

# 10 INCH LCD DIGITAL FISH FINDER

## OPERATION MANUAL

### Model : DF SERIES



**NINGLU**

Doc No: : NLT-DFXXX-SSSEN  
Version : V160106

# CONTENTS

---

<b>CONTENTS</b> .....	<b>2</b>
<b>SYSTEM DESCRIPTION</b> .....	<b>1</b>
<b>Specifications</b> .....	<b>2</b>
Performance.....	2
Environment .....	2
<b>Operation</b> .....	<b>3</b>
Keyboard.....	3
<b>Operation</b> .....	<b>4</b>
Fixed key functions.....	4
POWER .....	4
RANGE .....	4
SHIFT .....	4
GAIN & GAIN 1 & GAIN 2 .....	4
Color (single-freq fish finder) .....	4
ZOOM.....	4
<b>Operation</b> .....	<b>5</b>
BRILL .....	5
MENU .....	5
AUTO .....	5
FREQ .....	5
MODE.....	5
Arrows (UP▲/DOWN▼/LEFT◀/ RIGHT▶).....	6
MENU contents and factory setting.....	6
MENU <1> .....	6
MENU <2> .....	7
Setting on MENU .....	8

Pic Speed .....	8
Auto Range .....	8
Max A-Range .....	8
Zoom .....	8
Fish Alarm .....	8
Back Ground .....	9
Pulse Width .....	9
TVG .....	10
Noise Rej. ....	10
Echo Color .....	10
Palette .....	10
Depth Alarm.....	11
Upper Limit.....	11
Lower Limit.....	11
Zone Limit .....	11
<b>How to get the steady data.....</b>	<b>12</b>
<b>Installation .....</b>	<b>13</b>
Operating unit installation .....	13
<b>Installation .....</b>	<b>14</b>
Connection .....	14
Power Supply .....	14
VGA.....	14
Transducer wiring.....	15

# SYSTEM DESCRIPTION

---

**We thank you very much for your purchasing our fish finder.**

Please be sure to read this operation manual carefully and understand what it describes before operating this unit. Your fish finder will perform to the utmost of its ability only if it is operated and maintained in accordance with the correct procedures.

## Overview:

Model	Channel	Frequency & Output power	Transducer cable(m)	Transducer maker
DF612	double	50/200 kHz – 600/600W	BP60-200-15L	LEISHEN
DF1011	single	50 kHz - 1500W	TGM60-50B-15L	NEC
DF2022	double	50/200 kHz- 700/700W	TGM50/200B-15L	NEC
DF5022	single	50/200 kHz- 1500/1500W	CM422	AIRMAR
DF5066	double	50/200 kHz – 1800/600W	TD67	HONDEX
DF5088	double	50/200 kHz – 2000/1000W	CM488	AIRMAR
DF5099	single	50 kHz -2500W	CM158	AIRMAR

## Features

- Digital signal processing without IF transformer and advanced technology.
- Digital signal reception with low background noise and high sensitivity.
- Digital signal conditioning, no change with temperature and high stability.
- Video extension, transfer a large screen display and HD display.
- Custom-order NMEA signal interface and serve as customer service.

## System:

The whole fish finder system consists of operating unit, transducer and power supply.

## Operating unit :

**Display LCD:** 10.4 inch color TFT LCD.

**Back cabinet:** connect with power supply, transducer, display, ground stud and repeater (custom-order).

# Specifications

---

## Performance

**Dimension:** 264(H) x 270(W) x 93(D) mm

**Power:** DC24V (19~36V)

Fish finder will automatically shut down when overhigh voltage.

