User's Manual

Model 733062
VC-SHIELD
Shield Box

YOKOGAWA
Yokogawa Electric Corporation

IM 733062-01E
2nd Edition

Introduction

Thank you for purchasing the 733062 VC-SHIELD Shield Box.
This user's manual contains useful information about the shield's functions and operating procedures and lists the handling precautions of the VC-SHIELD. To ensure correct use, please read this manual thoroughly before beginning operation.

Checking the Contents of the Package

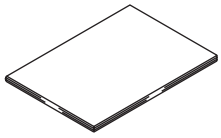
In addition to the VC-SHIELD, the following standard accessories are included. When you open the package, make sure that all contents are present and undamaged. If some of the contents are not correct, or if any items are missing or damaged, contact the dealer from whom you purchased them.

VC-SHIELD
Check that the MODEL given on the name plate on the rear panel is 733062.

Standard Accessories

RF cable (N-TNC type) 1piece (B8014VC)

User's Manual 1piece (This manual, IM733062-01E)



Conventions Used in This Manual

Improper handling or use can lead to injury to the user or damage to the instrument. This symbol appears on the instrument to indicate that the user must refer to the user's manual for special instructions. The same symbol appears in the corresponding place in the user's manual to identify those instructions. In the manual, the symbol is used in conjunction with the word "WARNING" or "CAUTION."

WARNING

Calls attention to actions or conditions that could cause serious or fatal injury to the user, and precautions that can be taken to prevent such occurrences.

CAUTION

Calls attentions to actions or conditions that could cause light injury to the user or damage to the instrument or user's data, and precautions that can be taken to prevent such occurrences.

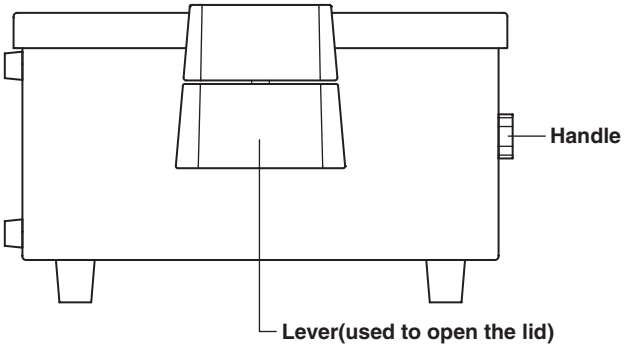
Revisions

1st Edition: February 2006
2nd Edition: March 2006

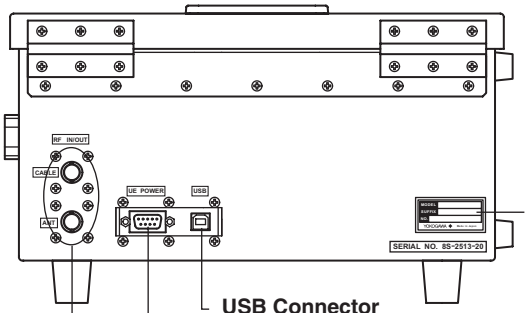
2nd Edition: March 2006 (YK)

Names of Parts

Front Side



Rear Side



Name Plate

USB Connector
Used when connecting the mobile phone installed inside the VC-SHIELD to an external device via the USB

UE POWER Connector
Used to supply power to the mobile phone or measure the consumption current

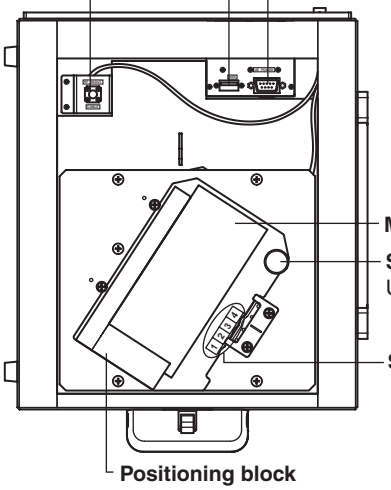
RF IN/OUT Connector
Connects the mobile phone tester and the shield box
(CABLE: Used when connecting a cable to make measurements
ANT: Used when coupling antennas to make measurements)

