Standards X11	—1 —2 —3		JG MED CCS
Name plate X12	1 2		Japanese & English English
Paint color	X13	1	YDK Standard
Option	/C /SLP		Name plate(Chinese) With Plate of lower control stand(OVRD TERM, For ANALOG I/F, 2pumps 2rudders)

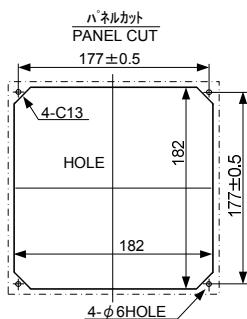
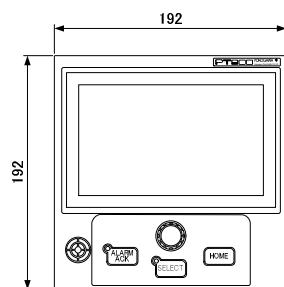
Note: If the following equipment is required to install on the Control stand upper panel, inform the dimensional drawing of them in advance.

- Microphone
 - Magnetic compass dimmer
 - Rudder angle indicator

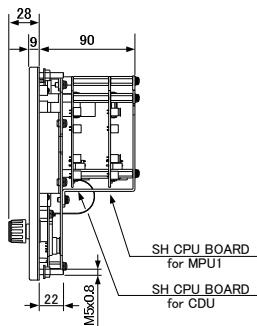
AP CDU (Auto Pilot Control & Display Unit)

MPH490-□-E-□-□-□-□□□-□1

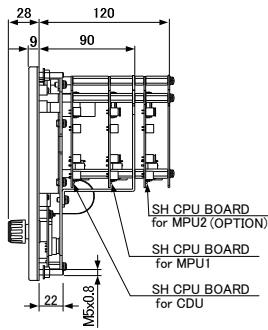
MODEL	MPH490
MASS	2.5kg
IP GRADE	IP22



X4=NNN (Single MPU)



X4=DNN, ADN, ADE (Dual MPU)



AP CDU(Auto Pilot Control & Display Unit) MPH490-X1...X10/Option

Type No.	Suffix code	Description
MPH490	AP CDU(Control & Display Unit)
Style	-SN -S1 -S2 -PN -P1 -P2	Built-in control stand(Single AP CDU) Built-in control stand :No.1 (Dual AP CDU) Built-in control stand :No.2 (Dual AP CDU) Built-in console(Single AP CDU) Built-in console :No.1(Dual AP CDU) Built-in console :No.2(Dual AP CDU)
X1	Sheet key X2 -E	English
Controller 1	-DNN -ADN -ADE	PID ADAPTIVE BNAAC function is available in economy mode. ADAPTIVE with E-COurse Function BNAAC function is available in economy mode.
X3		
Controller 2	-NNN -DNN -ADN -ADE	Without PID ADAPTIVE BNAAC function is available in economy mode. ADAPTIVE with E-COurse Function BNAAC function is available in economy mode.
X4		
Track Control	-TCS -TCF -TCJ -NNN	Standard (1) FEC-TCS For JRC-TCS with S-JOY (2) Without
X5		
Steering gear	-S -T	Single rudder Twin rudder
X6		
Wheel Off Center Alarm	N 1	Without With
X7		
Standards	1 2 3	JG MED CCS
X8		
Name plate	-1 -2	Japanese & English English
X9		
Paint color	X10 1	Munsell0.8Y 2.5/0.4 (LAMP BLACK)
Option	/C /B /NB1 /NB2 /RS1	Name plate (Chinese) With Bezel(□214,IP22) No1(for Dual AP CDU) No2(for Dual AP CDU) With rudder angle change (with speed interlock)

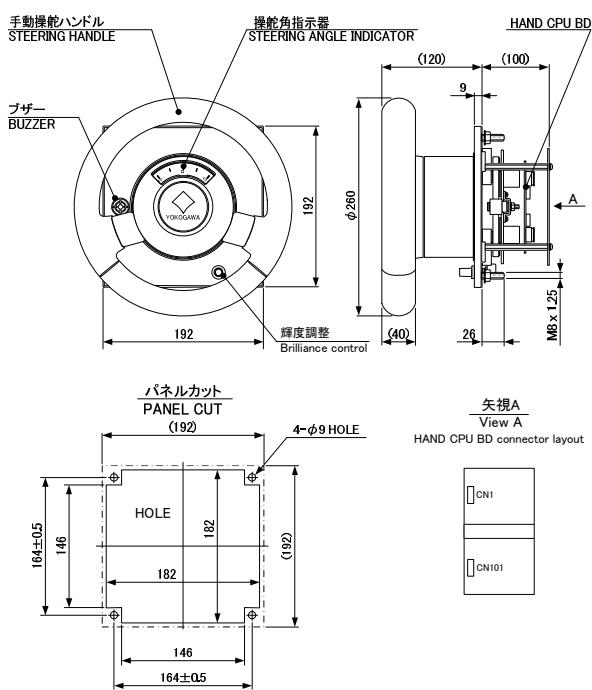
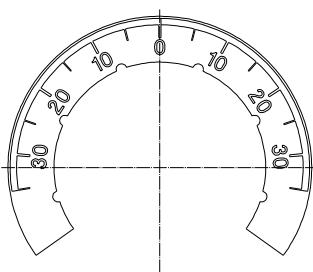
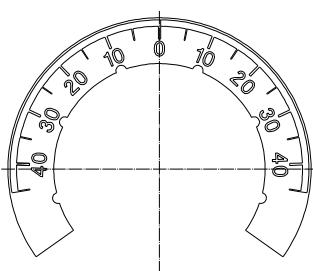
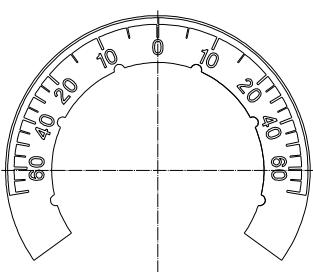
Note:

(1) Inform the ECDIS maker in advance.

(2) When Track Control is JRC without S-JOY, select X5=-TCS.

Hand steering unit
MPB390-P□□-□-□□1

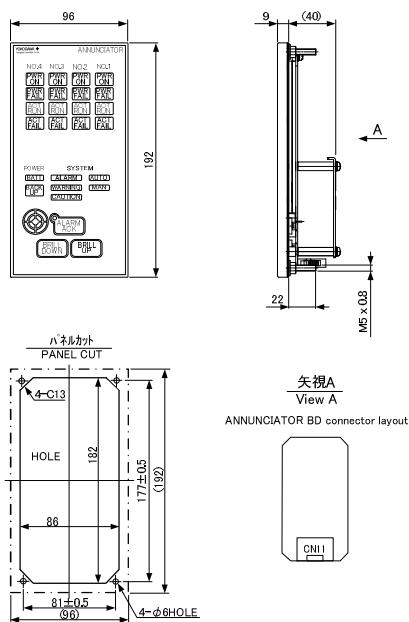
MODEL	MPB390
MASS	6.5kg
IP GRADE	IP22

X2=1 (for 35°)X2= 2, 3 (for 45°)X2= 4, 5, 6 (for 60~70°)

Hand steering unit			MPB390-X1...X7/Option
Type No.	Suffix code	Description	
MPB390	HAND STEERING UNIT	
Style	-S	Built-in control stand(IP22)	
X1	-P	Built-in console(IP22)	
Steering angle	1 2 3 4 5 6	±35° ±45° ±35°/±45° (Single scale) ±35°/±60° (Single scale・Unilinear) ±35°/±65° (Single scale・Unilinear) ±35°/±70° (Single scale・Unilinear)	
System circuit	1 2 X3 4	1 pump 2 to 4 pumps 2 to 4 pumps Twin rudder	
Cable length	-30 -50 X4 -NN	3.0m 5.0m Built-in control stand(1.4m)	
Standards	-N -3	Without CCS	
Name plate	1 2	Japanese & English English	
Paint color	X7 1	Munsell0.8Y 2.5/0.4 (LAMP BLACK)	
Option	/C /B /SN /WA	Name plate(Chinese) With Bezel(□214,IP22) English for System plate Wheel off center alarm	