**Consumption:** <24W

**Frequency &** DF612                      50/200kHz                      600/600W

**Output power** DF1011                      50kHz                      1500W

DF2022                      50/200kHz                      700/700W

DF5068                      50/200kHz                      1800/600W

DF5088                      50/200kHz                      2000/1000W

DF5099                      50kHz                      2500W

**LCD:** 10.4 inch TFT color LCD, 640X480 pixels

**Background :** Grey Blue D-Blue Black

**Echo colors :** 16 echo levels and 6 kinds of color configuration

**Time scale:** 30s, continuously move left

**Range scope:** 5 10 20 30 40 50 60 80 100 120 150 180 200 250 300

400 500 600 800 1000 1500 2000m

**Shift range:** 5 ~ 500 m

**Alarm:** shallow alarm (prior), fish alarm

**Alarm mode:** buzzing, letters glittering on screen

## Environment

**Working temperature:** -10 ~ 40°C, complying to IEC60945

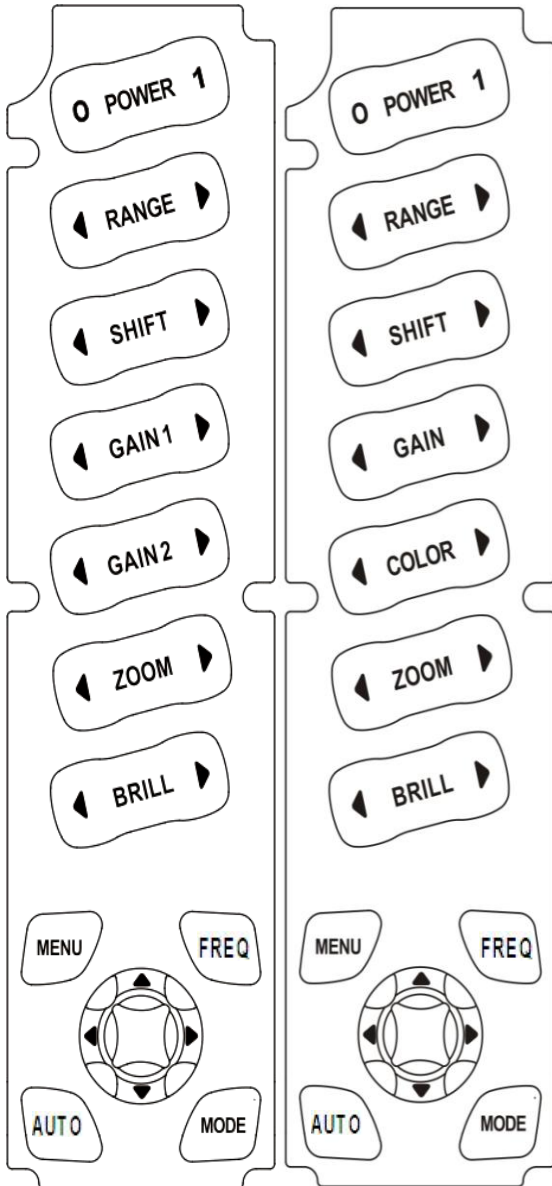
**Working humidity:** 10 ~ 90% relative humidity

**Operating unit waterproofing:** IP23, complying to IEC60529

**Transducer waterproofing:** IP66

# Operation

## Keyboard



Dual-freq  
Fish finder

Single-freq  
Fish finder

<b>POWER</b>	Turn power off/on.
<b>RANGE</b>	Set depth range.
<b>SHIFT</b>	Shift initial position of depth range.
<b>GAIN 1</b>	Adjust sensitivity of frequency 1.
<b>GAIN 2</b>	Adjust sensitivity of frequency 2.
<b>ZOOM</b>	Move the expanded area toward sea surface or sea bottom.
<b>BRILL</b>	Adjust the brightness of display.
<b>MENU</b>	Open MENU<1>, MENU<2>, and EXIT.
<b>AUTO</b>	Turn on/off Auto-range.
<b>Arrows</b>	Right/Left: Adjust Pic speed. Up/Down: adjust the echo color. Select items or change the settings in MENU.
<b>FREQ</b>	Select display mode: Low-freq /High- freq / Low-freq & High-freq/ High-freq & Low-freq.
<b>MODE</b>	Switch Normal mode / Bottom-Z / Fixed-Z

# Operation

---

## Fixed key functions

### POWER

【POWER】 button is used to turn on/off the system. “0” is off and “1” is on.

### RANGE

【RANGE】 button sets the depth range(how deep from the surface) showed on the screen: 5 10 20 30 40 50 60 80 100 120 150 180 200 250 300 400 500 600 800 1000 1500 2000m (22 optional values).

### SHIFT

You can shift the initial displaying depth downward. For example, when you shift 5m downward at 0 ~ 5m depth range, initial display depth becomes to 5m and display range becomes to 5 ~ 10m. Shift range: 5 ~ 500m.

### GAIN & GAIN 1 & GAIN 2

This adjusts the sensitivity to distinguish the bottom or fish school easily.