Inside

RF IN/OUT Connector
Used when connecting a cable to make measurements (Connects the mobile phone and the shield box)

USB Connector
Used to connect the mobile phone and an external device via the USB

UE POWER Connector
Used to supply power to the mobile phone



Mobile phone holder

Slide lever
Used to slide the mobile phone holder

Slide position

Positioning block

Handling Precautions

General Handling Precautions

- Do not place objects other than the mobile phone inside the shield box.
- Be sure to close the cover of the shield box.
- Never place other instruments or objects containing water on top of the instrument, otherwise a breakdown may occur.
- Do not apply shock to the input/output connectors.
- To wipe off dirt on the case, use a dry, soft, clean cloth. Do not use volatile chemicals since this might cause discoloring and deformation.
- When carrying the box, close the lid and hold the handle on the side.

CAUTION

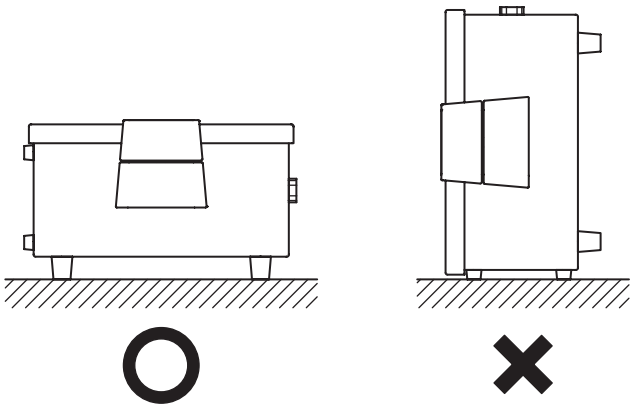
The materials used inside the shield box may deform or alter when they come in contact with hot objects.

Installation

Installation Conditions

Install the shield box in a place that meets the following conditions.

- Flat, even surface: Install the shield box with the correct orientation on a stable, horizontal surface.
- Ambient temperature: 5 to 35°C
- Ambient humidity: 20 to 80% RH (no condensation)



Do Not Use in the Following Places

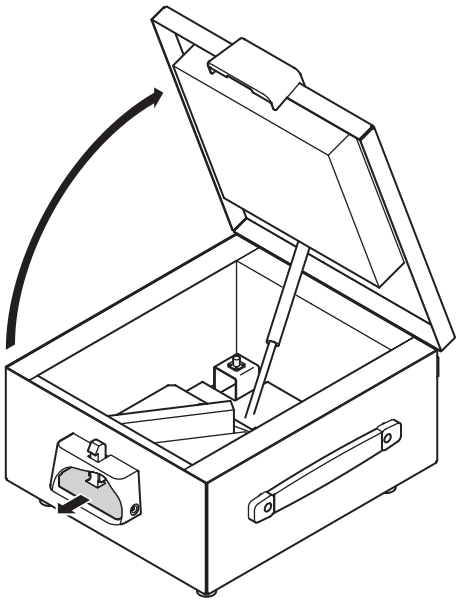
- In direct sunlight or near heat sources.
- Where an excessive amount of soot, steam, dust, or corrosive gas is present.
- Near strong magnetic field sources.
- Near high voltage equipment or power lines.
- Where the level of mechanical vibration is high.

Opening/Closing the Lid

Pull the front lever toward you to open the lid.

CAUTION

- Before opening the lid, remove objects placed on top of the lid.
- The lid may fly open.
  When opening the lid, be careful not get in the way of the opening lid (such as your face and hands).
  When closing the lid, be sure not to get your fingers caught between the lid and the box.