Annunciator unit

MPH690-P-□-E-□-□ □1

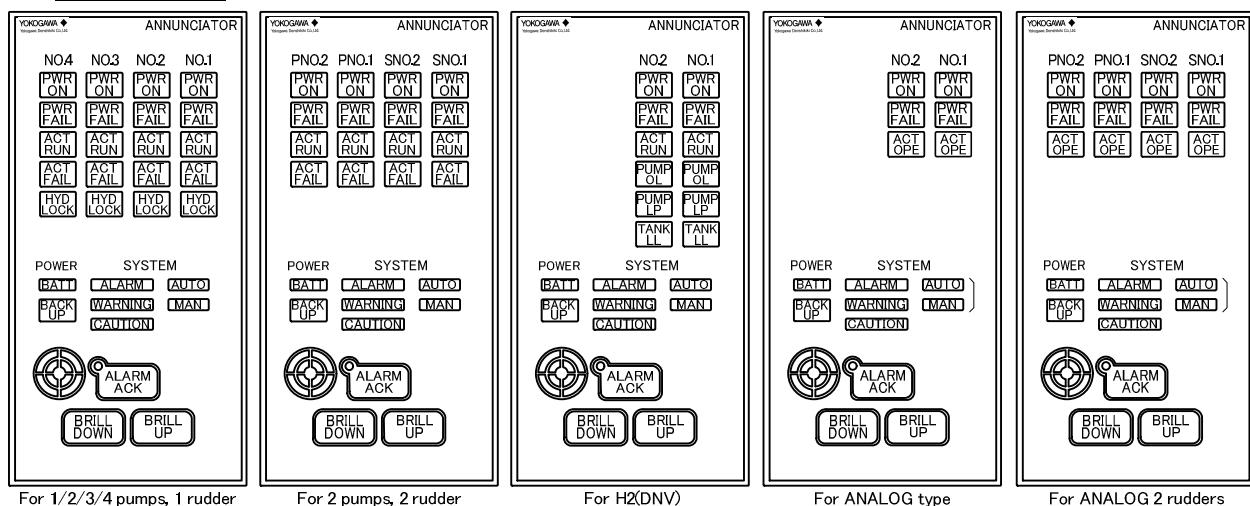


MODEL	MPH690
MASS	0.5kg
IP GRADE	IP22

Annunciator unit

MPH690-X1...X7/Option

Type No.	Suffix code	Description
MPH690	ANNUNCIATOR UNIT
Style	-S	Built-in control stand(IP22)
X1	-P	Built-in console(IP22)
Steering gear type	-01	N1
	-02	N2,N2F,J2
	-03	H2(DNV with PUMP,OL,LP,TANK,LL)
	-04	H2(STD),K2T,Y2A,T2,S2(Non HLA)
	-05	K3T,Y3A,T3,S3(Non HLA)
	-06	N2,N2F (2 rudders)
	-07	K4T,Y4A,T4,S4(Non HLA)
	-08	S2(With HLA)
	-09	T2(With HLA)
	-10	T3,S3 (With HLA)
	-11	Analog 2rudders
	-12	K2T,Y2A,T2(Non HLA) 2rudders
	-13	Analog 2pumps
	-14	Analog 1pump
Sheet key character	X3 -E	English
Cable length	-30 -50 X4 -NN	3.0m 5.0m Built-in control stand(1.0m)
Standards	-1 -2 X5 -3	JG MED CCS
Name plate	1	Japanese & English
X6	2	English
Paint color	X7 1	Munsell 0.8Y 2.5/0.4 (LAMP BLACK)
Option	/C /B	Name plate (Chinese) With bezel(118×214,IP22)

X2=-01, -02, -04, -05,
-07, -08, -09, -10X2=-06, -12X2=-03X2=-13X2=-11

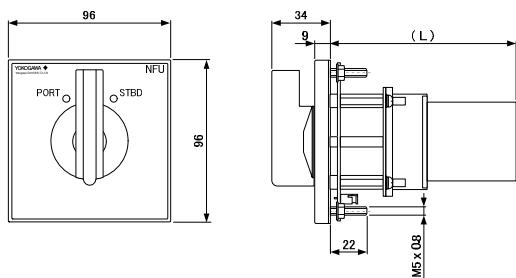
Note: The sheet design depends on the number of S/G pumps,

the type of Control & Power Box and type of steering actuator.

NFU lever

MPB391-P□E-□-□□1

MODEL	MPB391
MASS	1.0kg
IP GRADE	IP22



NFU Lever

MPB391-X1...X7/Option

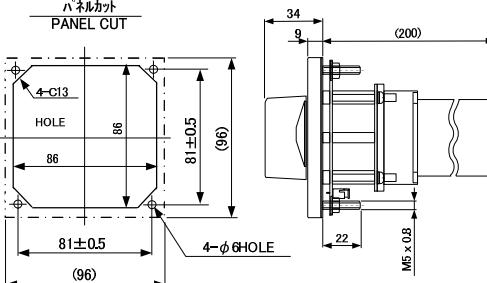
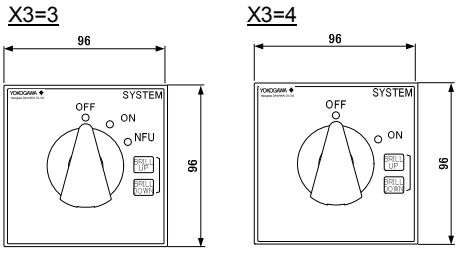
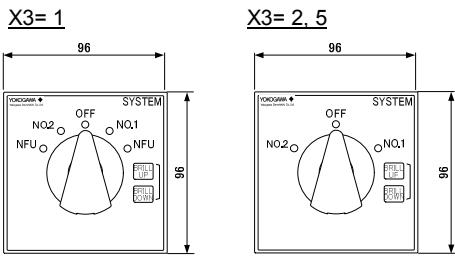
Type No.	Suffix code	Description
MPB391	NFU LEVER
Style X1	-S -P	Built-in control stand(IP22) Built-in console(IP22)
Number of pumps X2	1 2 3 4	1 Pump 2 Pumps 3 Pumps 4 Pumps
Sheet character X3	E	English
Cable length X4	-30 -50 -NN	3.0m 5.0m Built-in control stand
Standards X5	-N -3	Without CCS
Name plate X6	1 2	Japanese & English English
Paint color X7	1	Munsell0.8Y 2.5/0.4(LAMP BLACK)
Option	/C /B /ADC /T /TS /TP /WP	Name plate(Chinese) With bezel(□118,IP22) For NFU OVRD(1) For TAKE-OVER For STAND/BCC/WING For TAKE-OVER (MPH790-without NFU &STAND & 1rudder or 2rudders for STBD) (3) For TAKE-OVER (MPH790-without NFU &STAND & 2rudders for STBD) (3) Water proof type(IP56) (2)

- Note: If this unit is used as NFU lever for TAKE-OVER, order in adding TAKE-OVER UNIT(MPH793) and OVRD TERMINAL UNIT(MPH890).
 Incase of X1=S and X2=3,4 and /T, It is special order.
 (1)When this unit is used as NFU lever for NFU OVRD, select this option.
 (2)This option can not be selected for bezel type.
 (3)Incase of X1=S and SYSTEM SELECTOR(MPH790)-X3 = without NFU, select /TS or /TP. In other case, select /T.

