For your reference:

Please note that this product is no longer available and is provided as a reference technical document.

DIGITAL MULTIMETER

DM2561A

QUICK START GUIDE

NF Corporation

DA00036975-001

DIGITAL MULTIMETER

DM2561A

QUICK START GUIDE

ISO-9001 CERTIFIED MANUFACTURER

WARRANTY

NF Corporation certifies that this product was thoroughly tested and inspected and found to meet its published specifications when it was shipped from our factory.

All **NF** products are warranted against defects in materials and workmanship for a period of one year from the date of shipment. During the warranty period, **NF** will repair the defective product without any charge for the parts and labor. For repair service under warranty, the product must be returned to either **NF** or an agent designated by **NF**. Purchaser shall prepay all shipping charge, duties and taxes for the product to either **NF** or the agent from another country, and shipping charge for the return of the product to purchaser shall be paid by **NF** side.

This warranty shall not apply to any defect, failure or damage caused by a) improper use; b) improper or inadequate maintenance and care; or c) modification by purchaser or personnel other than **NF** representatives.

NF Corporation

This manual contains proprietary information, which is protected by copyright. All rights are reserved. No part of this manual may be photocopied, reproduced or translated to another language without prior written consent of NF Corporation.

The information in this manual was correct at the time of printing. However, NF continues to improve products and reserves the right to change specifications, equipment, and maintenance procedures at any time without notice.

Table of Contents

SAFETY INSTRUCTIONS

This chapter contains important safety instructions that you must follow when operating the DM2561A and when keeping it in storage. Read the following before any operation to insure your safety and to keep the DM2561A in the best possible condition.

Safety Symbols

These safety symbols may appear in this manual or on the DM2561A.

 WARNING	Warning: Identifies conditions or practices that could result in injury or loss of life.
 CAUTION	Caution: Identifies conditions or practices that could result in damage to the DM2561A or to other property.
	DANGER High Voltage
	Attention Refer to the Manual
	Protective Conductor Terminal
	Earth (ground) Terminal
	Do not dispose electronic equipment as unsorted municipal waste. Please use a separate collection facility or contact the supplier from which this instrument was purchased.

Safety Guidelines

General Guideline

CAUTION

- Make sure that the voltage input level does not exceed DC1000V/AC750V.
- Make sure the current input level does not exceed 10A.
- Do not place any heavy object on the DM2561A.
- Avoid severe impact or rough handling that can lead to damaging the DM2561A.
- Do not discharge static electricity to the DM2561A.
- Use only mating connectors, not bare wires, for the terminals.
- Do not block or obstruct the cooling fan vent opening.
- Do not perform measurement at the source of a low-voltage installation or at building installations (Note below).
- Do not disassemble the DM2561A unless you are qualified as service personnel.
- Make sure that the Sense LO terminal to COM port is limited to 100Vpk, the Sense HI to Sense LO terminals are limited to 200Vpk and the COM port to earth is limited to 500Vpk.

(Note) EN 61010-1:2010 specifies the measurement categories and their requirements as follows. The DM2561A falls under category II 600V.

- Measurement category IV is for measurement performed at the source of low-voltage installation.
- Measurement category III is for measurement performed in the building installation.
- Measurement category II is for measurement performed on the circuits directly connected to the low voltage installation.

Power Supply

WARNING

- AC Input voltage: 100/120/220/240 V AC ±10%, 45Hz to 66Hz / 360Hz to 440Hz
- The power supply voltage should not fluctuate more than 10%.
- Connect the protective grounding conductor of the AC power cord to an earth ground, to avoid electrical shock.

Fuse

WARNING

- Fuse type: 0.315AT 100/120VAC
  0.125AT 220/240 VAC
- Make sure the correct type of fuse is installed before power up.
- To avoid risk of fire, replace the fuse only with the specified type and rating.
- Disconnect the power cord before fuse replacement.
- Make sure the cause of a fuse blowout is fixed before fuse replacement.

Cleaning the DM2561A

- Disconnect the power cord before cleaning.
- Use a soft cloth dampened in a solution of mild detergent and water. Do not spray any liquid into the DM2561A.
- Do not use chemicals or cleaners containing harsh material such as benzene, toluene, xylene, and acetone.