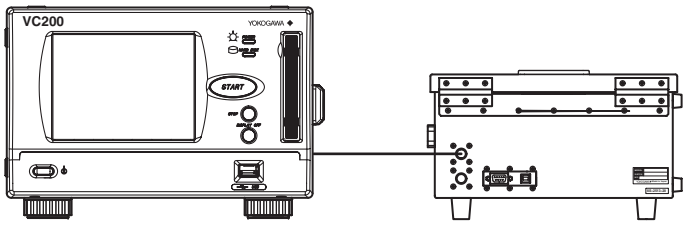
Connecting Cables

Connecting the Mobile Phone Tester and VC-SHIELD

Connect the RF cable[*1] (Part No.: B8014VC) that comes with the shield box to the RF IN/OUT connector (CABLE or ANT[*2]) on the rear side. Connect the other end of the cable to the RF IN/OUT connector on the mobile phone tester rear panel.

*1 If the RF IN/OUT connector of the mobile phone tester is of type N, purchase the following RF cable made by YOKOGAWA.
Model 739821 (type N cable, 1 m)

*2 When connecting a cable to make measurements: Connect to CABLE
When coupling antennas to make measurements: Connect to ANT

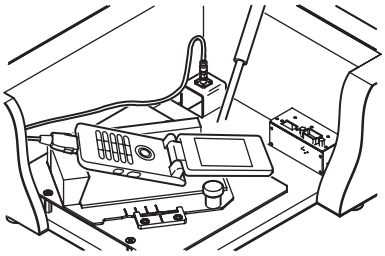


Note

When cables other than accessories or Yokogawa's specified RF cable are used, specifications, such as a shielding performance and the operating frequency range, may not be achieved.

Connecting the Mobile Phone and VC-SHIELD

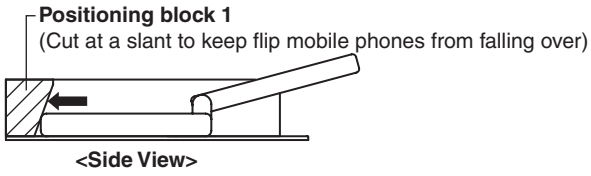
When connecting a cable to make measurements, connect the RF IN/OUT (CABLE) connector inside the shield box to the mobile phone with a coaxial cable. The coaxial cable is to be provided by the user.



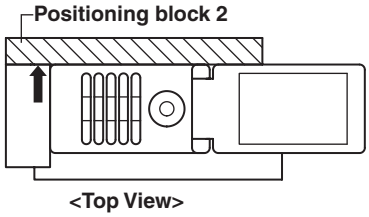
Installing the Mobile Phone

When coupling antennas to make measurements, install the mobile phone by considering the relative positions of the antenna of the shield box and the built-in antenna of the mobile phone.

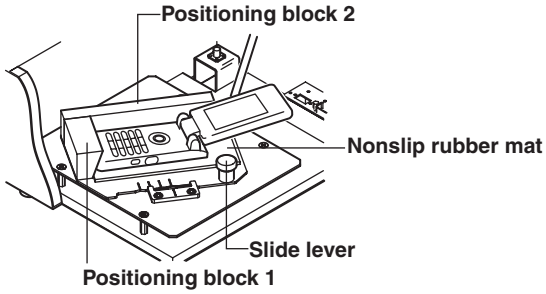
1. Press the mobile phone against positioning block 1.



2. To fix position of the mobile phone in place, press the mobile phone against positioning block 2.

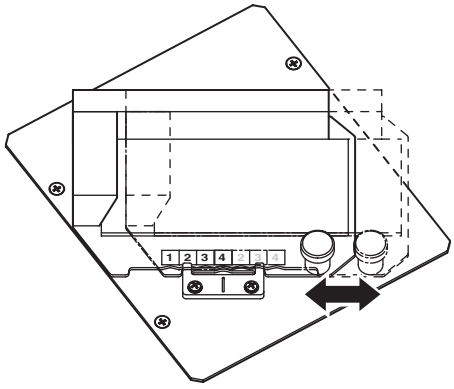


3. Gently press the mobile phone against the nonslip rubber mat at the bottom to fix the mobile phone in place.



Moving the Mobile Phone Holder

4. When coupling antennas to make measurements in a reproducible fashion, operate the slide lever in the direction of the arrows shown below, and fix the position of the mobile phone to any position between slide position 1 and 4.



