5-CHANNEL NAVIGATION MONITOR

OPERATION MANUAL

Model：NM501

NINGLU

Doc No：LT-NM501-SSEN
Version：V20121109

Content

Instruction

NM501 is 5-channel navigation monitor of echo sounder, anemometer, gyrocompass, speed log and GPS. Users can set multiple/single display mode, day/night mode, LCD brightness, unit, wind alarm and depth alarm. Its rugged and handsome design offers excellent user feelings.
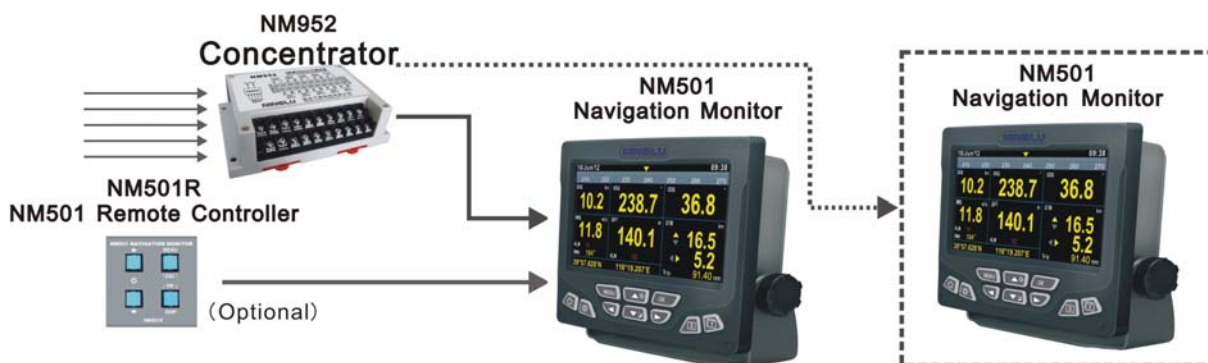Multiple installation methods facilitate observation in different positions.

Features

➢ Display depth/gyro/wind/speed/GPS data simultaneously.

➢ Single-window/Multi-window mode for option.

➢ Gyrocompass heading, wind curve/depth curve.

➢ Wind alarm/shallow alarm, adjustable unit of speed/distance.

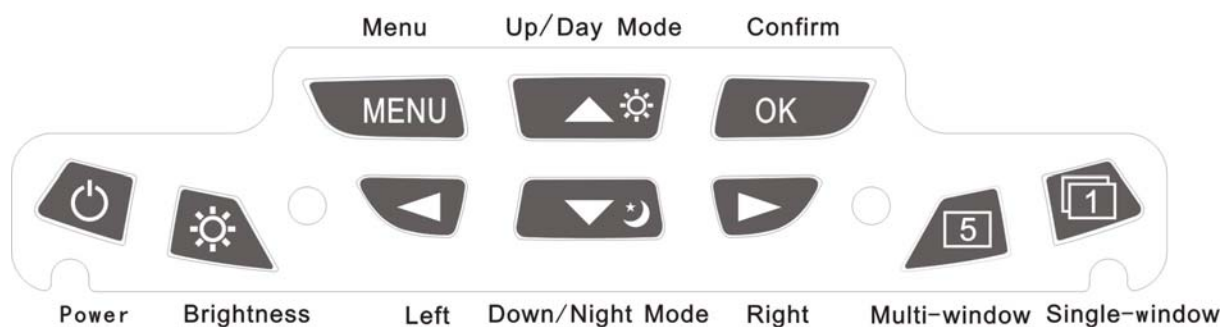➢ Adjustable brightness, remote controller.

System composition

NM952 concentrator concentrates 5-channel external equipments into 1 line for Navigation monitor NM501.

Complete NM501 system is composed of: NM501 navigation monitor, NM952 concentrator, NM501R navigation monitor (optional).

Operation

Keyboard

Keyboard backlight

Press any key to turn on the keyboard backlight.

Backlight will go off when no operation for 10 seconds.

Day/night mode

Day mode:　　press【▲☼】key.

Night mode:　press【▼☽】key.

Power

⏻ Turn on/off.

Brightness

☼ Adjust the LCD brightness.