Operation Environment

- Location: Indoor, no direct sunlight, dust free, almost non-conductive pollution (Note below)
- Temperature: Full accuracy for 0°C to 55°C.
- Humidity: Full accuracy to 80% RH at 40°C

(Note) EN 61010-1:2010 specifies the pollution degrees and their requirements as follows. The DM2561A falls under degree 2. Pollution refers to "addition of foreign matter, solid, liquid, or gaseous (ionized gases), that may produce a reduction of dielectric strength or surface resistivity".

- Pollution degree 1: No pollution or only dry, non-conductive pollution occurs. The pollution has no influence.
- Pollution degree 2: Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected.
- Pollution degree 3: Conductive pollution occurs, or dry, non-conductive pollution occurs which becomes conductive due to condensation which is expected. In such conditions, equipment is normally protected against exposure to direct sunlight, precipitation, and full wind pressure, but neither temperature nor humidity is controlled.

Storage Environment

- Location: Indoor
- Temperature: −40°C to 70°C

Disposal

Do not dispose this instrument as unsorted municipal waste. Please use a separate collection facility or contact the supplier from which this instrument was purchased. Please make sure discarded electrical waste is properly recycled to reduce environmental impact.

Power cord for the United Kingdom

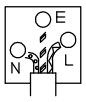
When using the DM2561A in the United Kingdom, make sure the power cord meets the following safety instructions.

NOTE: This lead / appliance must only be wired by competent persons

WARNING: THIS APPLIANCE MUST BE EARTHED

IMPORTANT: The wires in this lead are coloured in accordance with the following code:

Green/ Yellow:	Earth
Blue:	Neutral
Brown:	Live (Phase)



As the colours of the wires in main leads may not correspond with the coloured marking identified in your plug/appliance, proceed as follows:

The wire which is coloured Green & Yellow must be connected to the Earth terminal marked with either the letter E, the earth symbol ⏚ or coloured Green/Green & Yellow.

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Blue or Black.

The wire which is coloured Brown must be connected to the terminal marked with the letter L or P or coloured Brown or Red.

If in doubt, consult the instructions provided with the equipment or contact the supplier.

This cable/appliance should be protected by a suitably rated and approved HBC mains fuse: refer to the rating information on the equipment and/or user instructions for details. As a guide, a cable of 0.75mm^2 should be protected by a 3A or 5A fuse. Larger conductors would normally require 13A types, depending on the connection method used.

Any exposed wiring from a cable, plug or connection that is engaged in a live socket is extremely hazardous. If a cable or plug is deemed hazardous, turn off the mains power and remove the cable, any fuses and fuse assemblies. All hazardous wiring must be immediately destroyed and replaced in accordance to the above standard.

INTRODUCTION

The DM2561A quick start guide is intended for users who are not familiar with the instrument and need a tutorial for quickly accessing its major functions. For further details including parameters, remote control commands, the optional scanner module, digital I/O and specifications, please refer to the user manual that is supplied on the accompanying CD.

Power up the instrument according to the "Powering Up" chapter, and then pick up the relevant chapter according to your needs. This guide consists of the following chapters:

- Safety Instructions
  - Safety Symbols
  - Safety Guidelines
- Introduction
  - Accesories
  - Panel Overview
- Powering Up
- Basic Measurement
  - Voltage/Current
  - Resistance
  - Diode/Continuity/Frequency/Period/Temp
- Advanced Measurement
  - dBm/dB/Max/Min/Relative/Hold/Compare/Math
- Dual Measurement

Accessories

- Quick Start Guide (This Manual)
- CD-ROM (User Manual, USB Driver Software)
- Test Lead