Dual-freq fish finder:

【GAIN 1】 : adjust the sensitivity of 50 kHz signal received.

【GAIN 2】 : adjust the sensitivity of 200 kHz signal received.

### Color (single-freq fish finder)

This facilitates clear observation by eliminate weak echo.

### ZOOM

Expanded display is shown on the left half screen.

Zoom mode is set by 【MODE】 key, *more details refer to page 5 MODE.*

#### Fixed-Z

You can choose expansion area by 【ZOOM】 key as you wish.

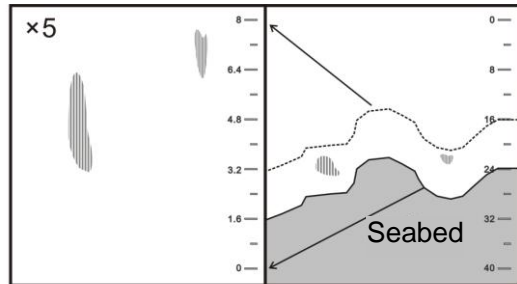
Expansion rate is set in MENU 1 Zoom: x2.5, x5, x10.

# Operation

---

## Bottom-Z

Bottom contour is indicated as a straight line and expansion view of certain area from its contour is shown. Zoom rate is set in MENU 1  
Zoom:  $\times 2.5$ ,  $\times 5$ ,  $\times 10$ .



## BRILL

【BRILL】 key is used to adjust the LCD brightness.

## MENU

【MENU】 button facilitates selection of MENU 1, MENU 2 and EXIT.

## AUTO

【AUTO】 button is used to turn on or off Auto Range.

## FREQ

Frequency displayed toggles among 50 kHz(L), 200 kHz (H), 50 / 200 kHz (L/H) and 200/50kHz (H/L).

## MODE

Three modes are optional toggled by pressing 【MODE】 key:

### Normal mode

Display normal echo graphic.

### Bottom-Z

Bottom contour is indicated as a straight line and expansion view of certain area from its contour is shown.

### Fixed-Z



Expansion display a certain area.

## Arrows (UP ▲/DOWN ▼/LEFT ◀/ RIGHT ▶)

UP ▲/DOWN ▼: Select the item of the MENU and adjust Pic speed.

LEFT ◀/ RIGHT ▶: Set values of item selected and adjust the echo color.

## MENU contents and factory setting

Note: In the following MENU list, the factory setting is marked with grey back color, such as 100m.

### MENU <1>

Pic Speed	0 1 2 3 4 x2 x4
Auto Range	Off On
Max A-Range	30m 100m 200m 300m 500m 800m Max
Zoom	x2.5 x5 x10
Noise Rej.	Off Low High
Output Power	0 10 20 30 40 50 60 70 80 90 100
TVG	Off Low Standard High
White Line	off On
Press 【MENU】 key to MENU <2>	

## MENU <2>

Back Ground	Grey <b>Blue</b> D-Blue Black
Palette	0 1 2 3 4 <b>5</b>
Fish Alarm	<b>Off</b> Small Big
Depth Alarm	<b>Off</b> Upper Zone Lower
Upper Limit	1m ~ (Lower Limit-10) m
Lower Limit	(Upper Limit -10 ) m ~ 501m
Pulse Width	<b>Short</b> Standard Long
Unit	<b>m</b> fm
Press <b>【MENU】</b> or <b>【OK】</b> key to EXIT	

Note: In the following MENU list, the factory setting is marked with grey back color, such as **100m**.

## **Setting on MENU**

### **Pic Speed**

On fish finder, the newest display (display just under the boat) is shown on the right edge of screen. At the same time previous display moves leftward. Display of fish finder is formed by repeating such movement. Pic speed is speed that display forwards. Display expands or reduces horizontally by changing the pic speed.

*Set Pic speed on MENU 1 or left/right arrows: 0, 1, 2, 3, 4, x2, x4.*

### **Auto Range**

Depth range is automatically changed so that sea bottom is always shown on the optimum position of the screen (lower half area).

When auto range function is operating, 【DEPTH】 key is non-functional.

*Set Auto range on MENU 1: Off, On.*

### **Max A-Range**

It sets maximum depth when auto range is operating.