Arrow keys (Up/Down/Left/Right)

Press【MENU】key into menu setting:

【▲☼】【▼☽】【◀】【▶】keys are used for the menu value setting.

OK

Press【OK】key to confirm the setting value and return to previous menu.

2

NENU

Press【MENU】key into menu setting:

【▲✿】【▼☽】【◀】【▶】keys are used for the choosing menu value.

Press【OK】key to confirm the setting value and return to previous menu.

Press【MENU】key to cancel this operation and return to previous menu.

Menu Ⅰ	Menu Ⅱ	Default	Parameters
Depth Set	Depth Unit	[m]	m (meter), ft (foot),fm (fathom).
	Depth Alarm	[OFF]	Shallow alarm range：OFF,1~99m. The displayed value will be auto converted as per the depth unit.
Wind Set	Wind Unit	[m/s]	m/s, km/h, knots.
	Wind Alarm	[OFF]	Wind alarm range: OFF,1~25m/s. The displayed value will be auto converted as per the depth unit.
	Wind Mode	[Relative]	Wind displayed mode: Relative, True. Relative mode: RWS + RWA displayed. True: TWS + TWA displayed.
Speed Set	Speed Unit	[knots]	knots, km/h.
	Distance Unit	[nm]	nm, km.
	Speed Mode	[dual-axis speed]	Single-axis speed, dual-axis speed.
Time Scale		[30min]	30min, 1h, 2h, 3h, 6h, 12h, 24h.

Multi-window mode

All data of 5-channel equipments are displayed simultaneously in this mode, press 【 ⑤ 】 to choose between 2 modes: Multi-window mode 1 / 2. In multi-window mode, time-scale of wind curve is 12 hours and depth curve is 30 minutes (unchangeable).

Multi-window mode 1

①	Date and Time (day/month/year, hour: minute).
②	360 °heading scale plate.
③	SOG: speed over ground.
④	HDG: heading
⑤	COG: course over ground
⑥	RWS/TWS relative/true wind speed, ALM wind alarm. RWA/TWA relative/true wind direction.
⑦	DPT depth, ALM shallow alarm.
⑧	STW ship speed (relative to water), Trip (distance of current trip).
⑨	Latitude, Longitude.

Multi-window mode 2

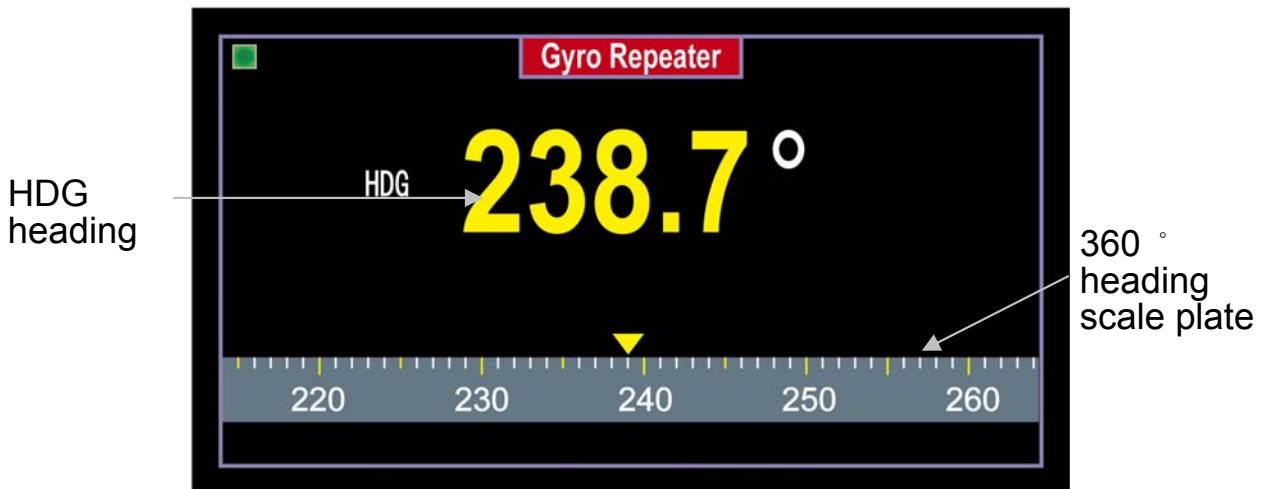|	
①	Date and Time (day/month/year, hour: minute). Latitude, Longitude.
②	360 °heading scale plate.
③	From left to the right: RWS/TWS: relative/true wind speed, RWA/TWA: relative/true wind direction, HDG: heading. DPT: depth, ALM shallow alarm.
④	Wind speed curve within 12 hours, Wind alarm curve / red cursor.
⑤	STW: ship speed (relative to water), Trip (distance of current trip).
⑥	DPT: depth curve with 30m minutes, Shallow alarm curve / cursor.
⑦	SOG: speed over ground.
⑧	COG: course over ground

