

General Specification

PT900 series

PT900

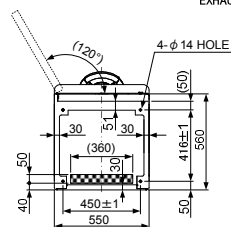
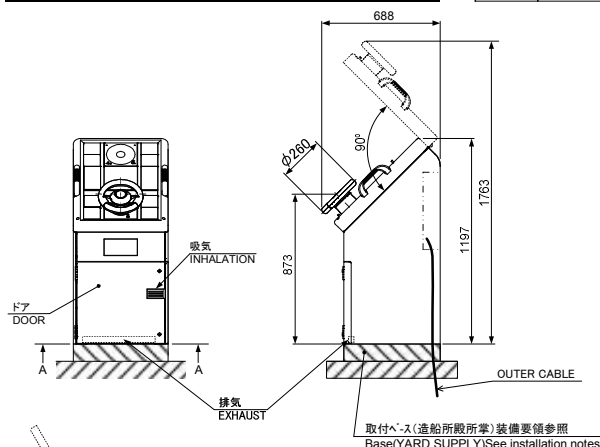
GS 80B21B03E 2nd

System components and accessories

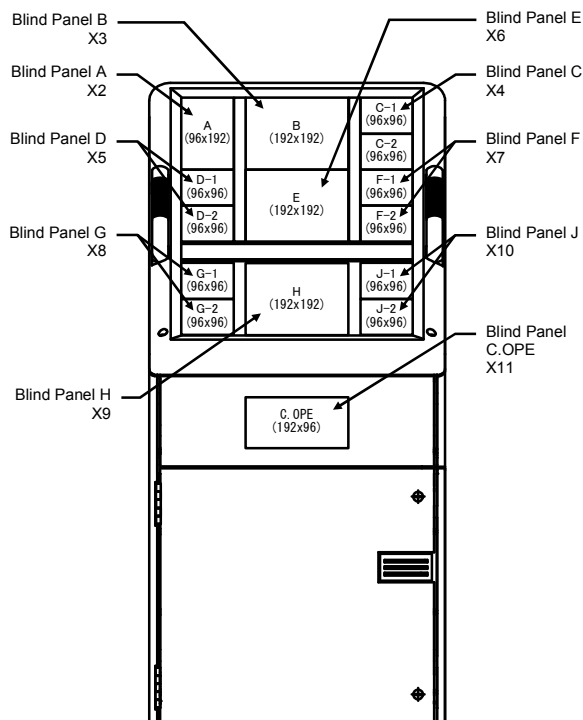
Control stand

MPM190-□-□□□-□□□-□□□-□□□-1

MODEL	MPM190
MASS	(100kg)



取付寸法 (A-A断面)
FIXING DIMENSION (Section A-A)



Control stand

MPM190-X1...X14/Option

Type No.	Suffix code	Description
MPM190	.....	CONTROL STAND
Style	-930 -940 -950 -960 -970	CMZ900Master compass separate type BuilHn CMZ900S Master compass& Control box (MKC326) BuilHn CMZ900S Master compass& Control box (MKC327) BuilHn CMZ900Master compass BuilHn Control box(MKC326)
X1	-980	BuilHn Control box (MKC327)
Blind panel A	-1 x2 -N	With Without
Blind panel B	1 x3 N	With Without
Blind panel C	1 2 3 X4 N	With C-1,C-2 With C-1 With C-2 Without
Blind panel D	-1 -2 -3 X5 -N	With D-1,D-2 With D-1 With D-2 Without
Blind panel E	1 X6 N	With Without
Blind panel F	1 2 3 X7 N	With F-1,F-2 With F-1 With F-2 Without
Blind panel G	-1 -2 -3 X8 -N	With G-1,G-2 With G-1 With G-2 Without
Blind panel H	1 X9 N	With Without
Blind panel J	1 2 3 X10 N	With J-1,J-2 With J-1 With J-2 Without
Blind panel C.OPE	-1 X11 -N	With Without
Standards	1 2 3 X12	JG MED CCS
Name plate	1 X13 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 I/F, 2pumps 2ridders)

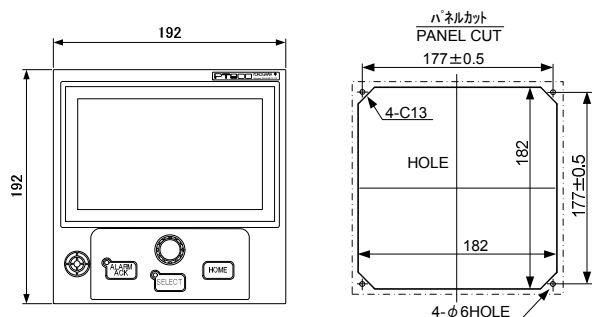
Note: If the following equipment is required to install on the Control stand upper panel, inform the dimensional drawing of them in advance.

- Microphone
- Magnetic compass dimmer
- Rudder angle indicator

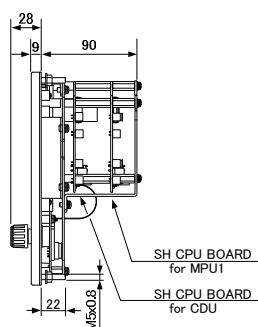
AP CDU (Auto Pilot Control & Display Unit)

MPH490-□-E-□-□-□-□□□-□1

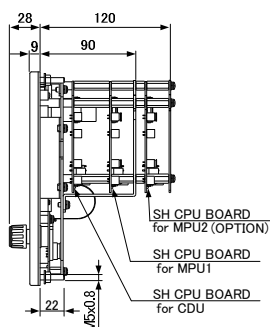
MODEL	MPH490
MASS	2.5kg
IP GRADE	IP22



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 Built-in control stand(Single AP CDU) -S1 Built-in control stand :No.1 (Dual AP CDU) -S2 Built-in control stand :No.2 (Dual AP CDU) -PN Built-in console(Single AP CDU) -P1 Built-in console :No.1(Dual AP CDU) -P2 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:

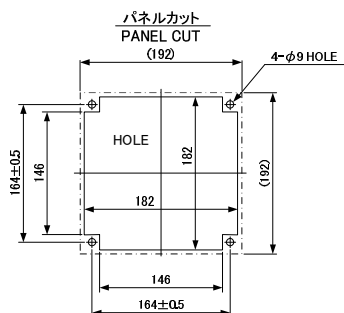
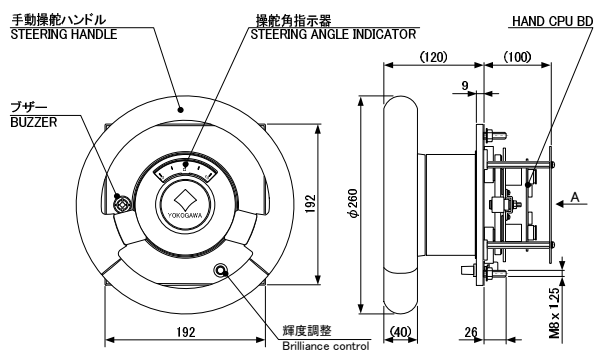
(1) Inform the ECDIS maker in advance.

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

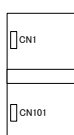
Hand steering unit

MPB390-P□□-□□□1

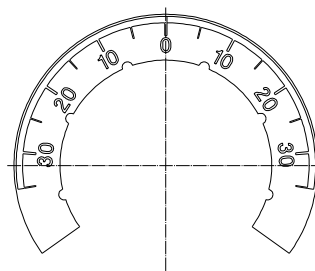
MODEL	MPB390
MASS	6.5kg
IP GRADE	IP22



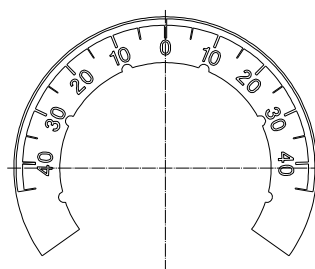
矢視A
View A
HAND CPU BD connector layout



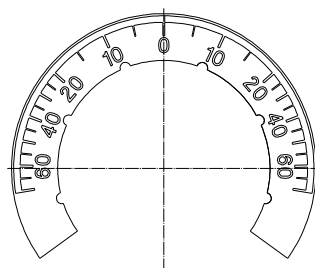
X2=1 (for 35°)



X2= 2, 3 (for 45°)



X2= 4, 5, 6 (for 60~70°)



Hand steering unit

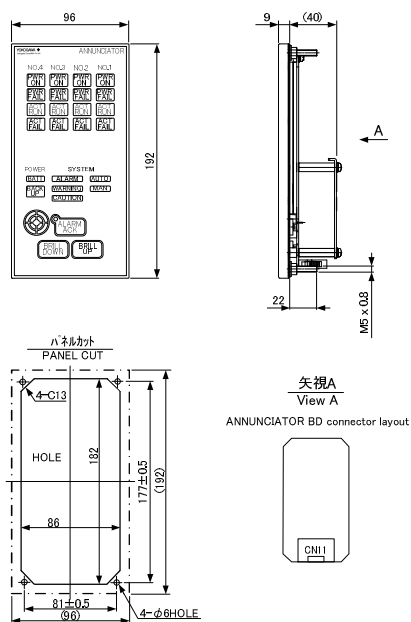
MPB390-X1...X7/Option

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	±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)
System circuit	1	1 pump
	2	2 to 4 pumps
X3	4	2 to 4 pumps Twin rudder
Cable length	-30	3.0m
	-50	5.0m
X4	-NN	Built-in control stand(1.4m)
Standards	-N	Without
X5	-3	CCS
Name plate	1	Japanese & English
X6	2	English
Paint color	X7 1	Munsell0.8Y 2.5/0.4 (LAMP BLACK)
Option	/C	Name plate(Chinese)
	/B	With Bezel(□214,IP22)
	/SN	English for System plate
	/WA	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)
	-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
X2		
Sheet key characterK3	-E	English
Cable length	-30	3.0m
	-50	5.0m
X4	-NN	Built-in control stand(1.0m)
Standards	-1	JG
	-2	MED
X5	-3	CCS
Name plate	1	Japanese & English
X6	2	English
Paint color	X7 1	Munsell0.8Y 2.5/0.4 (LAMP BLACK)
Option	/C	Name plate (Chinese)
	/B	With bezel(118×214,IP22)

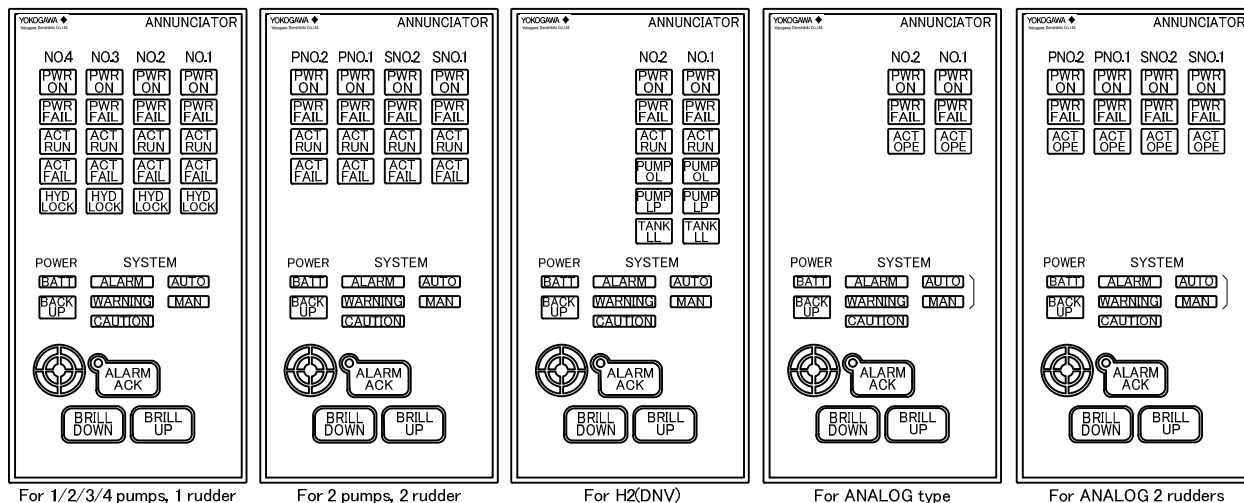
X2=-01, -02, -04, -05,
-07, -08, -09, -10