System selector

MPH790-P□□-E-□-□□1

MODEL	MPH790
MASS	1.5kg
IP GRADE	IP22



System selector

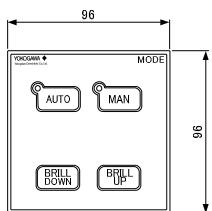
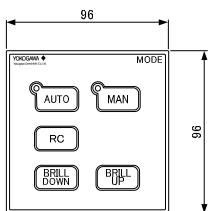
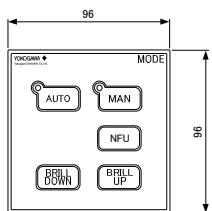
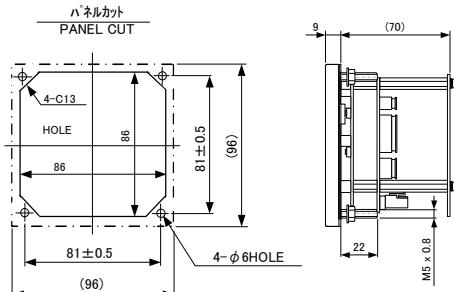
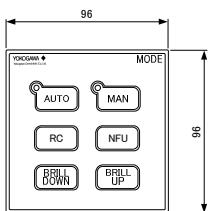
MPH790-X1...X8/Option

Type No.	Suffix code	Description
MPH790	SYSTEM SELECTOR
Style X1	-S -P	Built-in control stand(IP22) Built-in console(IP22)
Number of pumps X2	1 2 3 4	1 Pump 2 Pumps 3 Pumps 4 Pumps
Systems circuit X3	1 2 3 4 5	2 circuits with NFU (NFU-NO.2-OFF-NO.1-NFU) 2 circuits without NFU(NO.2-OFF-NO.1) 1 circuit with NFU(OFF-ON-NFU) 1 circuit with NFU(OFF-ON)For Analog 2 circuits without NFU (NO.2-OFF-NO.1)For Analog
Sheet key character X4	-E	English
Cable length X5	-30 -50 -NN	3.0m 5.0m Built-in control stand
Standards X6	-1 -2 -3	JG MED CCS
Name plate X7	1 2	Japanese & English English
Paint color X8	1	Munsell0.8Y 2.5/0.4(LAMP BLACK)
Option	/C /B /TM	Name plate(Chinese) With bezel(□118, IP22) With OVRD TERMINAL

Mode selector

MPH791-P□E-□□1

MODEL	MPH791
MASS	0.5kg
IP GRADE	IP22

X2= 1X2= 2X2= 3X2= 4

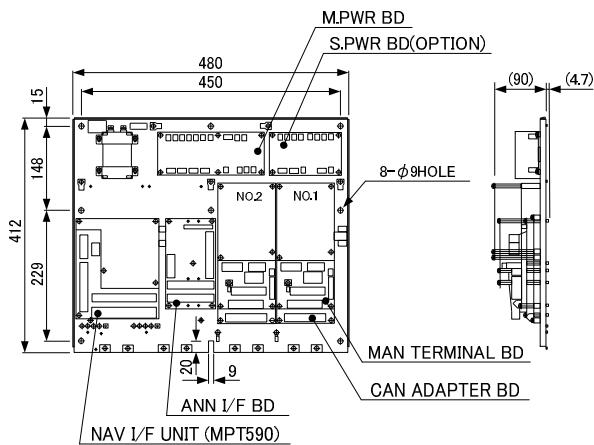
Mode selector

MPH791-X1...X6/Option

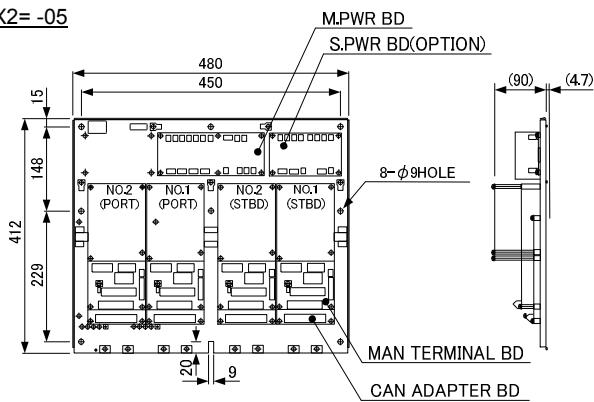
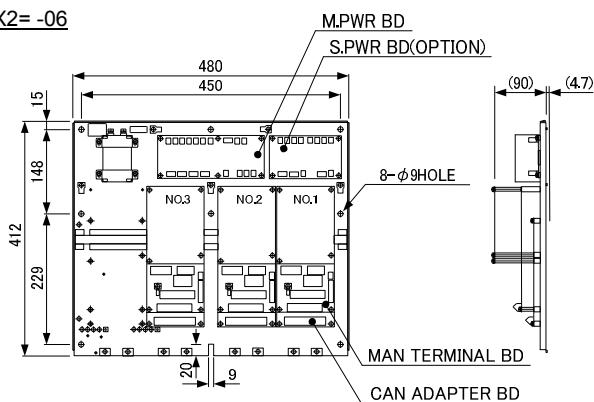
Type No.	Suffix code	Description
MPH791	MODE SELECTOR
Style X1	-S -P	Built-in control stand(IP22) Built-in console(IP22)
Steering mode X2	1 2 3 4	[AUTO][MAN] select [AUTO][MAN] select, with [RC] indicator [AUTO][MAN] select, with[NFU]indicator [AUTO][MAN] select,with[RC][NFU]indicator
Sheet key character X3	E	English
Standards X4	-1 -2 -3	JG MED CCS
Name plate X5	1 2	Japanese & English English
Paint color X6	1	Munsell 0.8Y 2.5/0.4(LAMP BLACK)
Option	/C /B	Name plate(Chinese) With bezel(□118,IP22)

MCU (Main Control Unit)

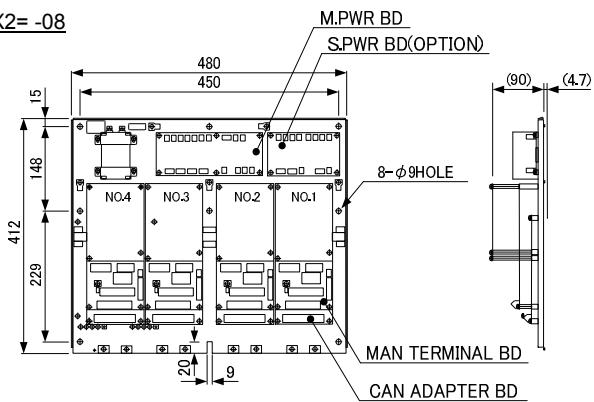
MPH291-F-□-□□□

X2= -03, -04

MODEL	MPH291
MASS	13.5kg

X2= -05X2= -06

X2= -08



MCU (Main Control Unit)

MPH291-X1...X5/Option

Type No.	Suffix code	Description
MPH291	MCU (MAIN CONTROL UNIT)
Style	-S	Built-in control stand
X1	-F	Built-in console
Interface unit		
	-03	2pumps, 1rudder FU:1circuit
	-04	2pumps, 1rudder FU:2circuits
	-05	2pumps, 2rudders
	-06	3pumps, 1rudder
	-08	4pumps, 1rudder
	-10	Analog 1circuit/1rudder(without HAND)
	-11	Analog 1circuit/2rudders(without HAND)
	-12	Analog 1circuit/1rudder(with HAND)
	-13	Analog 1circuit/2rudders(with HAND)
	-14	Analog 2circuits/1rudder(with HAND)
	-15	Analog 2circuits/2rudders(with HAND)
Additional Power supply terminal X3	-1	With (1)
	-N	Without
Standards X4	1	JG
	2	MED
	3	CCS
Name plate X5	1	Japanese & English
	2	English
Option	/C	Name plate (Chinese)
	/TM	Interface OVRD TERMINAL
	/CM1	Power supply for NO.1 AP CDU (2)
	/CM2	Power supply for NO.2 AP CDU (2)
	/CMM	Power supply for AP CDU (2)
	/RAS	With switching steering angle

Note:

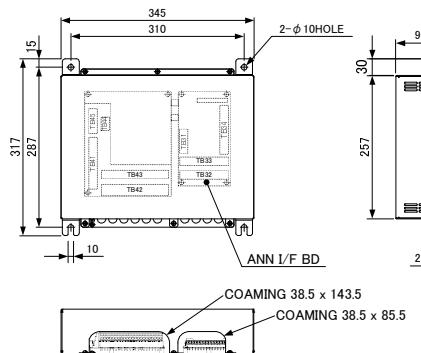
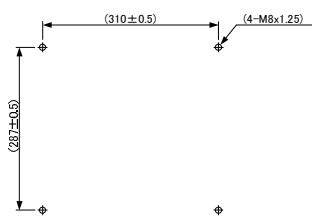
(1) Select this option when X1=-S & some unit is installed on console and wing.
Power supply terminal will be added. The power is supplied to each position
(BCC:4CH, S/W, P/W :each 2CH, W/H CAN, S/G CAN :each 4CH).