*Set Max A-Range on MENU 1: 30, 100, 200, 300m, 500m, 800m, Max.*

### **Zoom**

*Set zoom rate in MENU 1: x2.5, x5, x10.*

### **Fish Alarm**

When the response to be supposed fish school is displayed and the fish depth is above 4m, alarm goes off.

Off: fish alarm is cancelled.

Small: to catch the response from big and small fish school.

Big: to catch the response from big fish school only.

Note: Fish alarm sometimes reflects to floating matter except fish.

*Set Fish Alarm on MENU 1: Off, Small, Big.*

## **Back Ground**

Reflected echo is indicated in different colors according to its strength. Visual image of display differs from surrounding brightness. It becomes easy to see the display by selecting different the background color.

*Select Back Ground color in MENU 1: Grey, Blue, D-Blue, Black.*

## **Pulse Width**

Normally pulse width is set to short automatically according to set displayed depth range.

*Set Pulse Width on MENU 1: Short, Standard, Long.*

## **TVG**

This function suppresses sensitivity shallower than approx. 100m and eliminates reflected signal from plankton and air bubble. Stronger TVG is set, sensitivity near sea surface decreases. When you make TVG too strong, response near sea surface disappears. On the other hand, when you make TVG too weak, response near sea surface becomes strong and you can not judge the image in some case.

*Set TVG on MENU 1: off Low Standard **High**. More details see **How to get steady data** in page 12.*

## **Noise Rej.**

The echo interferences of the same frequency transducers nearby are eliminated.

*Set Noise Rej. on MENU 1: Off, Low, High.*

## **Echo Color**

This function facilitates clear observation by eliminate weak echo.

*Set Echo Color by up/down arrows: 04 ~ 16.*

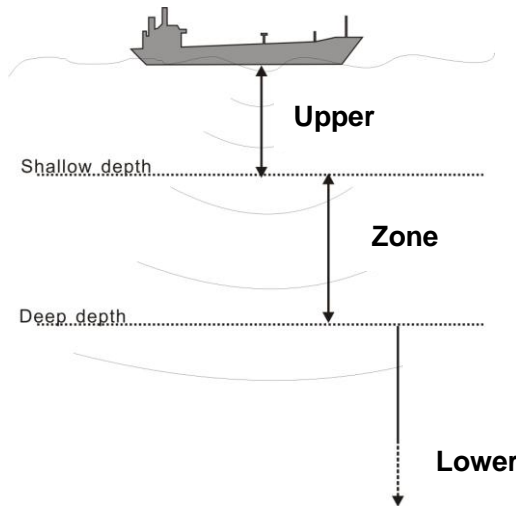
## **Palette**

Reflected signals of sound wave are converted into 16 ranks of digital signals according to the strength of response. 16 ranks of color are arranged and it is called color configuration. As image of fish finder is displayed in colors by this color configuration, you can know the strength of response by displayed color. As display of response varies by changing color configuration in Palette, it enables to displayed color specially.

*Set Palette in MENU 2: 0, 1, 2, 3, 4, 5.*

## Depth Alarm

Depth alarm goes off within the 3 depth ranges.



*Set depth alarm on MENU 2:*

*Off, Upper, Zone, Lower.*

*Upper depth and Lower depth are set in MENU 2: Upper limit and Lower limit.*

### Upper Limit

Set Upper depth alarm value.

*Set Upper Limit in MENU 2: 1m ~ (Lower Limit – 10) m.*

### Lower Limit

Set Lower depth alarm value.

*Set Lower Limit in MENU 2: (Upper Limit – 10) m ~ 501m*

### Zone Limit

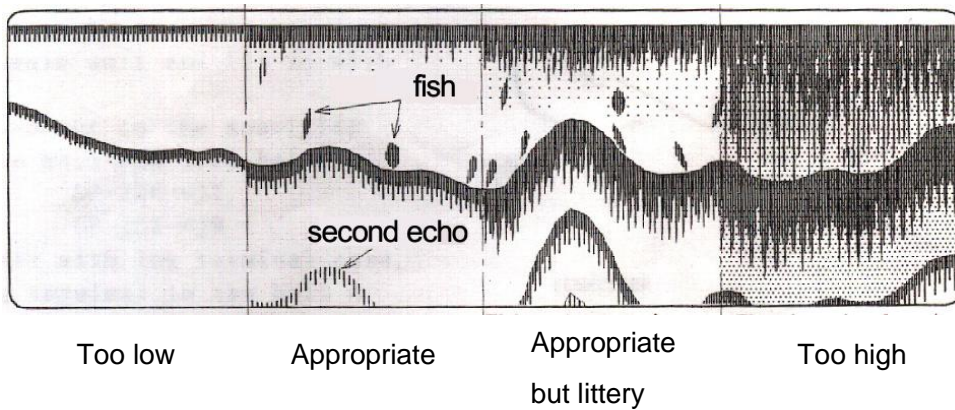
Set Zone depth alarm value.