Single-window mode

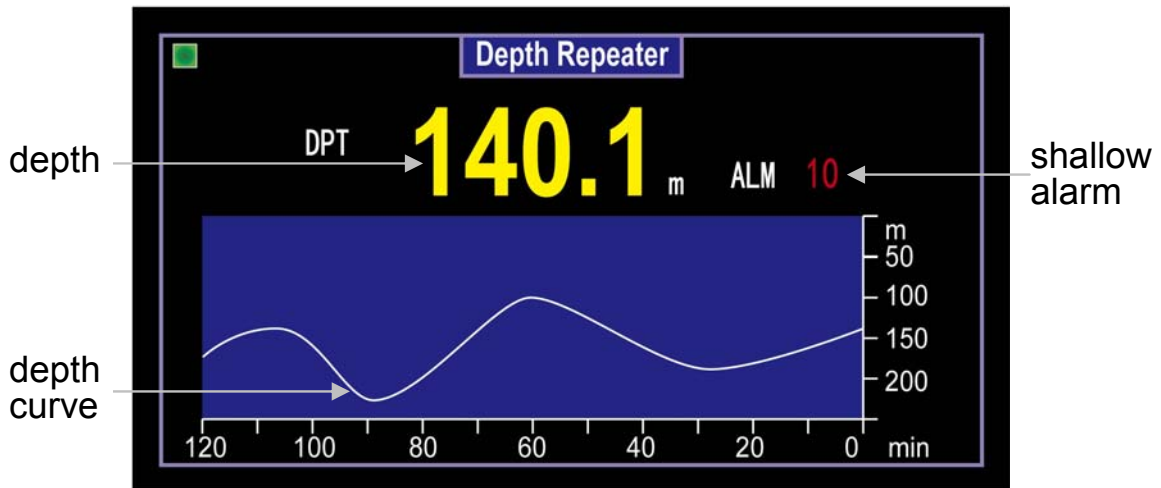Display mode for single external equipments of the 5-channels, press

【 🔲 】 to switch between the 5 channels.

In the single-window mode, the upper left color lump means：

green-signal, grey-no signal.