X2=-06, -12

X2=-03

X2=-13

X2=-11

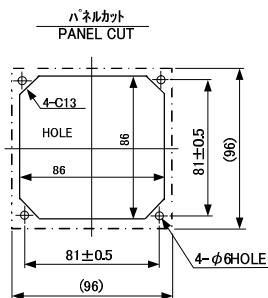
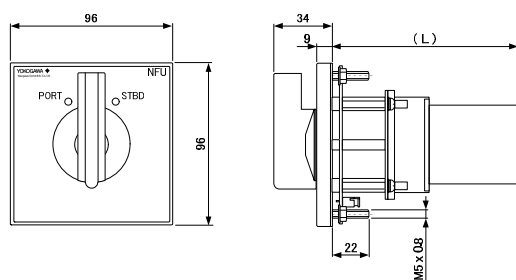


Note: The sheet design depends on the number of S/G pumps,
the type of Control & Power Box and type of steering
actuator.

NFU lever

MPB391-P□E-□-□□1

MODEL	MPB391
MASS	1.0kg
IP GRADE	IP22



Depth(L)
 L=110, when X=12
 L=140, when X=34
 L=140, when X=12 & /ADD
 L=115, when X=34 & /ADD

NFU Lever MPB391-X1...X7/Option

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

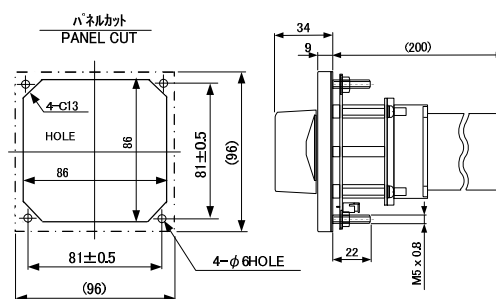
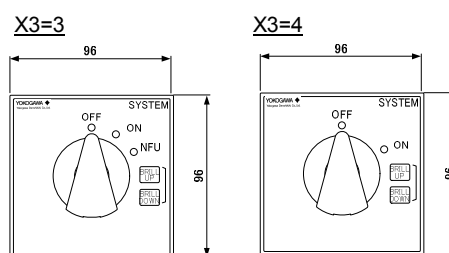
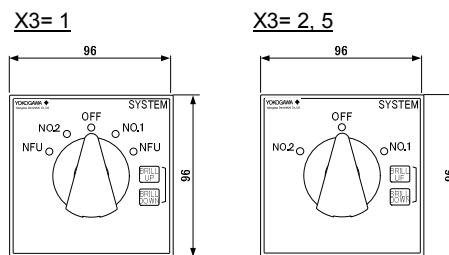
(2) This option can not be selected for bezel type.

(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

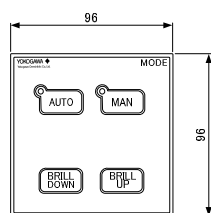
Type No.	Suffix code	Description
MPH790	.....	SYSTEM SELECTOR
Style	-S	Built-in control stand(IP22)
X1	-P	Built-in console(IP22)
Number of pumps	1	1 Pump
	2	2 Pumps
	3	3 Pumps
X2	4	4 Pumps
Systems circuit	1	2 circuits with NFU (NFU-NO.2-OFF-NO.1-NFU)
	2	2 circuits without NFU(NO.2-OFF-NO.1)
	3	1 circuit with NFU(OFF-ON-NFU)
	4	1 circuit with NFU(OFF-ON)For Analog
X3	5	2 circuits without NFU (NO.2-OFF-NO.1)For Analog
Sheet key character	X4 -E	English
Cable length	-30	3.0m
	-50	5.0m
X5	-NN	Built-in control stand
Standards	-1	JG
	-2	MED
X6	-3	CCS
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)
	/TM	With OVRD TERMINAL

Mode selector

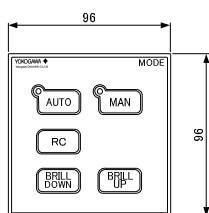
MPH791-P□E-□□1

MODEL	MPH791
MASS	0.5kg
IP GRADE	IP22

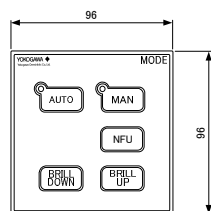
X2= 1



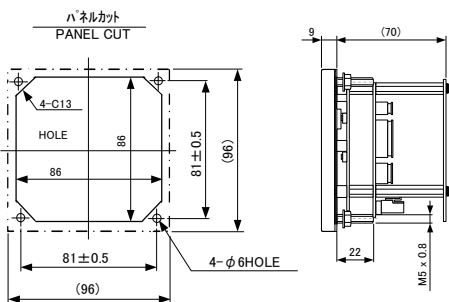
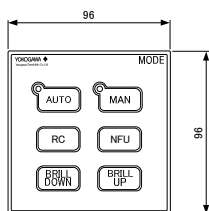
X2= 2



X2= 3



X2= 4



Mode selector

MPH791-X1...X6/Option

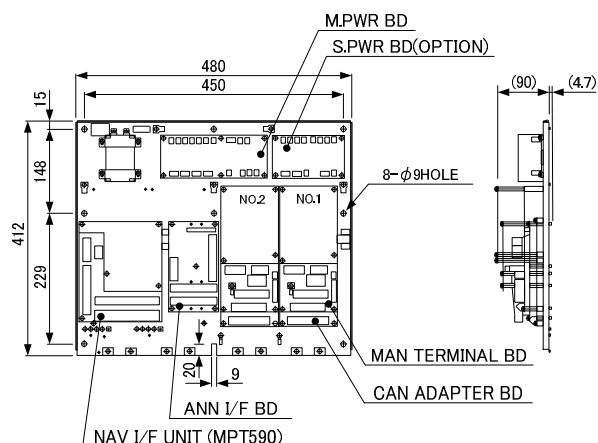
Type No.	Suffix code	Description
MPH791	.....	MODE SELECTOR
Style	—S	Built-in control stand(IP22)
X1	—P	Built-in console(IP22)
Steering mode	1	[AUTO][MAN] select
	2	[AUTO][MAN] select, with [RC] indicator
	3	[AUTO][MAN] select, with [NFU] indicator
X2	4	[AUTO][MAN] select, with [RC][NFU] indicator
Sheet key character	E	English
X3		
Standards	—1	JG
	—2	MED
X4	—3	CCS
Name plate	1	Japanese & English
X5	2	English
Paint color	X6 1	Munsell0.8Y 2.5/0.4(LAMP BLACK)
Option	/C	Name plate(Chinese)
	/B	With bezel(□118,IP22)