- USB Cable

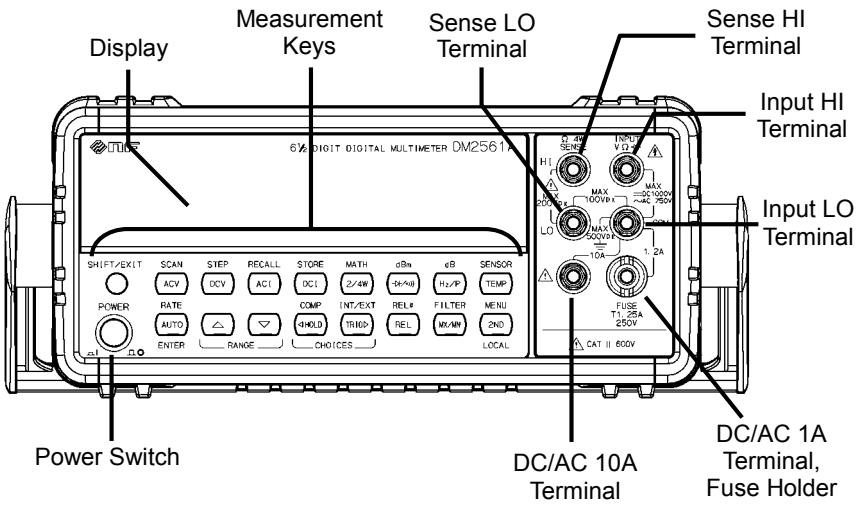
- Calibration Key

- Power Cord Set

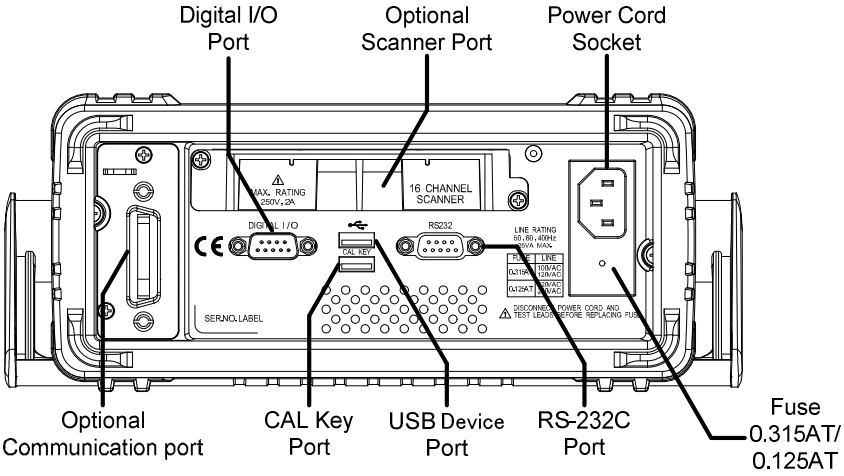
⚠ CAUTION	The power cord set supplied with this equipment is designed to be used for this equipment only. Do not use this power cord set for other equipment or purposes. Use only the attached power cord set for connection to AC power line.

Panel Overview

Front panel overview



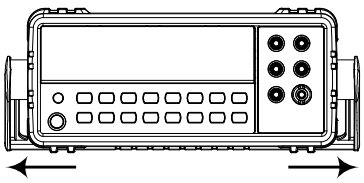
Rear Panel overview



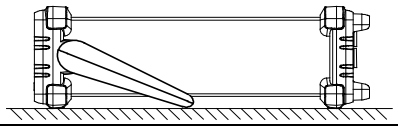
POWERING UP

1. Tilt stand

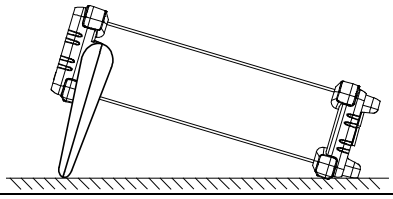
Pull out the handle sideways and rotate it.



Horizontal position



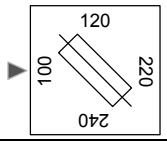
Tilt position



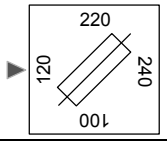
2. Line voltage selection

Ensure that the correct voltage is lined up with the arrow on the fuse cover on the rear panel.

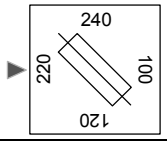
100V



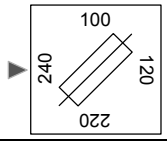
120V



220V



240V



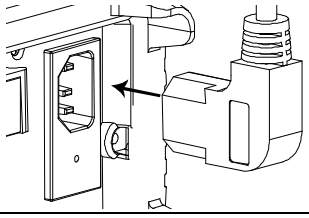
3. Fuse selection

Ensure the correct fuse is installed for the line voltage selected.

Fuse	Voltage
0.315AT	100VAC,120VAC
0.125AT	220VAC,240VAC

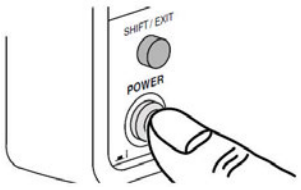
4. Connect the power cord

Connect the power cord to the AC Voltage input.



5. Press the power switch

Push the main power switch on the front panel to turn the instrument on.