(2) In case of X1=S, this option can be selected. When the Autopilot has single
AP CDU and that is installed on console, select /CMM. When the Autopilot
has dual AP CDU, select AP CDU that is installed on the console. /CM1, /CM2

NAV I/F unit

MPT590-□-□□□-□□□-□□□-□□□

MODEL	MPT590
MASS	(10.0kg)

X1=-F2取付け部の配置
MOUNTING ARRANGEMENT

NAV I/F unit

MPT590-X1...X13/Option

Type No.	Suffix code	Description
MPT590	NAV I/F UNIT(NAV Interface unit)
Style	-S1 -S2 -F1 -F2 -F3	Built-in control stand (pump number 1/2) (5) Built-in control stand (pump number 3/4) (5) Built-in console (pump number 1/2) (5) Built-in console (pump number 3/4) (5) Built-in console (For PT500-TCS with J-ECDIS) (6)
X1	Serial1 (IN) -1 -2 X2 -N	GYRO1 IEC61162-1 (1) GYRO1 IEC61162-2 (1) Without
	Serial2 (IN) 1 2 X3 N	GYRO2 IEC61162-1 (1) GYRO2 IEC61162-2 (1) Without
	Serial3 (IN) X4 2 N	THD IEC61162-2 (1) Without
	Serial4 (IN) X5 -1 -P -N	SPEED LOG IEC61162-1 (1) SPEED LOG pulse(200 P/NM) Without
	Serial5 (IN) X6 1 N	GPS IEC61162-1 (1) Without
	Serial6 (IO) X7 1 2 N	ECDIS IEC61162-1 (2) ECDIS IEC61162-2 (2) Without
	Serial7 (IO) X8 -1 -2 -N	BAMS IEC61162-1 (1) BAMS IEC61162-2 (1) Without
	Serial8 (OUT) X9 1 2 N	VDR IEC61162-1 (3) VDR IEC61162-2 (3) Without
	Serial9 (IO) X10 3 T N	S-JOY PT500-TCS with J-ECDIS (6) Without
	Serial10 (IO) X11 -T -N	PT500-TCS with J-ECDIS (6) Without
X12	Standards 1 2 3	JG (7) MED CCS (7)
X13	Name plate 1 2	Japanese & English English
Option	/C /NB1 /NB2	Name plate(Chinese) No.1(in case of multiple equipment) (7) No.2(in case of multiple equipment) (7)

Note: In case of other sensor or unit are to be connected, custom order is necessary.

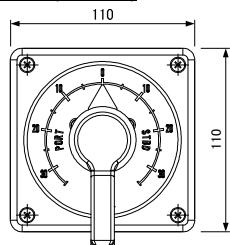
Paint color for console type: Black

- (1) Inform I/F format by order sheet.
- (2) ECDIS format is selected by track control(X5) of AP CDU(MPH490).
- (3) Signal for VDR can be connected until maximum of 4Ch. Inform connected equipment by order sheet.
- (4) Inform Connected equipment by order sheet.
- (5) In case of X1=-S1,-F1, this unit is included in the MCU.
- In case of X1=-S2, this unit is fitted on left side of control stand inside.
- In case of X1=-F2, ANN I/F BD is included in this unit.
- (6) It is use to PT500-TCS with J-ECDIS(IEC62288.Ed2/IEC62065.Ed2.)
- (7) In case of X1=-F3, it is not able to select that X12=1,3, option=/NB1, /NB2.

Dial steering unit

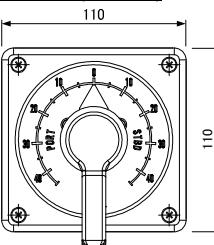
MPB393-P□1-□□1

X3=1 (for 35°)

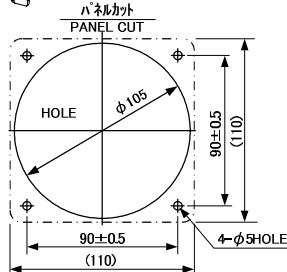
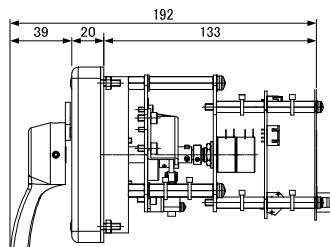
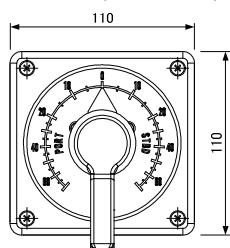


MODEL	MPB393
MASS	1.5kg
IP GRADE	IP56

X3=2, 3 (for 45°)



X3=4, 5, 6 (for 60~70°)



Dial steering unit

MPB393-X1...X6/Option

Type No.	Suffix code	Description
MPB393	DIAL STEERING UNIT
Style	X1 -P	Built-in console
Steering angle	1	±35°
	2	±45°
	3	±35°/±45°(Single scale)
	4	±35°/±60°(Single scale/unlinear)
	5	±35°/±65°(Single scale/unlinear)
X2	6	±35°/±70°(Single scale/unlinear)
Signal Channel	X3 -N	1 circuit
X4	-N -1	Without With (1)
Name plate	1	Japanese & English
X5	2	English
Paint color	X6 1	Munsell 0.8Y 2.5/0.4(LAMP BLACK)
Option	/C	Name plate(Chinese)

Note: This unit is used in combination with TAKE-OVER UNIT(MPH793).

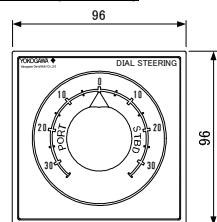
It is attached a connection cable(1m) for TAKE-OVER UNIT(MPH793).

(1)When this unit combine with FU OVRD OPERATION UNIT(MPH794),
select X4=-1(with Midship detect).

Dial steering unit

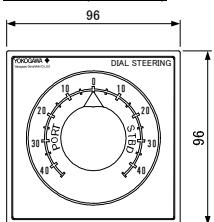
MPB394-PE□-N□1

X3=1 (for 35°)

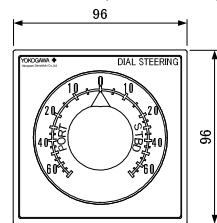


MODEL	MPB394
MASS	1.0kg
IP GRADE	IP56

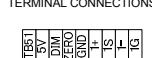
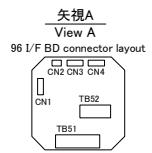
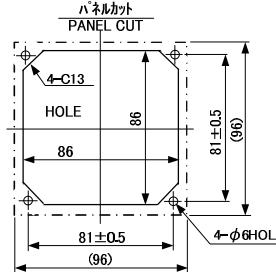
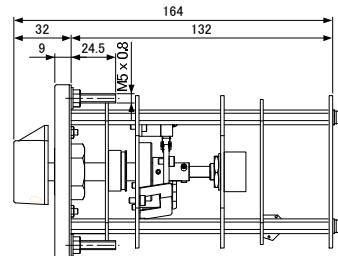
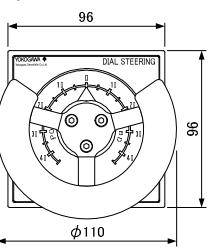
X3=2, 3 (for 45°)



X3=4, 5, 6 (for 60~70°)



Option=A/WH



Dial steering unit

MPB394-X1...X6/Option

Type No.	Suffix code	Description
MPB394	DIAL STEERING UNIT
Style	-S	Built-in control stand(IP22)
X1	-P	Built-in console(IP56)
Sheet character	X2 E	English
Steering angle	1	±35°
	2	±45°
	3	±35°/±45°(Single scale)
	4	±35°/±60°(Single scale/unlinear)
X3	5	±35°/±65°(Single scale/unlinear)
	6	±35°/±70°(Single scale/unlinear)
Midship detect	-N	Without
X4	-1	With (1)
Name plate	1	Japanese & English
X5	2	English
Paint color	X6 1	Munsell 0.8Y 2.5/0.4(LAMP BLACK)
Option	/C	Name plate(Chinese)
	/B	With bezel(□118,IP22) (2)
	/WH	Wooden handle

Note: This unit is used in combination with TAKE-OVER UNIT(MPH793). In case of X1=P, it is attached a connection cable(1m) for TAKE-OVER UNIT(MPH793).