MCU (Main Control Unit)

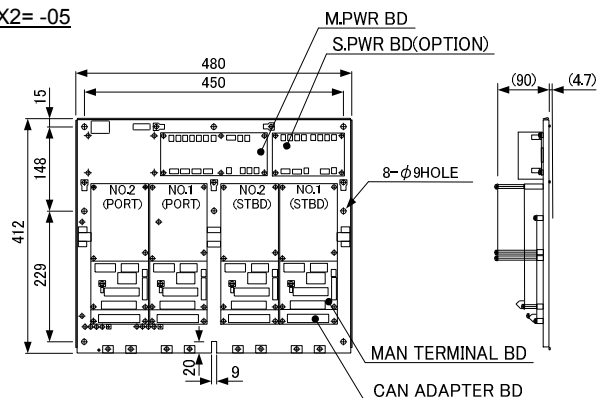
MPH291-F-□-□□□

X2= -03, -04

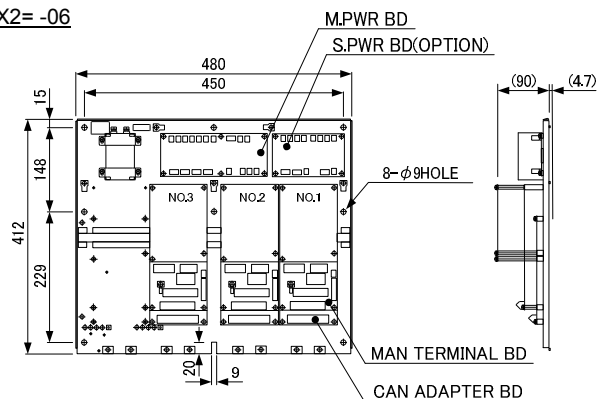
MODEL	MPH291
MASS	13.5kg



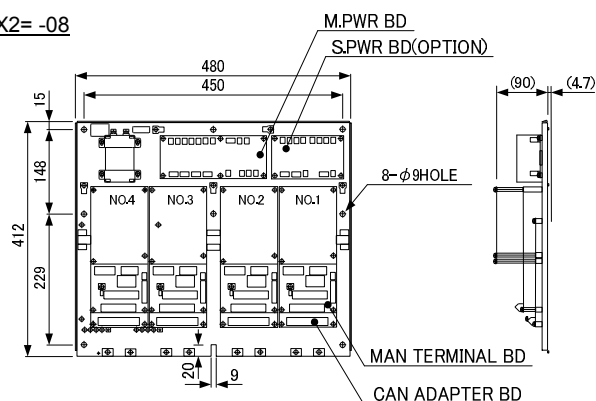
X2= -05



X2= -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)
X2	—15	Analog 2circuits/2rudders(with HAND)
Additional Power supply terminal X3		—1 —N
		With (1) Without
Standards		1 2 3
		JG MED CCS
X4		
Name plate		1
X5		2
		Japanese & English English
Option		
		/C
		/TM
		/CM1
		/CM2
		/CMM
		/RAS
		Name plate (Chinese) Interface OVRD TERMINAL Power supply for NO.1 AP CDU (2) Power supply for NO.2 AP CDU (2) Power supply for AP CDU (2) With switching steering angle

Note:

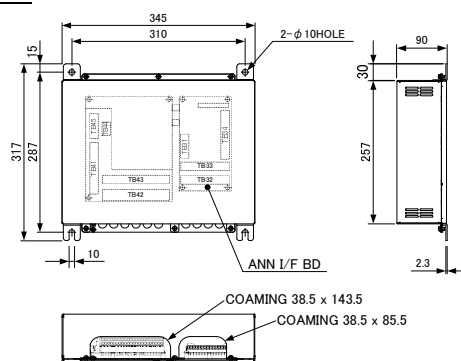
- (1) Select this option when X1=S & some unit is installed on console and wing. Power supply terminal will be added. The power is supplied to each position (BCC:4CH, S/W, P/W :each 2CH, W/H CAN, S/G CAN :each 4CH).
- (2) In case of X1=S, this option can be selected. When the Autopilot has single AP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

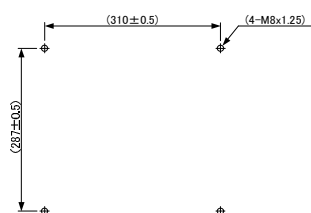
MPT590-□-□□□-□□□-□□□-□□□

X1= -F2

MODEL	MPT590
MASS	(10.0kg)



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

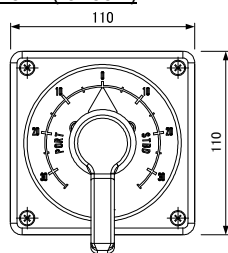
- (1) Inform I/F format by order sheet.
- (2) ECDIS format is selected by track control(X5) of AP CDU(MPH490).
- (3) Signal for VDR can be connected until maximum of 4Ch. Inform connected equipment by order sheet.
- (4) Inform Connected equipment by order sheet.
- (5) In case of X1=-S1,-F1, this unit 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

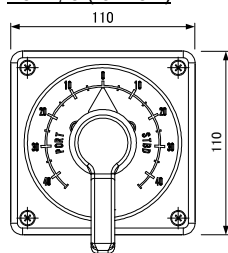
MPB393-P□1-□□1

MODEL	MPB393
MASS	1.5kg
IP GRADE	IP56

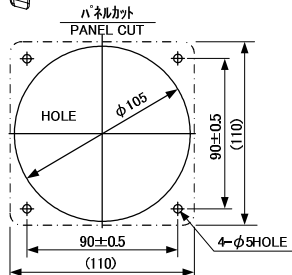
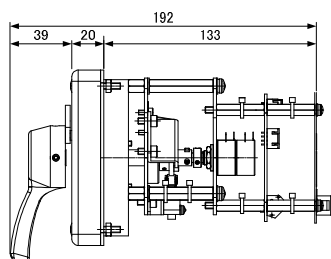
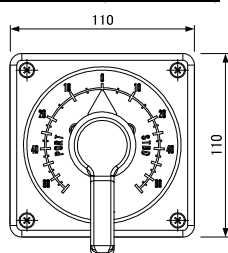
X3=1 (for 35°)