*Set Zone Limit in MENU 2: Upper Limit ~ Lower Limit.*

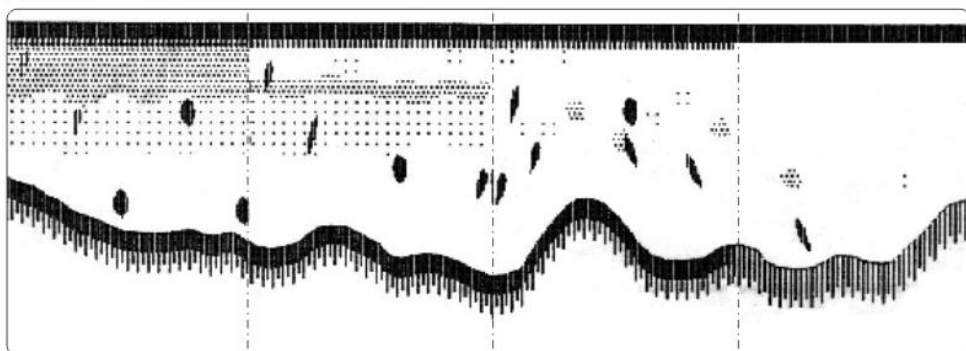
# How to get the steady data

The key to getting the steady data lies in the correct adjustment of GAIN & Color Del..

【GAIN 1】/【GAIN 2】 are used to adjust the sensitivity of signal received. GAIN may be adjusted from the min value to max value and you can get the appropriate sensitivity at one time point which comes before the time point of showing littery wave on screen.



【Color Del.】 : suppress unwanted echoes and noise to be adapted with different waters environment.