<u>Single-window 1: Gyro repeater</u>

HDG
heading

360°
heading
scale plate

<u>Single-window 2: Depth repeater</u>
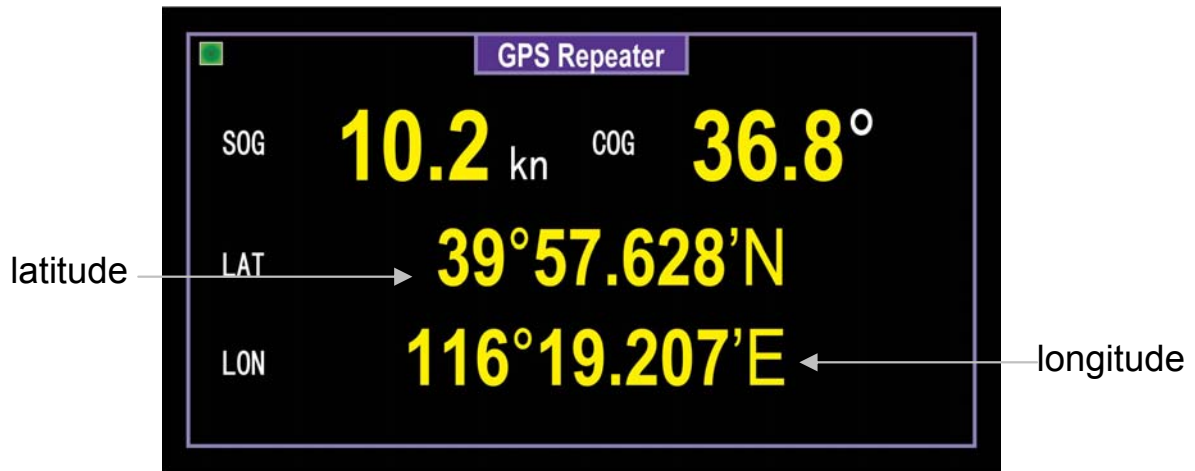

depth

shallow
alarm

depth
curve

Setting on the menu:

〖 **Depth Unit** 〗**:**   m (meter), ft (foot),fm (fathom) .

〖 **Depth Alarm** 〗**:** shallow alarm range：OFF, 1~99m.

〖**Time Scale**〗**:**   30min,1h, 2h, 3h, 6h,12h, 24h.
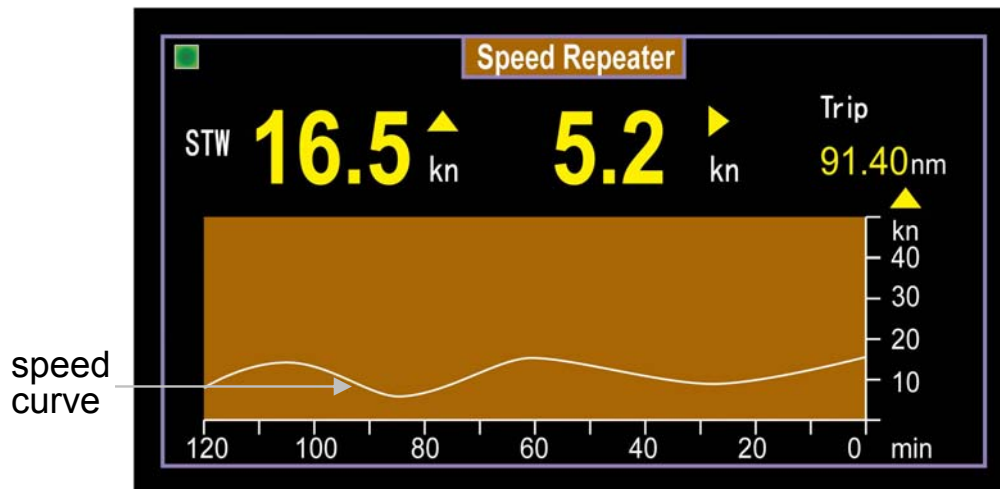
Single-window 3: GPS repeater

latitude → LAT 39°57.628'N

longitude ← LON 116°19.207'E

SOG: speed over ground.

COG: course over ground

Single-window 4: Speed log repeater

speed curve →

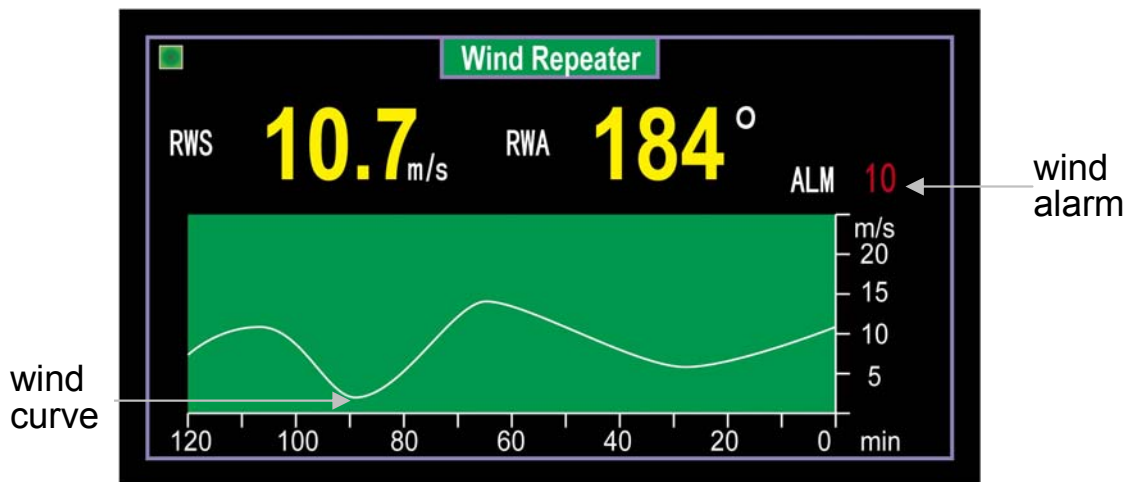STW: ship speed (relative to water) / Trip (distance of current trip).