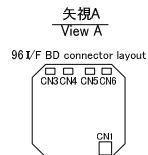
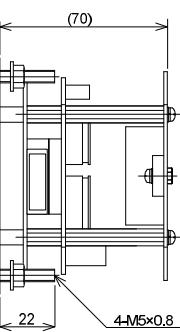
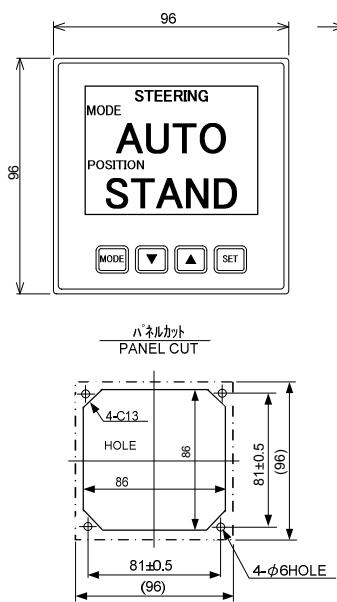
(1)When this unit combine with FU OVRD OPERATION UNIT(MPH794),
select X4=1(with Midship detect).

(2)When "B" is selected as option, protection level is IP22.

Steering indicator

MPH590-P1E-N□1

MODEL	MPH590
MASS	0.5 kg
IP GRADE	IP22



View A

Steering indicator

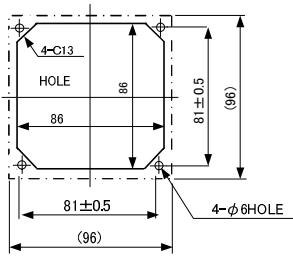
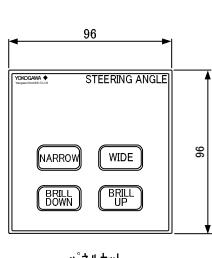
MPH590-X1...X6/Option

Type No.	Suffix code	Description
MPH590	STEERING INDICATOR
Style X1	-S	Built-in control stand(IP22)
	-P	Built-in console(IP22)
Display X2	1	STEERING POSITION & MODE
Sheet key character X3	E	English
Fixed code X4	-N	
Name plate X5	1	Japanese & English
	2	English
Paint color X6	1	Munsell0.8Y 2.5/0.4(LAMP BLACK)
Option	/C	Name plate(Chinese)
	/B	With bezel(□118, IP22)

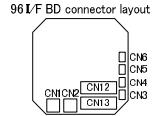
Steering angle indicator

MPH591-P1E-N□1

MODEL	MPH591
MASS	0.5kg
IP GRADE	IP22



View A



Steering angle indicator

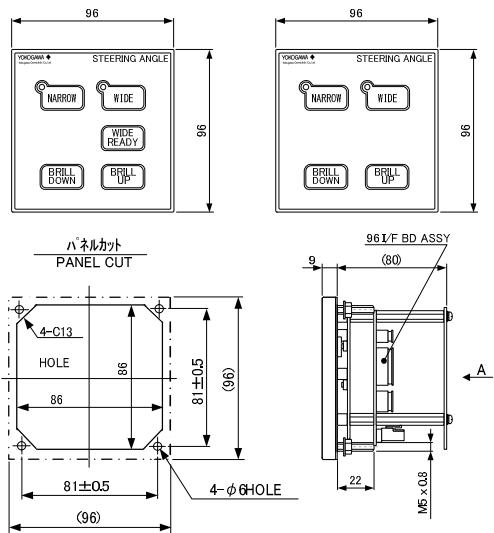
MPH591-X1...X6/Option

Type No.	Suffix code	Description
MPH591	STEERING ANGLE INDICATOR
Style X1	-S	Built-in control stand(IP22)
	-P	Built-in console(IP22)
Rudder angle display X2	1	NARROW/WIDE
Sheet key character X3	E	English
Fixed code X4	-N	
Name plate X5	1	Japanese & English
	2	English
Paint color X6	1	Munsell0.8Y 2.5/0.4(LAMP BLACK)
Option	/C	Name plate(Chinese)
	/B	With bezel(□118, IP22)

Steering angle selector

MPH792-P1□-□EN-□1

MODEL	MPH792
MASS	0.5kg
IP GRADE	IP22

X4=-1X4=-N

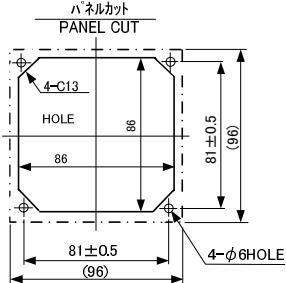
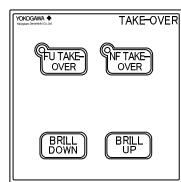
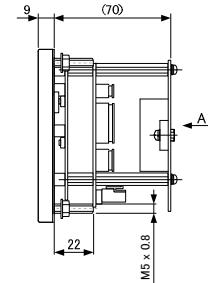
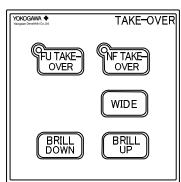
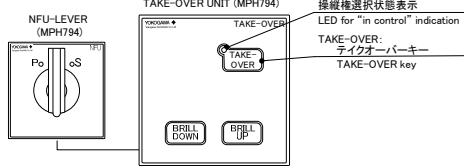
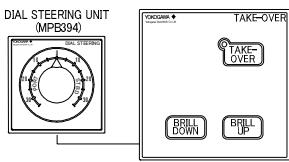
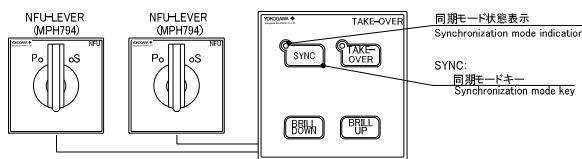
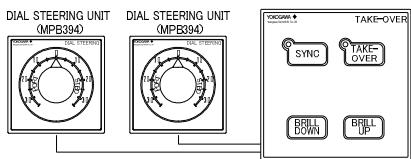
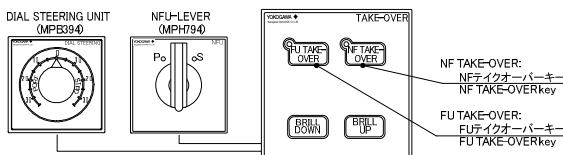
Steering angle selector

MPH792-X1...X8/Option

Type No.	Suffix code	Description
MPH792	STEERING ANGLE SELECTOR
Style	-S	Built-in control stand(IP22)
X1	-P	Built-in console(IP22)
Rudder angle change	1	NARROW/WIDE
X2		
Velocity in	1	CAN
X3	N	Without
Status display	-1	With WIDE READY
X4	-N	Without
Sheet key character	X5 E	English
Fixed code	X6 N	
Name plate	-1	Japanese & English
X7	-2	English
Paint color	X8 1	Munsell0.8Y 2.5/0.4 (LAMP BLACK)
Option	/C	Name plate (Chinese)
	/B	With bezel(□118, IP22)