There are a lot of interfering echos

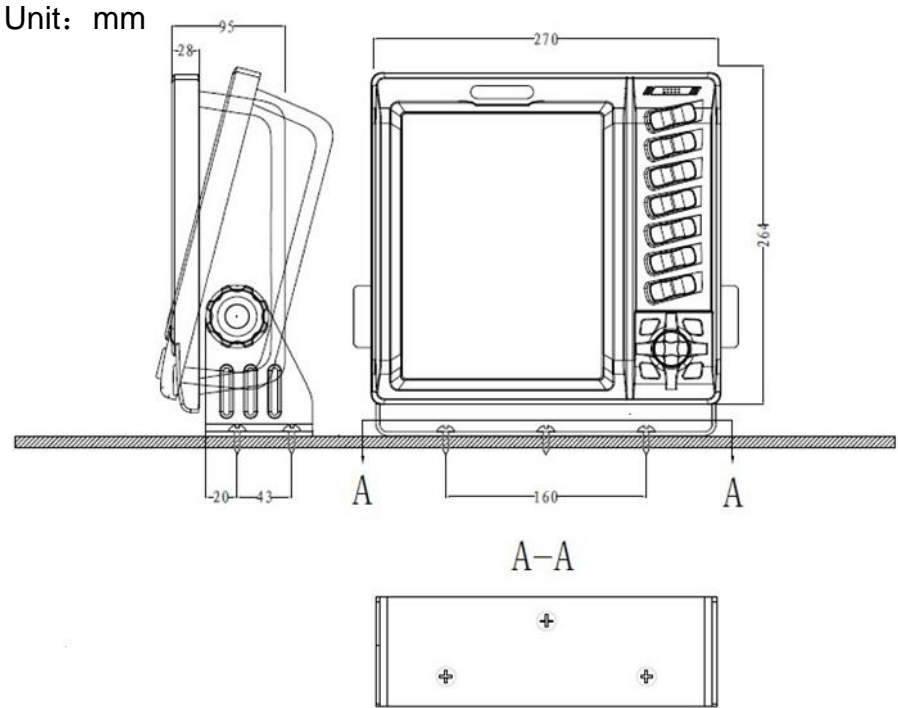
The fish and bottom echos are clearly

Del. Color is too much that fish and bottom echos have been suppressed

# Installation

## Operating unit installation

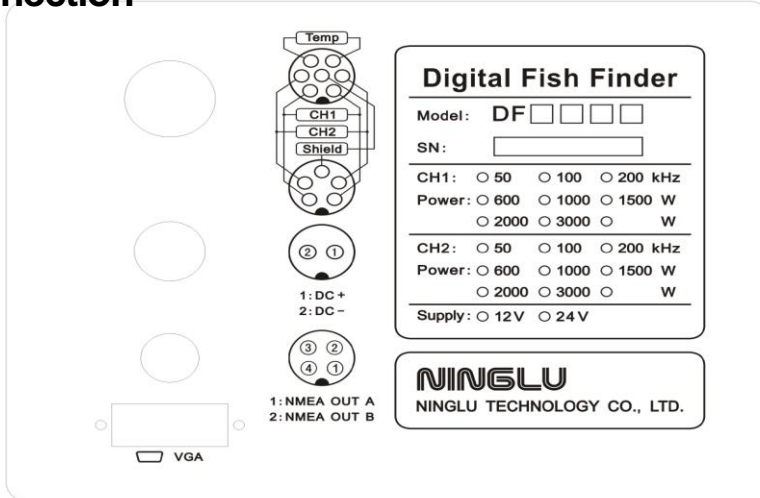
Installation mode: Table





# Installation

## Connection



## Power Supply



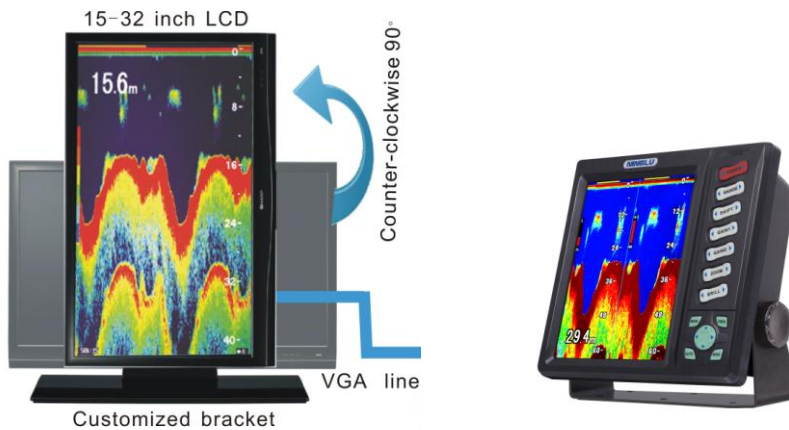
## Wiring method:

Positive → Pin 1 of 2-pin plug

Negative → Pin 2 of 2-pin plug

## VGA

VGA interface realizes external 15-32 inch LCD to display the echo graphics.



## Transducer wiring

When using double channel, Channel 1 is connected with 50kHz and Channel 2 is connected with 200kHz. When using single channel, connect with Channel 1.

### **DF612 -- BP60-200-15L**

### **DF1011 -- TGM60-50B-15L,**

#### **wiring method:**

Shielded wire → Pin 1 of 5-pin plug

Other signal wires → Pin 3/ Pin 4 of 5-pin plug

### **DF2022 -- TGM50/200B-15L wiring method:**

Shielded wire → Pin 1 of 5-pin plug

White/ Black wire (50kHz) → Pin 3/ Pin 4 of 5-pin plug

Red/ Green wire (200kHz) → Pin 2/ Pin 5 of 5-pin plug

### **DF5088 – CM488 wiring method:**

Shielded wire → Pin 7 of 7-pin plug

Cut off violet and orange wire from the root.

Yellow/ Black wire (50kHz) → Pin 3/ Pin 4 of 7-pin plug

Blue/ Black wire (200kHz) → Pin 2/ Pin 5 of 7-pin plug

White/ Brown wire (Temperature) → Pin 1/ Pin 6 of 7-pin plug

### **DF5099 – CM158 wiring method:**

Shielded wire → Pin 1 of 5-pin plug

Cut off orange and brown wires from the root.

Blue-white/ Black-white wire (50kHz) → Pin 3/ Pin 4 of 7-pin plug