Setting on the menu:

〖**Speed Unit**〗**:**   knots, km/h

〖**Distance unit**〗**:** nm, km

〖**Speed Mode**〗**:**   single-axis speed, dual-axis speed

〖**Time Scale**〗**：**   30min, 1h, 2h, 3h, 6h, 12h, 24h

Single-window 5: Wind repeater

RWS/TWS: relative/true wind speed.

RWA/TWA: relative/true wind direction.

Setting on the menu:

〖**Wind Unit**〗**:**   m/s, km/h, knots.

〖**Wind Alarm**〗**:** OFF, 1~25m/s.

〖**Wind Mode**〗**:** Relative, True.

                       Relative mode: **RWS RWA**.

                       True mode: **TWS TWA**.

〖**Time Scale**〗**:** 30min, 1h, 2h, 3h, 6h, 12h, 24h.

Alarm

Users can set wind alarm and depth alarm in the menu.

Press any key to mute the alarm.

The alarm will sound when the alarm is triggered again.

Date and time

With data and time data input, NM501 will display date and time in all display modes.

Sentence format acceptable

Gyrocompass sentence:

Heading: $--HDT, x.x, T*hh<CR><LF>

Depth sentence:

Depth: $--DBT, x.x, f, x.x, M, x.x, F*hh<CR><LF>

$--DPT, x.x, x.x, x.x*hh<CR><LF>

GPS sentence:

GPS：$--RMC, hhmmss.ss, A, llll.ll,a, yyyyy.yy, a, x.x, x.x, xxxxxx, x.x,a, a*hh<CR><LF>

Date and time: $--ZDA, hhmmss.ss, xx, xx, xxxx, xx, xx*hh<CR><LF>

Latitude and longitude:

$--GLL, llll.ll, a, yyyyy.yy, a, hhmmss.ss, A, a*hh<CR><LF>

SOG/COG:$--VTG, x.x, T, x.x, M, x.x, N, x.x, K,a*hh<CR><LF>
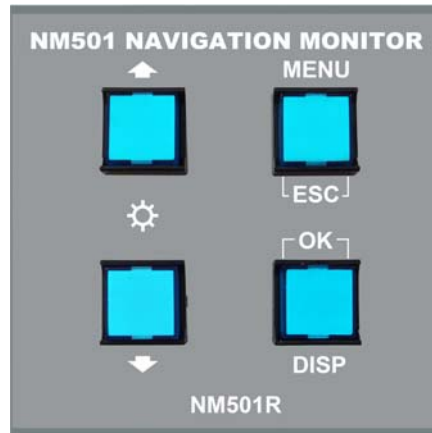
Speed Log sentence:

Speed: $--VBW, x.x, x.x, A, x.x, x.x, A, x.x, A, x.x, A*hh<CR><LF>

Trip: $--VLW, x.x, N, x.x, N*hh<CR><LF>

Anemometer sentence:

Wind direction/speed: $--MWV, x.x, a, x.x, a, A*hh<CR><LF>

Operation of Remote Controller NM501

Arrow keys（▲/▼）

Press【▲】/【▼】key to adjust the LCD brightness.

Simultaneously press【▲】+【▼】keys to switch between day/night mode.

MENU/ESC

【MENU/ESC】Key: enter the MENU Ⅰ.

【▲】/【▼】keys: select the menu items(up/down).

【DIPS/OK】key: open MENUⅡ and confirm the setting value.

【▲】 /【▼】keys: menu parameters setting.