Take-over unit

MPH793-P-□-□-□E-N□1

X4=NX4=1X2=-03X2=-04 to -09X2=-10X2=-11 to -16X2=-17 to -22

MODEL	MPH793
MASS	0.5kg
IP GRADE	IP22

Take-over unit

MPH793-X1...X8/Option

Type No.	Suffix code	Description
MPH793	TAKE-OVER UNIT
Style	-S	Built-in control stand(IP22)
X1	-P	Built-in console(IP22)
Interface unit	-01	HAND
	-02	PORTABLE RC
	-03	NFU LEVER (single)
	-04	DIAL STEER.±35°(single)
	-05	DIAL STEER.±45°(single)
	-06	DIAL STEER.±35°/±45°(single)
	-07	DIAL STEER.±35°/±60°(single)
	-08	DIAL STEER.±35°/±65°(single)
	-09	DIAL STEER.±35°/±70°(single)
	-10	NFU LEVER (Dual)
	-11	DIAL STEER.±35°(Dual: With SYNC) (1)
	-12	DIAL STEER.±45°(Dual: With SYNC) (1)
	-13	DIAL STEER.±35°/±45°(Dual: With SYNC)(1)
	-14	DIAL STEER.±35°/±65°(Dual: With SYNC)(1)
	-15	DIAL STEER.±35°/±70°(Dual: With SYNC)(1)
	-16	DIAL STEER.±35°/±75°(Dual: With SYNC)(1)
	-17	NFU LEVER & DIAL STEER.±35°(2)
	-18	NFU LEVER & DIAL STEER.±45°(2)
	-19	NFU LEVER & DIAL STEER.±35°/±45°(2)
	-20	NFU LEVER & DIAL STEER.±35°/±60°(2)
	-21	NFU LEVER & DIAL STEER.±35°/±65°(2)
	-22	NFU LEVER & DIAL STEER.±35°/±70°(2)
Steering position	-1	STAND(IP22)
	-2	BCC(IP22)
	-3	PORT WING(IP56)
X3	-4	STBD WING(IP56)
Status display	1	With wide angle select indicate
X4	N	Without
Sheet key character	X5 E	English
Fixed code	X6 -N	
Name plate	1	Japanese & English
X7	2	English
Paint color	X8 1	Munsell0.8Y 2.5/0.4 (LAMP BLACK)
Option	/C	Name plate (Chinese)
	/B	With bezel(□118, IP22) (3)
	/T	2 rudders system (4)

Note: This unit is used in combination with DIAL STEERING

UNIT(MPB394/MPB393) or NFU LEVER(MPB391).

※In either case the following, order this unit.

(1) When two DIAL STEERING UNIT(MPB394/MPB393) are connected, this unit has SYNC function.

(2) When DIAL STEERING UNIT(MPB394/MPB393) and NFU LEVER(MPB391) are connected, this unit does not have SYNC function.

(3) In case of X3=-3 or -4, and option = /B, protection level is IP22.

(4) In case of X2=-02 or -04 to -16, this option can be selected.

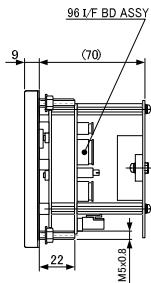
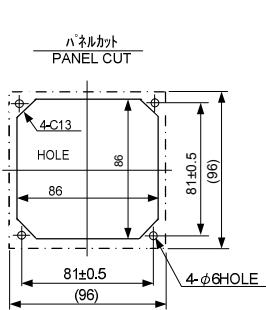
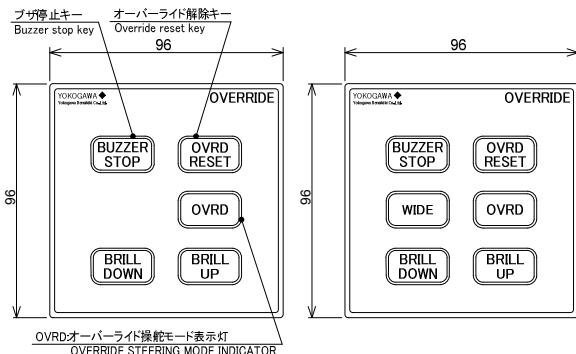
FU OVRD operation unit

MPH794-P-□-2□E-N□1

MODEL	MPH794
MASS	0.5 kg
IP GRADE	IP22

X4=N

X4=1

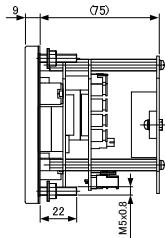
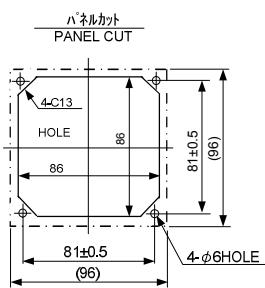
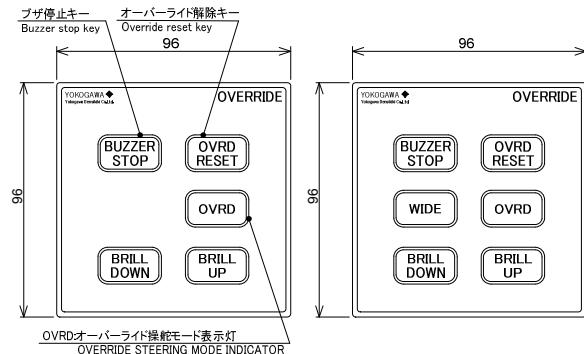


NFU OVRD operation unit

MPH795-P12-□E-□-N□1

X4=-N

X4=-1



FU OVRD operation unit

MPH794-X1...X8/Option

Type No.	Suffix code	Description
MPH794	FU OVRD OPERATION UNIT
Style	X1 -P	Built-in console(IP22)
Interface unit	-01	DIAL STEERING ±35°
	-02	DIAL STEERING ±45°
	-03	DIAL STEERING ±35°±45°
	-04	DIAL STEERING ±35°±60°
	-05	DIAL STEERING ±35°±65°
X2	-06	DIAL STEERING ±35°±70°
Steering position	X3 -2	BCC
Status display	1	With wide angle select indicate
X4	N	Without
MPH794	X5 E	English
Fixed code	X6 -N	
Name plate	1	Japanese & English
X7	2	English
Paint color	X8 1	Munsell0.8Y 2.5/0.4(LAMP BLACK)
Option	/C	Name plate(Chinese)
	/B	With bezel(IP22)

Note: This unit is used in combination with DIAL STEERING UNIT(MPB394/MPB393).

NFU OVRD operation unit

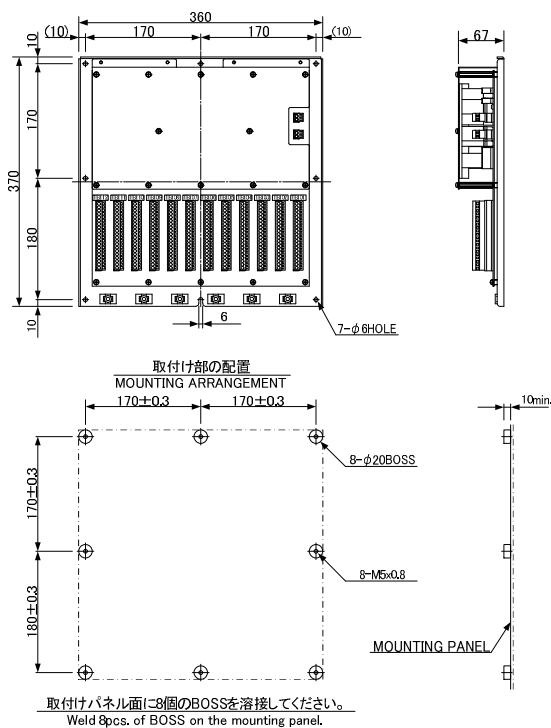
MPH795-X1...X9/Option

Type No.	Suffix code	Description
MPH795	NFU OVRD OPERATION UNIT
Style	X1 -P	Built-in console(IP22)
Interface Unit	X2 1	NFU LEVER
Steering position	X3 2	BCC
Status display	-1	With wide angle select indicator
X4	-N	Without
Sheet key character	X5 E	English
Cable length	X6 -30	3.0m
	-50	5.0m
Fixed code	X7 -N	
Name plate	1	Japanese & English
X8	2	English
Paint color	X9 1	Munsell0.8Y 2.5/0.4(LAMP BLACK)
Option	/C	Name plate(Chinese)
	/B	With bezel(IP22)