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)
	6	±35°/±70° (Single scale/unlinear)
Signal Channel	X3 -N	1 circuit
X4	-N	Without
	-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)

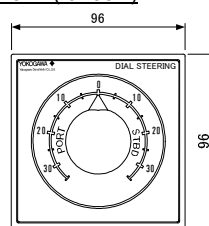
Note: This unit is used in combination with TAKE-OVER UNIT(MPH793).
It is attached a connection cable(1m) for TAKE-OVER UNIT(MPH793).
(1)When this unit combine with FU OVRD OPERATION UNIT(MPH794),
select X4=-1(with Midship detect).

Dial steering unit

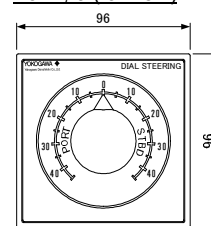
MPB394-PE□-N□1

MODEL	MPB394
MASS	1.0kg
IP GRADE	IP56

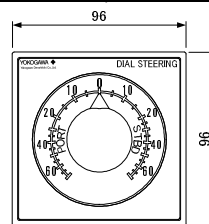
X3=1 (for 35°)



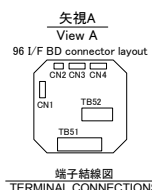
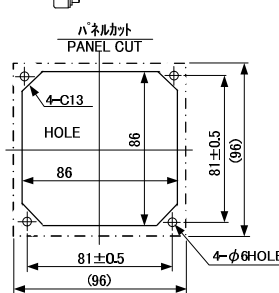
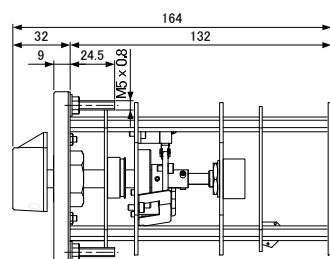
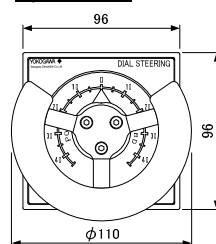
X3=2, 3 (for 45°)



X3=4, 5, 6 (for 60~70°)



Option=WH



Dial steering unit MPB394-X1...X6/Option

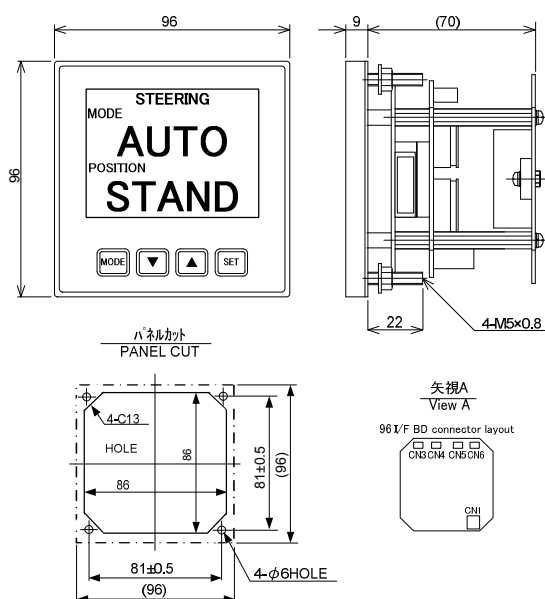
Type No.	Suffix code	Description
MPB394	.....	DIAL STEERING UNIT
Style	-S	Built-in control stand(IP22)
X1	-P	Built-in console(IP56)
Sheet character	X2 E	English
Steering angle	1	±35°
	2	±45°
	3	±35°/±45° (Single scale)
	4	±35°/±60° (Single scale/unlinear)
	5	±35°/±65° (Single scale/unlinear)
	6	±35°/±70° (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

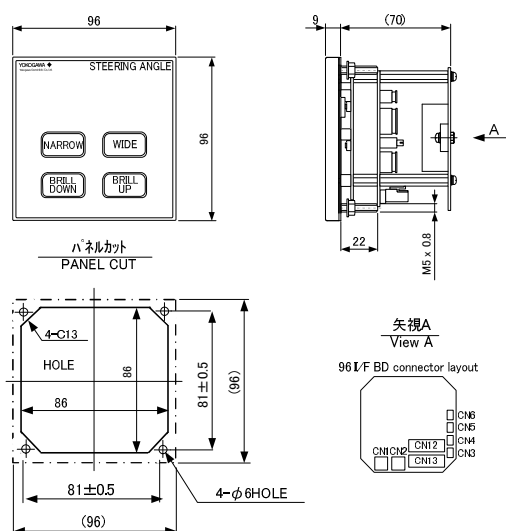


Steering indicator		MPH590-X1...X6/Option
Type No.	Suffix code	Description
MPH590	.....	STEERING INDICATOR
Style	-S	Built-in control stand(IP22)
X1	-P	Built-in console(IP22)
Display	X2 1	STEERING POSITION & MODE
Sheet key character	X3 E	English
Fixed code	X4 -N	
Name plate	1	Japanese & English
X5	2	English
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



Steering angle indicator MPH591-X1...X6/Option

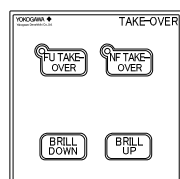
Type No.	Suffix code	Description
MPH591	.....	STEERING ANGLE INDICATOR
Style	-S	Built-in control stand(IP22)
X1	-P	Built-in console(IP22)
Rudder angle display	1	NARROW/WIDE
Sheet key character	X3 E	English
Fixed code	X4 -N	
Name plate	1	Japanese & English
X5	2	English
Paint color	X6 1	Munsell0.8Y 2.5/0.4(LAMP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