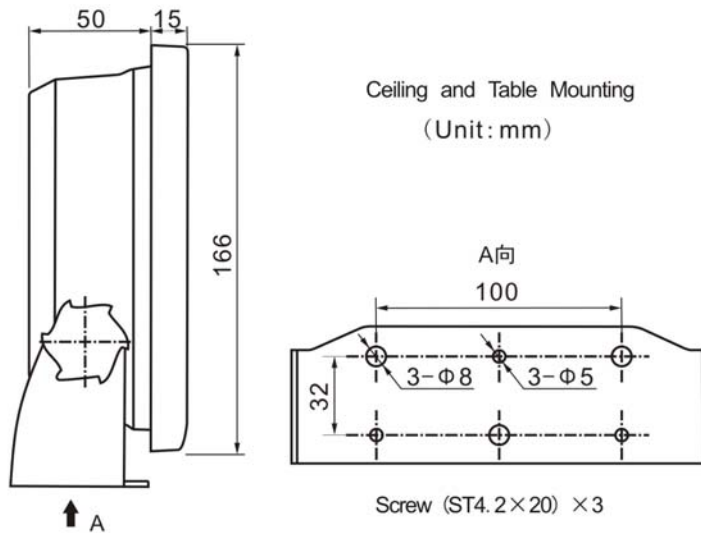【DIPS/OK】: save the setting and return back to previous menu.

【MENU/ESC】key: cancel the setting and return back to previous menu.

DISP/OK

Press【DIPS/OK】key to switch between 2 multi-window modes and single-window modes of 5 channels.

Installation

Installation of NM501

50 15

166

Ceiling and Table Mounting
（Unit：mm）

A向
100

32

3-Φ8 3-Φ5

Screw（ST4.2×20）×3

↑A

Installation of NM952 and NM501R

Unit： mm

Size 90

Mounting screws position 70

Size 145

Mounting screws position 135

NM952 Concentrator
Ceiling Installation

Pan head screws
ST4.2X25
(ScrewX4)

NM501R Remote Controller
Flush Installation

Window size 60

Window size 82

Size 96

Mounting screws position 70

Size 96

Connection

System

External equipments

Anemometer → NMEA0183 (MWV) →

Navigation Sounder → NMEA0183 (DPT/DBT) →

Speed Log → NMEA0183 (VBW/VLW) →

Gyrocompass → NMEA0183 (HDT) →

GPS → NMEA0183 (RMC/ZAD/GLL/VTG) →

Standard configuration

NM501 Navigation Monitor

Power DC24V 2 optional wiring ways

38400bps

NMEA0183 Signal

Signals from Remote Controller

NM952 Concentrator

4800bps NMEA0183 5-channel signals
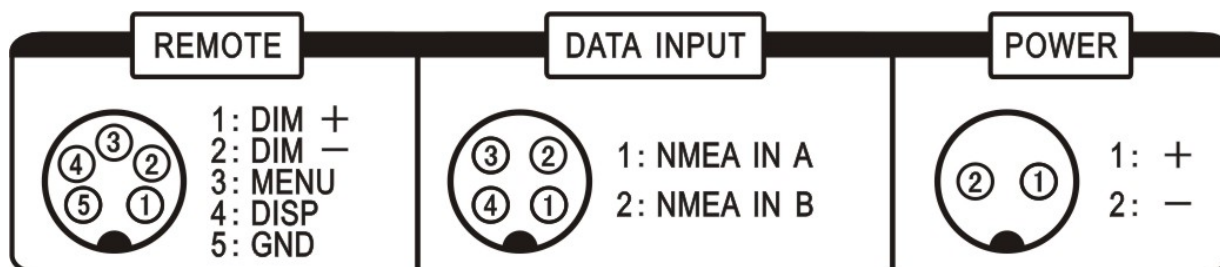
Power DC24V