Note: This unit is used in combination with NFU LEVER(MPB391)

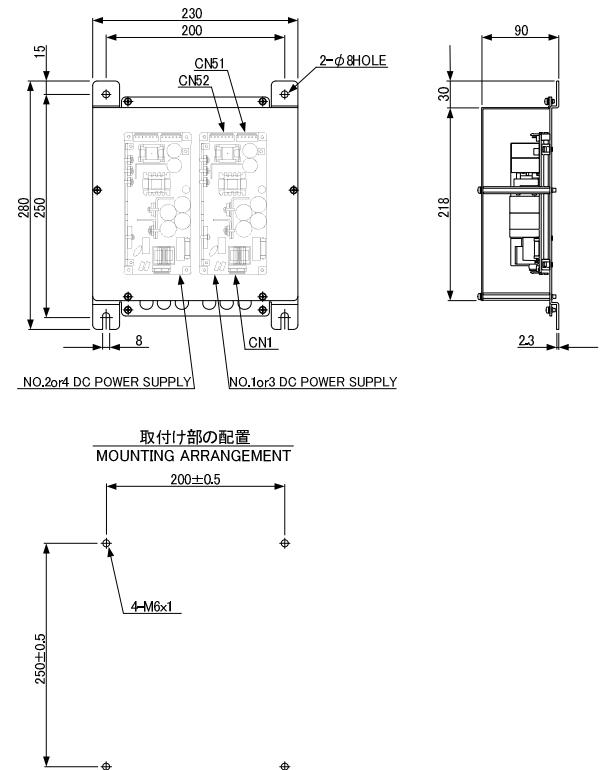
OVRD terminal unit
MPH890-F□□-N□

MODEL	MPH890
MASS	6.0kg



DC PWR unit
MPS190-F□□-□

MODEL	MPS190
MASS	3.0kg



OVRD terminal unit MPH890-X1...X5/Option

Type No.	Suffix code	Description
MPH890	OVRD TERMINAL UNIT (Override terminal unit)
Style	-S	Built-in control stand (1)
X1	-F	Built-in console
System	1	For 2 pumps (2)
	2	For 4 pumps(No.2) (2)
	4	For 3 pumps(No.2) (2)
X2	5	For 3/4 pumps(No.1) (2)
	6	For 2 pumps & 2 rudders(No.1) (2)
X2	7	For 2 pumps & 2 rudders(No.2) (2)
NFU Override	1	With
X3	N	Without
NFU Take-over	-1	With
X4	-N	Without
Name plate	1	Japanese & English
X5	2	English
Option	/C	Name plate(Chinese)
	/NAU	For DNV NAUT-OC&AW (4)
	/C30	With MCU Interface cable3m (3)
	/C50	With MCU Interface cable5m (3)
	/D30	With MPH890 interface cable3m (5)
	/D50	With MPH890 interface cable5m (5)

Note:

- (1) When gyro master compass is built-in Control stand, select built-in console type as "Style"(X1=-F).
- (2) In case of 3 pumps, order two MPH890(X2=5 and X2=4).
In case of 4 pumps, order each MPH890(X2=5 and X2=2).
In case of 2pumps and 2 rudders, order each MPH890(X2=6 and X2=7).
In the above case, select Built-in console(X1=-F).
- (3) When X1 is -F and MCU(MPH291) is built-in console type, select this options. And order one MPY491(PWR CABLE).
- (4) In case of system that NFU lever be selected by TAKE-OVER, select this options.
- (5) In case of X2=2 or 4, and X4=-1, select this options.

DC PWR unit

MPS190-X1...X4/Option

Type No.	Suffix code	Description
MPS190	DC PWR UNIT (DC power unit)
Style	X1 -F	Built-in console
Power supply	1	For No.1/2 (1)
	2	For No.3/4 (1)
	3	For No.1 (1)
X2	4	For No.3 (1)
Standards	N	Without CCS
X3	3	English
Name plate	-1	Japanese & English
X4	-2	English
Option	/SN	With System Name plate
	/C	Name plate(Chinese)

Note: In case of using this unit, arrange MCU(MPH291) as built-in console as well.
This unit is attached Connect cable(2m) to MCU(MPH291).

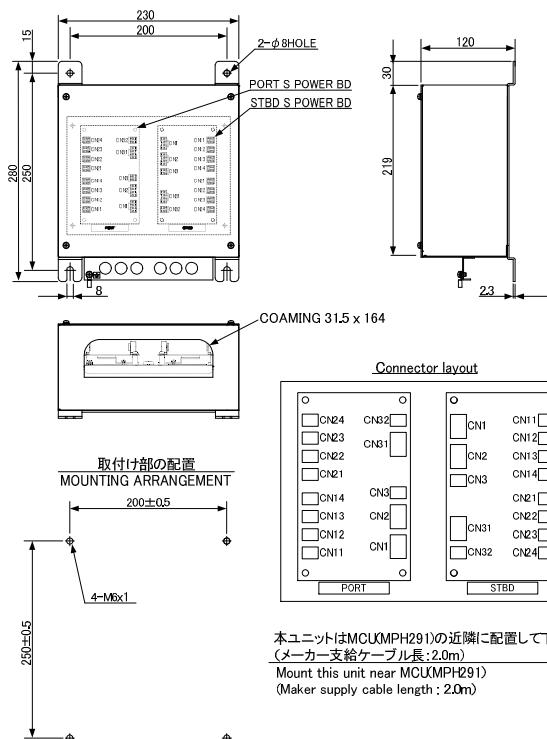
Paint color is black.

- (1) In case of 1 pump, select X2=3.
In case of 3 pumps, order X2=1(No.1/2) and X2=4(No.3) each separately
In case of "4 pumps" or "2pumps 2rudders", select X2=1(No.1/2) and X2=3(No.3/4) each separately.
- (2) In case of X1=F and without HAND STEERING UNIT(MPB390) and Control stand, select this option.

S.PWR unit

MPS191-FNN-□

MODEL	MPS191
MASS	3.5kg



S. PWR unit

MPS191-X1...X4/Option

Type No.	Suffix code	Description
MPS191	S.PWR UNIT (S. power unit)
Style X1	-F	Built-in console
Fixed code X2	N	
Standards X3	N	Without
Name plate X4	-1 -2	Japanese & English English
Option	/C	Name plate(Chinese)

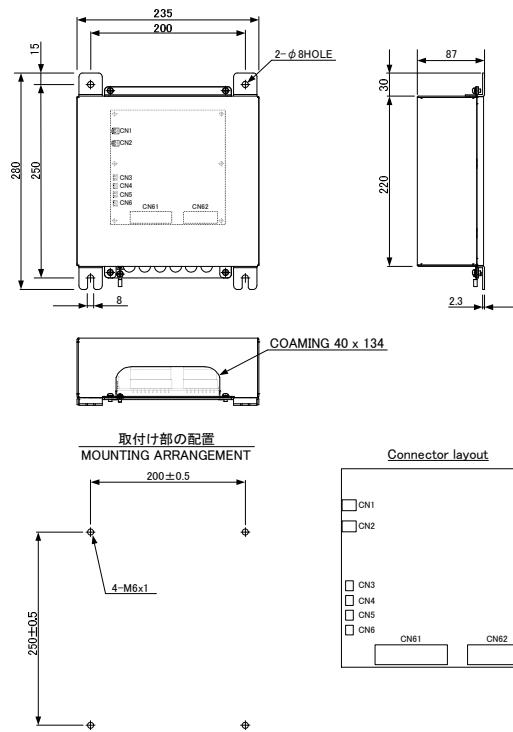
Note: In case of using this unit, arrange DC PWR unit (MPS190) as well.

Order this unit, when system is 2 rudders, and MCU(MPH291) is built-in console type. This unit is attached Connect cable(2m) to MCU(MPH291).
Paint color is black.