Take-over unit

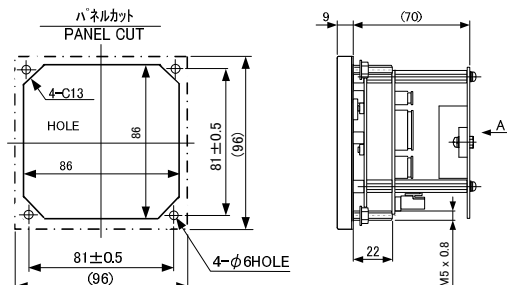
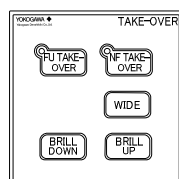
MPH793-P-□-□□E-N□1

MODEL	MPH793
MASS	0.5kg
IP GRADE	IP22

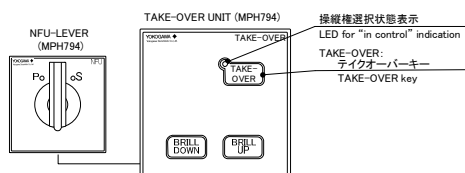
X4=-N



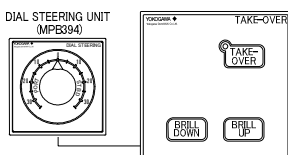
X4=-1



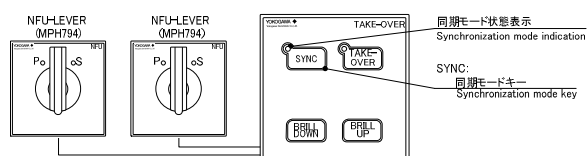
X2=-03



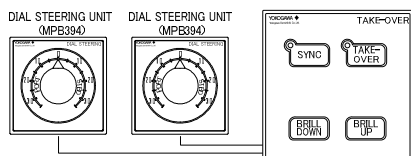
X2=-04 to -09



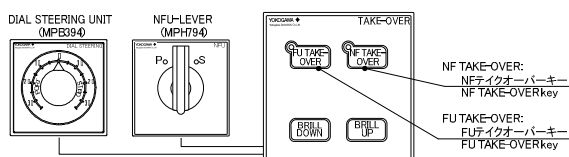
X2=-10



X2=-11 to -16



X2=-17 to -22



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)
X2	-1	STAND(IP22)
	-2	BCC(IP22)
	-3	PORT WING(IP56)
	-4	STBD WING(IP56)
Steering position	1	With wide angle select indicate
	N	Without
Status display	X5	E English
Fixed code	X6	-N
Name plate	1	Japanese & English
	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).

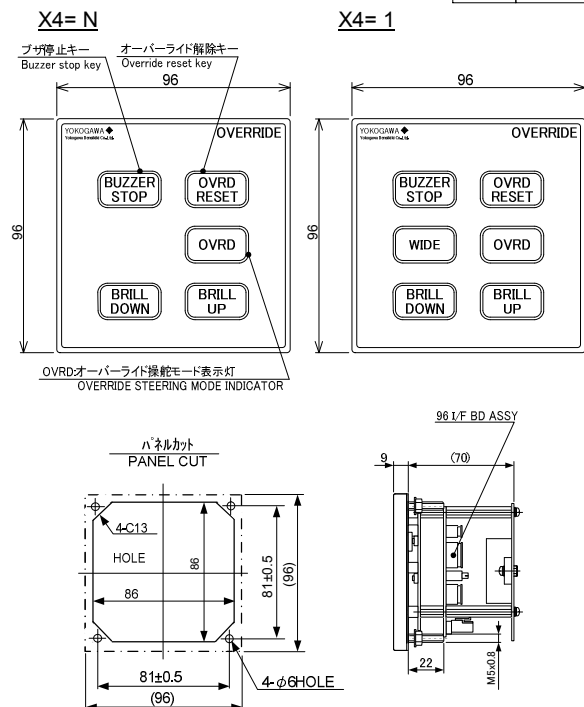
※In either case the following, order this unit.

- (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 has 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

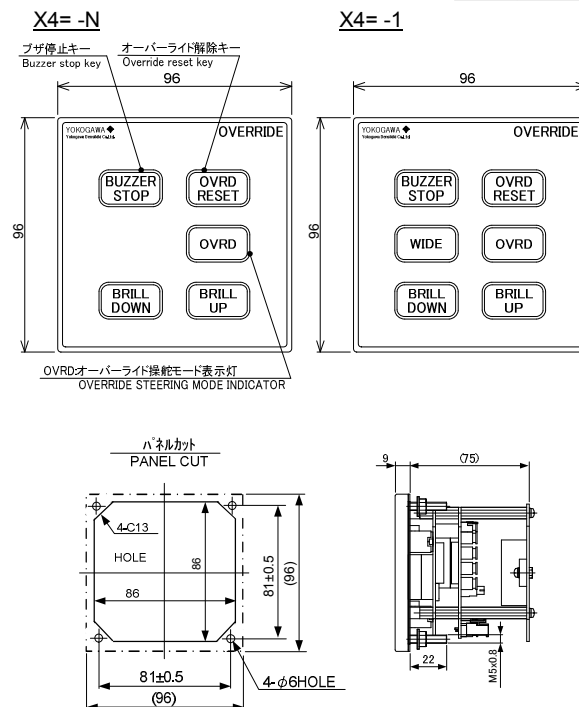
MODEL	MPH794
MASS	0.5 kg
IP GRADE	IP22



NFU OVRD operation unit

MPH795-P12-□E-□-N□1

MODEL	MPH795
MASS	0.5 kg
IP GRADE	IP22



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 $\pm 35^\circ$
	-02	DIAL STEERING $\pm 45^\circ$
	-03	DIAL STEERING $\pm 35^\circ/\pm 45^\circ$
	-04	DIAL STEERING $\pm 35^\circ/\pm 60^\circ$
	-05	DIAL STEERING $\pm 35^\circ/\pm 65^\circ$
	-06	DIAL STEERING $\pm 35^\circ/\pm 70^\circ$
X2		
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
	2	English
Paint color	X8 1	Munsell 0.8Y 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