Note

The relationship between the slide positions of the mobile phone holder and the RF power loss* by the antenna coupling vary depending on the mobile phone model and installation direction.

* Compensation is possible by setting the RF loss compensation on YOKOGAWA's VC series testers.

Notes Concerning Measurements

- When coupling antennas to make measurements, several dBs of error may result in the measured values due to the effects of coupling loss of the antenna and mobile phone. If you wish to accurately measure parameters such as the transmission power of the mobile phone, connect the mobile phone and the shield box with a coaxial cable.
- Do not insert foreign objects between the shield box and the lid. The shield box may break or may not achieve the shielding performance of the specifications.
- Check that there is no deformation or damage inside and outside the shield box. If the shield box is deformed or damaged, the shielding performance of the specifications may not be achieved.

Recommended Replacement Parts

The one-year warranty applies only to the main unit (starting from the day of delivery) and does not cover any other items nor expendable items (items which wear out). Contact your nearest YOKOGAWA dealer to have parts replaced.

Parts Name	Part No.
Damper	B8014GN
Gasket	B8014VF
Gasket	B8014VG
Gasket	B8014VH

Specifications

Shielding Performance

Item	Specifications
Frequency range	800 M to 2500 MHz
Shielding Performance	60 dB or higher

Antenna coupler

Item	Specifications
Frequency range	800 M to 2500 MHz
Antenna coupling loss	30 dB or less*
Coupling impedance	50 Ω
Maximum allowable input power	0.25 W
Connector type	N-type connector (rear side, ANT connector of RF IN/OUT)

* Varies depending on the shape of the mobile phone, antenna position, and the holder slide position.

RF IN/OUT Connector(CABLE)

Item	Specifications
Frequency range	800 M to 2500 MHz
Coupling impedance	50 Ω
Insertion loss	0.3 dB or less
Connector type	N-type connector (rear side) SMA connector (inside)

USB Connector

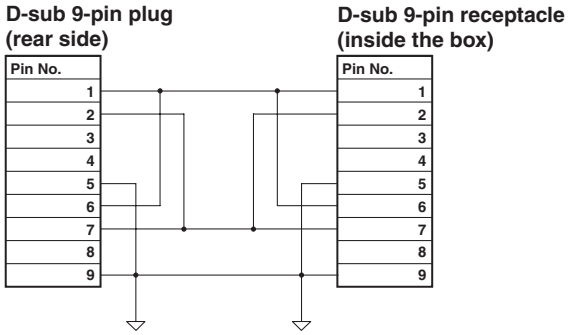
Item	Specifications
Wiring	Straight connection
Connector type	B type receptacle (rear side) A type receptacle (inside)

Mobile Phone Power (UE_POWER) Connector*

Item	Specifications
Maximum allowable voltage	5 V
Maximum allowable current	2 A
Connector type	D-sub 9-pin plug (rear side) D-sub 9-pin receptacle (inside)

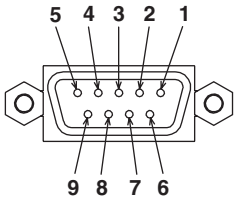
* This connector is used to supply power to the mobile phone or measure the consumption current.

- **Pin Assignments**



Inside (D-Sub 9-pin receptacle)

Pin No.	Signal Name	Specifications
1	Power supply for the mobile phone (+)	Connect to the positive electric potential of the mobile phone's battery terminal.
2.	Power supply for the mobile phone (-) GND	Connect to the negative electric potential of the mobile phone's battery terminal.
3	Reserved	Do not connect anything.
4	Reserved	Do not connect anything.
5	GND	
6	Power supply for the mobile phone (+)	Connect to the positive electric potential of the mobile phone's battery terminal.
7	Power supply for the mobile phone (-) GND	Connect to the negative electric potential of the mobile phone's battery terminal.
8	Reserved	Do not connect anything.
9	GND	



Rear Side (D-Sub 9-pin plug)