Analog I/F unit

MPT490-F□□-□□□

MODEL	MPT490
MASS	3.0kg



Analog I/F unit

MPT490-X1...X6/Option

Type No.	Suffix code	Description
MPT490	ANALOG I/F UNIT(Analog interface unit)
Style X1	-S	Built-in control stand
	-F	Built-in console
Interface unit X2	1 2 3 4 5 6 7 8	DP JOY NACOS TRACK PILOT For analog control 1 circuit / input/output-1ch For analog control 1 circuit / input/output-2ch For analog control 2 circuit / input/output-1ch For analog control 2 circuit / input/output-2ch
Interface signal X3	1 2	$\pm 10V$ (-:PORT, +:STBD) (1) 4-20mA(4mA:PORT, 20mA:STBD) (1)
Steering angle X4	-1 -2 -3	$\pm 40^\circ$ (2) $\pm 45^\circ$ (2) $\pm 80^\circ$ (2)
Change over of control X5	1 2	SELECT TYPE (3) TAKE-OVER TYPE (3)
Nama plate X6	1 2	Japanese & English English
Option	/C /NB1 /NB2 /PORT /STBD /LB	Name plate(Chinese) No.1(Case of multiple equipment) No.2(Case of multiple equipment) For PORT (4) For STBD (4) With loopback

Note: In case of X1=-F, paint color is black.

(1) Other than X3=1,2 is special order.

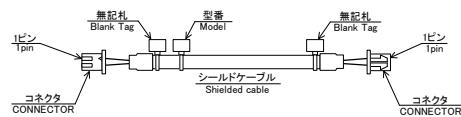
(2) Other than X4=1 to 3 is special order.

(3) If the maneuvering position is transferred by the mode select switch set on the actuator control side, select X2=1(SELECT TYPE.) If the maneuvering position is transferred by the take-over method, select X2=2(TAKE-OVER TYPE.)

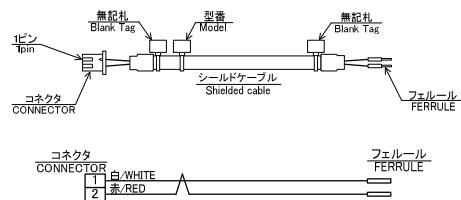
(4) In case of 2 rudders and X2 = 1,2,5 to 8, select the corresponding rudder.

CAN-BUS cable

MPY490-□-□

X2= -1

MODEL MPY490

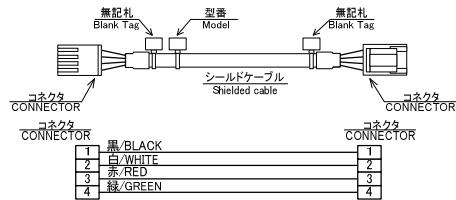
X2= -2CAN-BUS cable

MPY490-X1, X2/Option

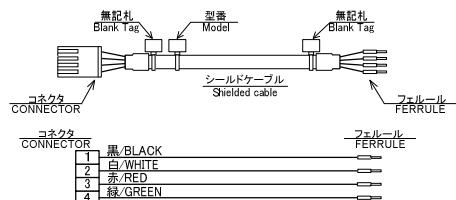
Type No.	Suffix code	Description
MPY490	CAN-BUS CABL
Cable length	-15 -30 X1 -50	1.5m 3.0m 5.0m
Cable end	-1 X2 -2	Connector-Connector Connector-Ferrule

ANN PWR cable

MPY492-□-□

X2= -1

MODEL MPY492

X2= -2ANN PWR cable

MPY492-X1, X2/Option

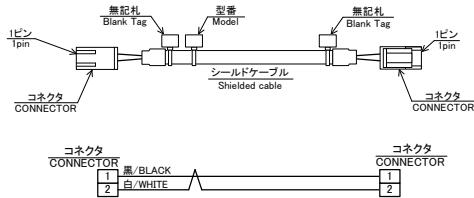
Type No.	Suffix code	Description
MPY492	ANN PWR CABLE(Annunciator power cable)
Cable length	-15 -30 X1 -50	1.5m 3.0m 5.0m
Cable end	-1 X2 -2	Connector-Connector Connector-Ferrule

Note: When MPT590 NAV I/F UNIT is "X1=P2", this cable is required.

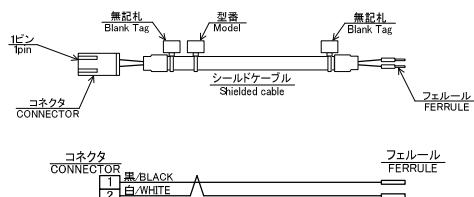
When MPT590 is "X1=S1,-S2,-F1", this cable is not required for wiring by inner cable.

PWR cable

MPY491-□-□

X2= -1

MODEL MPY491

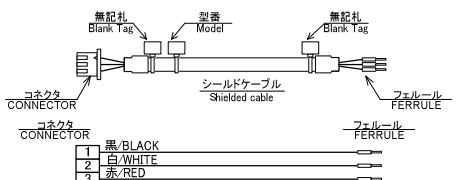
X2= -2PWR cable

MPY491-X1, X2/Option

Type No.	Suffix code	Description
MPY491	PWR CABLE (Power cable)
Cable length	-15 -30 X1 -50	1.5m 3.0m 5.0m
Cable end	-1 X2 -2	Connector-Connector Connector-Ferrule

ANN signal cable

MPY493-□-2



MPY493-X1, X2/Option

Type No.	Suffix code	Description
MPY493	ANN SIGNAL CABLE(Annunciator signal cable)
Cable length	-15 -30 X1 -50	1.5m 3.0m 5.0m
Cable end	X2 -2	Connector-Ferrule

Note: When MPT590 NAV I/F UNIT is "X1=P2", this cable is required. Order the same number as the pump.

When MPT590 is "X1=S1,-S2,-F1", this cable is not required for wiring by inner cable.

Spare part

Spare parts for PT900 MPZ190-X1...X8/Option		
Type No.	Suffix code	Description
MPZ190	SPARE PARTS FOR PT900
Style	-ANA -H2L -H2N -J2N -K2T -K3T -K4T -N1N -N2F -N2N -T2N -T3N -T4N -Y2A -Y3A -Y4A	Analog control type Hydraulic Power Unit Control(by KHLFMRM Type)(WITH Low level sensor) Hydraulic Power Unit Control(by KHLFMRM Type)(WITHOUT Low level sensor) Hydraulic Power Unit Control for Steering Gear Produced by MHI(WITHOUT Low level sensor) Steering Gear of Electrical Type of Pump Control by KHI (FE/RE Type)-2 sys Steering Gear of Electrical Type of Pump Control by KHI (FE/RE Type)-3 sys Steering Gear of Electrical Type of Pump Control by KHI (FE/RE Type)-4 sys Direct Control of Solenoid Valves for Steering Gear-1 sys Direct Control of Solenoid Valves for Steering Gear, Produced by MHI (SFC/DFC/Type) Direct Control of Solenoid Valves for Steering Gear-2 sys Steering Gear of Continuous Type of Control by Hatlapa.(SAMSUNG-HATLAPA, HATLAPA, RCIST Type) Steering Gear of Continuous Type of Control by Hatlapa.(SAMSUNG-HATLAPA, HATLAPA, RCIST Type) Steering Gear of Continuous Type of Control by Hatlapa.(SAMSUNG-HATLAPA, HATLAPA, RCIST Type) Steering Gear of Continuous Type of Control by MHI. Steering Gear of Continuous Type of Control by MHI.
X1	-1 -2 -3 -N	440VAC 380VAC 220VAC For Analog Control
OVRD terminal specification	1 2 3 N	NFU OVRD & NFU TAKEOVER or NFU TAKEOVER ONLY NFU OVRD only DNV NAUT-OC & AW rule Without
Steering gear X4	1 2	1 rudder 2 rudders
Fixed code X5	-N	
Box of sparepart X6	1 N	With With out (GP combine)
Name plate X7	1 2 N	Japanese & English English Without
Option	/C /SL	Name plate(Chinese) Solenoid power supply(For N type)