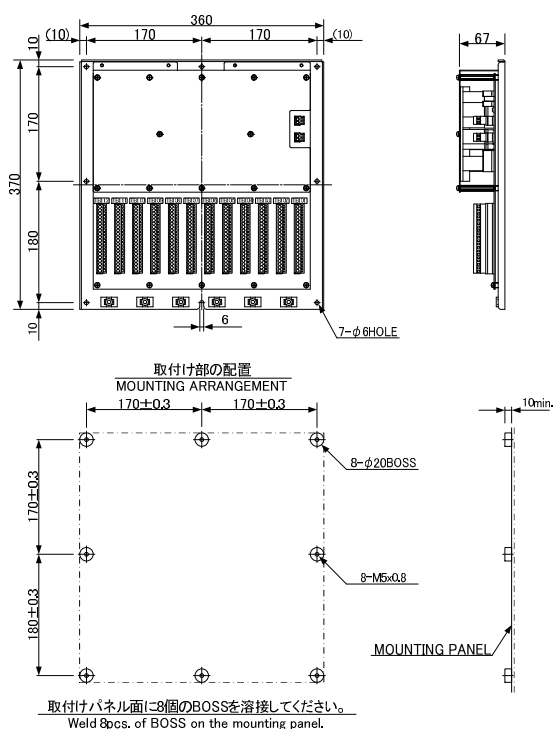
Type No.	Suffix code	Description
MPH795	.....	NFU OVRD OPERATION UNIT
Style	X1 -P	Built-in console(IP22)
Interface Unit	X2 1	NFU LEVER
Steering position	X3 2	BCC
Status display	-1	With wide angle select indicator
X4	-N	Without
Sheet key character	X5 E	English
Cable length	-30	3.0m
	-50	5.0m
Fixed code	X7 -N	
Name plate	1	Japanese & English
	2	English
Paint color	X9 1	Munsell 0.8Y 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



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)

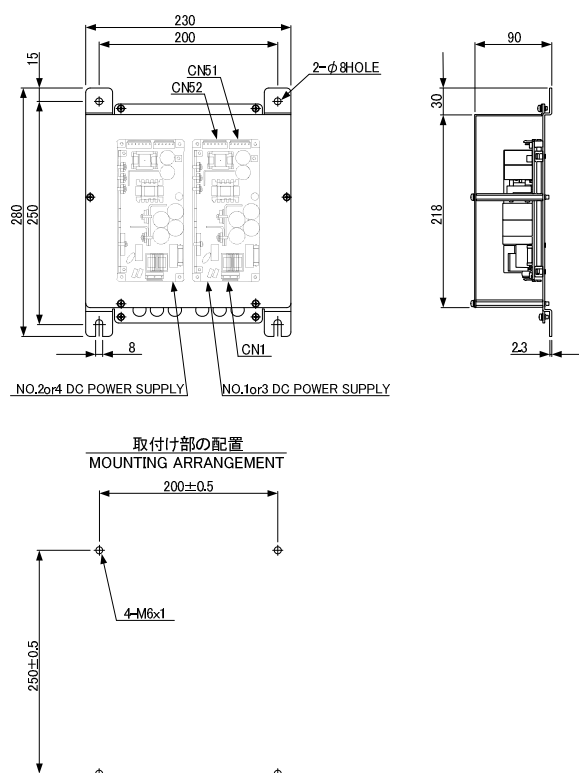
Note:

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

DC PWR unit

MPS190-F□□-□

MODEL	MPS190
MASS	3.0kg



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
X3	3	CCS
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

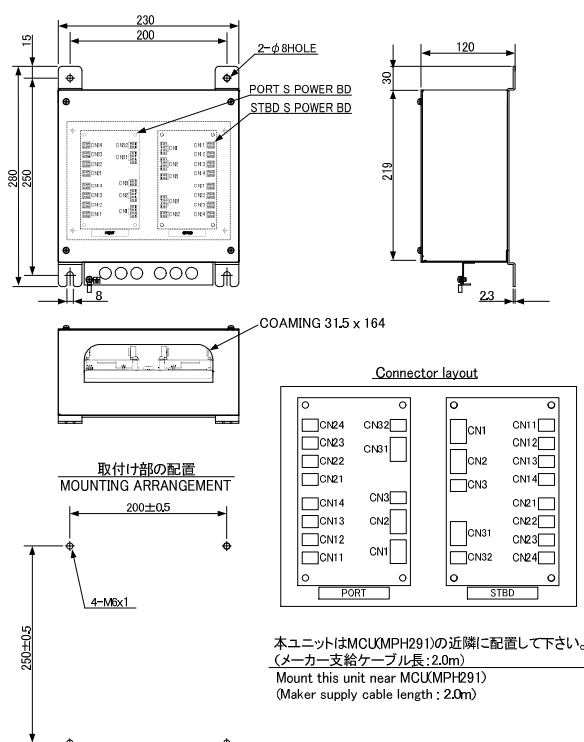
In case of "4 pumps" or "2pumps 2rudders", select X2=1(No.1/2) and X=2(No.3/4) each separately.

(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	-1	Japanese & English
X4	-2	English
Option	/C	Name plate(Chinese)

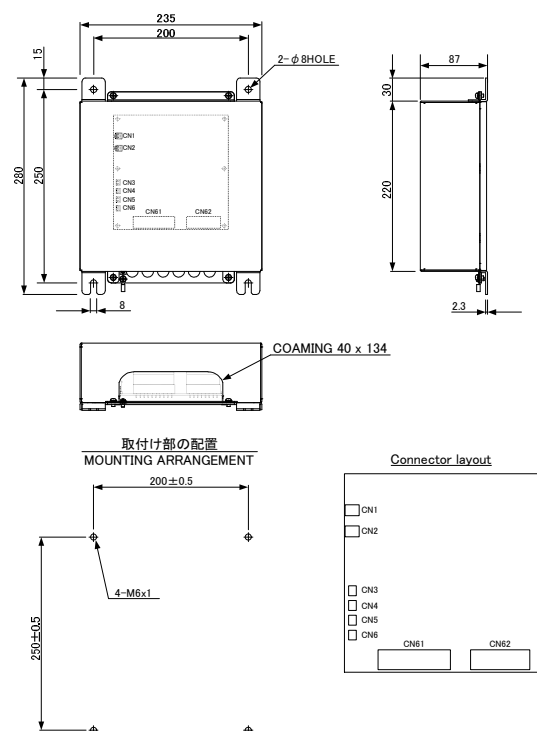
Note: In case of using this unit, arrange DC PWR unit (MPS190) as well.