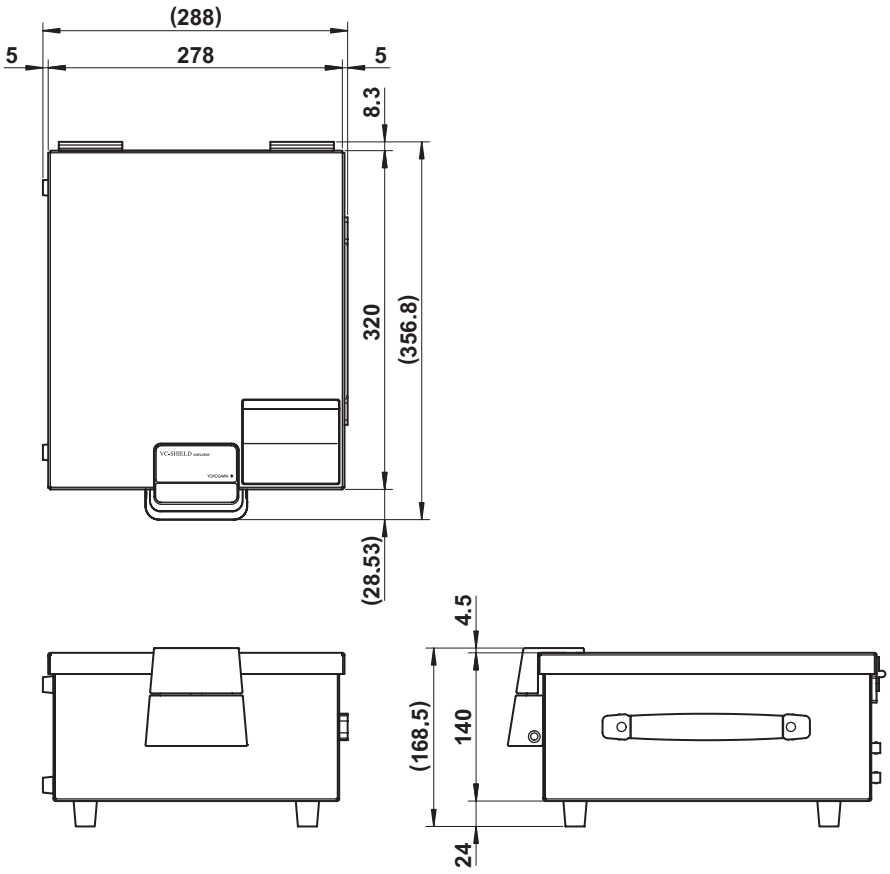
Pin No.	Signal Name	Specifications
1	Power supply for the mobile phone (+)	Connect to the positive electric potential of the mobile phone power supply.
2.	Power supply for the mobile phone (-) GND	Connect to the negative electric potential of the mobile phone power supply.
3	Reserved	Do not connect anything.
4	Reserved	Do not connect anything.
5	GND	
6	Power supply for the mobile phone (+)	Connect to the positive electric potential of the mobile phone power supply.
7	Power supply for the mobile phone (-) GND	Connect to the negative electric potential of the mobile phone power supply.
8	Reserved	Do not connect anything.
9	GND	

General Specifications

Item	Specifications	
Storage conditions	Temperature Humidity	–20 to 60°C 20 to 80% RH (no condensation)
Operating conditions	Temperature Humidity	5 to 35°C 20 to 80% RH (no condensation)
Storage altitude	3000 m or less	
Operating altitude	2000 m or less	
External dimensions	280 (W) × 140 (H) × 320 (D), excluding the handle and projections	
Weight	Approx. 3.4 kg	
Installation position	Horizontal	
Standard accessories	RF cable (N-TNC, 0.7 m) 1 piece User's Manual 1 piece (this manual)	
Safety standards EMC standards	Safety and EMC standards are specified in combination with the VC100/VC200/VC3300. For details on the complying standards, see the *VC100/VC200/VC3300 User's Manual*.	

External Dimensions

Unit: mm



Unless otherwise specified, tolerance is ±3% (however, tolerance is ±0.3 mm when below 10 mm).