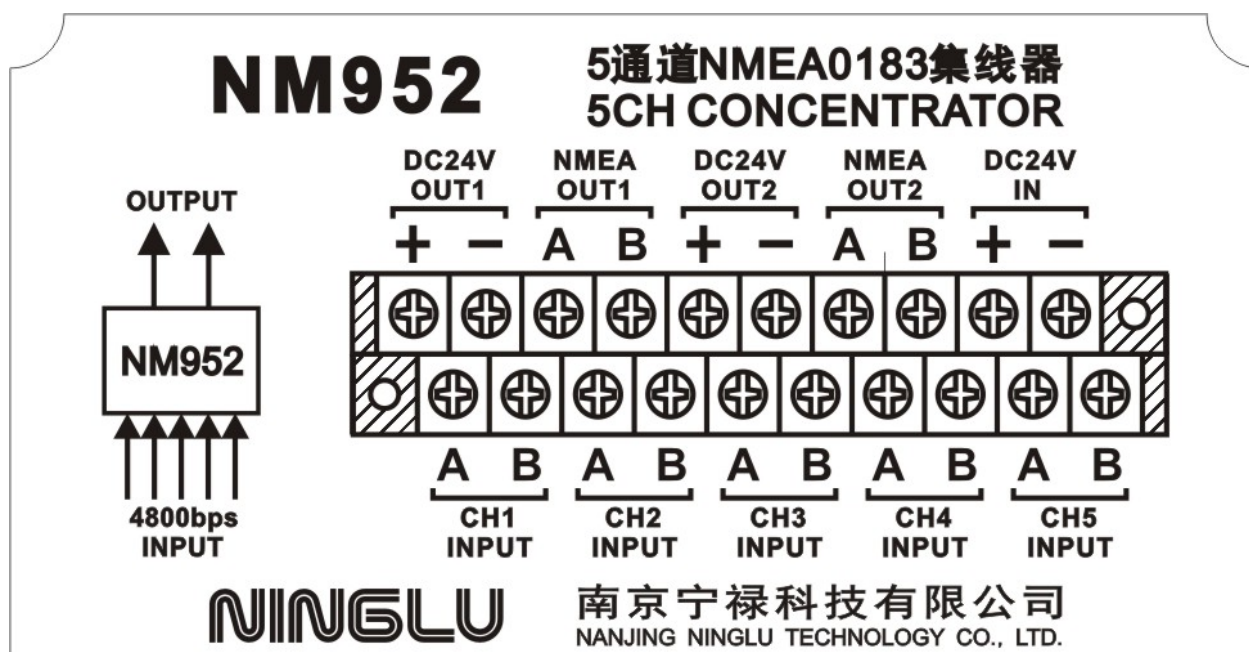NM501R NM501 Remote Controller

(Optional)

NM501 wiring

NM952 concentrator

NM501 main power

NM501 main power is DC24V. Users can choose between 2 optional wiring

plans as per the actual wiring situations.

Plan A: NM501 POWER → NM952 DC24V OUT1 。

Plan B: NM501 POWER → External power

Wiring of NM501R between NM501

NM501R remote controller wiring guide with NM501 line of 5-pins:

NM501R connecting terminal ⎡1⎤ DIM+ → red line.

NM501R connecting terminal ⎡2⎤ DIM- → yellow line.

NM501R connecting terminal ⎡3⎤ MENU → blue line.

NM501R connecting terminal ⎡4⎤ DISP → green line.

NM501R connecting terminal ⎡5⎤ GND → brown line.

Wiring of NM952

External equipments of echo sounder, anemometer, gyrocompass, speed log and GPS wiring steps:

1. NMEA0183 signals of external equipments → NM952 CH1~CH5.

2. NM952 DC24V IN → External power (DC24V).

3. NM952 NMEA OUT1 → NM501 DATA INPUT.

4. NM952 NMEA OUT2 → NM501 DATA INPUT.

NM952 provides 2 outputs of NMEA0183 allowing users to connect with 2 set NM501.

NM952 DC24V OUT2 can directly supply power to NM501.

Specifications

Item	Specifications
LCD	7 inch TFT LCD,480×234 pixels
External Equipments	Echo sounder/ anemometer/ gyrocompass speed log/GPS
Alarm	Wind alarm/ shallow alarm
Alarm Type	Buzzer/ flashing
Working Humidity	10%~90% relative humidity
Working Temperature	-15°C～+55°C
Working Power	DC24V(18~33V), consumption＜10W
Waterproof	IP23
Measurement	188×166× 65 mm
NM501 Installation	Ceiling/flush (window size:168×150mm)
NM952 Installation	Ceiling
NM501R (Options) **Installation**	Flush　(window size:60×82mm)