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	-S	Built-in control stand
X1	-F	Built-in console
Interface unit	1	DP
	2	JOY
	3	NACOS
	4	TRACK PILOT
	5	For analog control 1 circuit / input/output-1ch
	6	For analog control 1 circuit / input/output-2ch
	7	For analog control 2 circuit / input/output-1ch
	8	For analog control 2 circuit / input/output-2ch
Interface signal	1	±10V (-:PORT, +:STBD) (1)
X3	2	4-20mA(4mA:PORT, 20mA:STBD) (1)
Steering angle	-1	±40° (2)
	-2	±45° (2)
X4	-3	±80° (2)
Change over of control	X5 1	SELECT TYPE (3)
	2	TAKE-OVER TYPE (3)
Nama plate	1	Japanese & English
X6	2	English
Option	/C	Name plate(Chinese)
	/NB1	No.1(Case of multiple equipment)
	/NB2	No.2(Case of multiple equipment)
	/PORT	For PORT (4)
	/STBD	For STBD (4)
	/LB	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.)

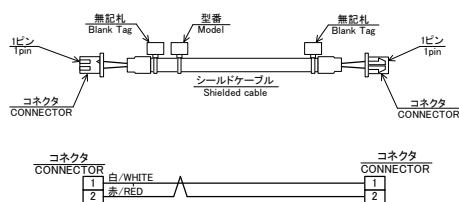
(4) In case of 2 rudders and X2 = 1,2,5 to 8, select the corresponding rudder.

CAN-BUS cable

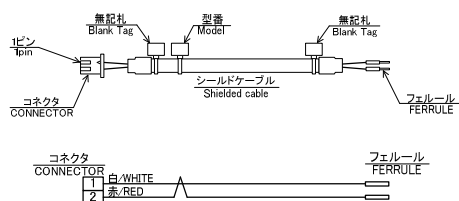
MODEL MPY490

MPY490-□-□

X2=-1



X2=-2



CAN-BUS cable MPY490-X1, X2/Option

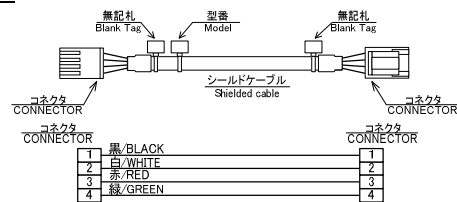
Type No.	Suffix code	Description
MPY490	.....	CAN-BUS CABL
Cable length	-15 -30 -50	1.5m 3.0m 5.0m
Cable end	-1	Connector—Connector
X2	-2	Connector—Ferrule

ANN PWR cable

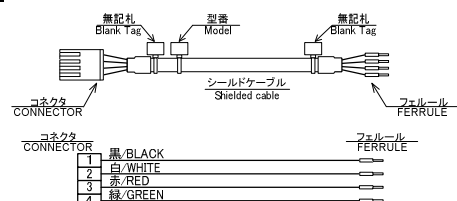
MODEL MPY492

MPY492-□-□

X2=-1



X2=-2



ANN PWR cable MPY492-X1, X2/Option

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

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

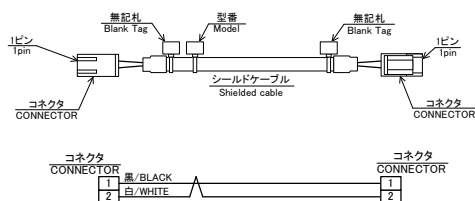
When MPT590 is "X1=S1,-S2,-F1", this cable is not required for wiring by inner cable.

PWR cable

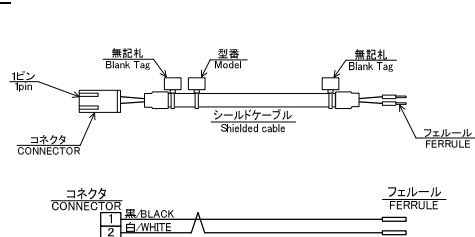
MODEL MPY491

MPY491-□-□

X2=-1



X2=-2



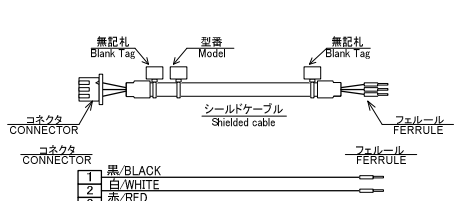
PWR cable MPY491-X1, X2/Option

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

ANN signal cable

MODEL MPY493

MPY493-□-2



ANN signal cable MPY493-X1, X2/Option

Type No.	Suffix code	Description
MPY493	.....	ANN SIGNAL CABLE(Annunciator signal cable)
Cable length	-15 -30 -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 MHL(WITHOUT Low level sensor) Steering Gear of Electrical Type of Pump Control by KHL(FE/RE Type)-2 sys Steering Gear of Electrical Type of Pump Control by KHL(FE/RE Type)-3 sys Steering Gear of Electrical Type of Pump Control by KHL(FE/RE Type)-4 sys Direct Control of Solenoid Valves for Steering Gear-1 sys Direct Control of Solenoid Valves for Steering Gear. Produce by MHL (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,RCJST Type) Steering Gear of Continuous Type of Control by Hatlapa(SAMSUNG+HATLAPA,HATLAPA,RCJST Type) Steering Gear of Continuous Type of Control by Hatlapa(SAMSUNG+HATLAPA,HATLAPA,RCJST Type) Steering Gear of Continuous Type of Control by MHL. Steering Gear of Continuous Type of Control by MHL. Steering Gear of Continuous Type of Control by MHL.
X1		
System power supply	—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
X3		
Steering gear	1	1 rudder
X4	2	2 rudders
Fixed code	X5	—N
Box of sparepart	1	With
X6	N	With out (GP combine)
Name plate	1	Japanese & English
	2	English
X7	N	Without
Option	/C	Name plate(Chinese)
	/SL	Solenoid power supply(For N type)