The display contents appear and you are ready to make measurements.

Powering up the instrument is completed

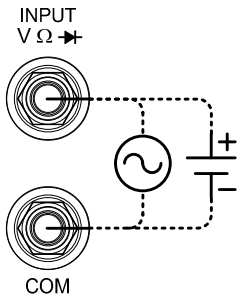
BASIC MEASUREMENT

Voltage/Current

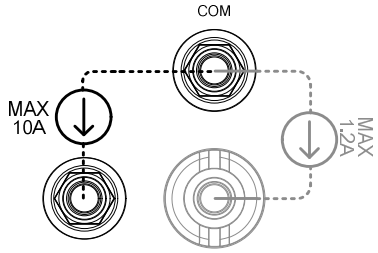
Measurement item: DCV, ACV, DCI, ACI

1. Connect the test leads

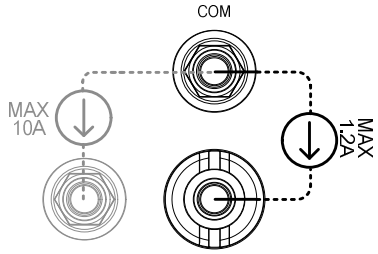
Voltage measurement



Current measurement (0 ~ 10A)

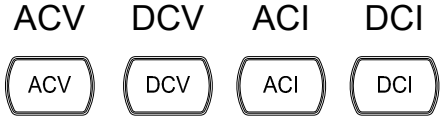


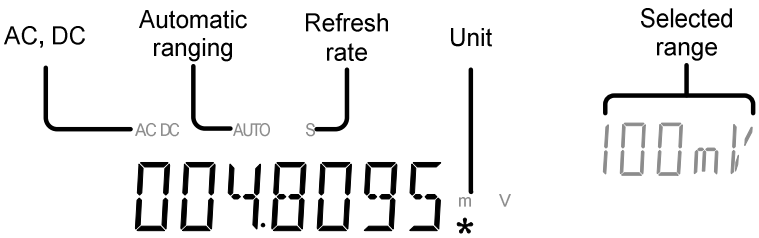
Current measurement (0 ~ 1.2A)



2. Press the measurement key

Press the measurement keys on the front panel. The measurement result will appear on the display.





Manual ranging To select the measurement range manually, press the Up/Down keys.

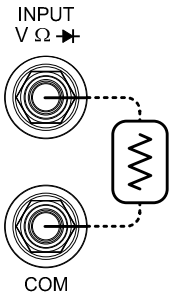
For further details, see the Voltage or Current section of the Basic Measurement chapter in the user manual

Resistance

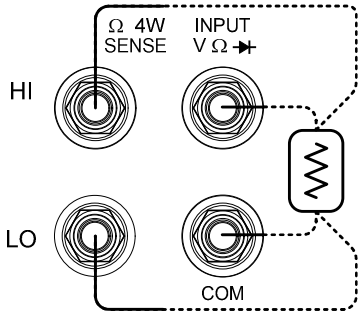
Measurement item: 2W resistance, 4W resistance

1. Connect the test leads

2W resistance



4W resistance



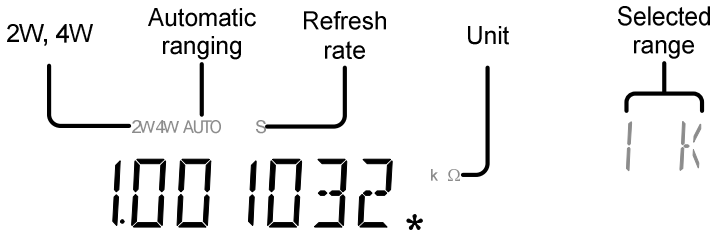
2. Press the measurement key

Press the measurement keys on the front panel. The measurement result will appear on the display.

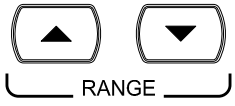
2W resistance

4W resistance

x 2 (twice)



Manual ranging To select the measurement range manually, press the Up/Down keys.



For further details, see the Resistance section of the Basic Measurement chapter in the user manual

Diode/Continuity/Frequency/Period/Temp

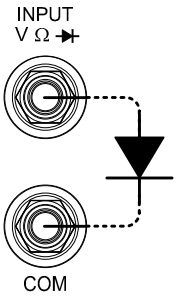
Measurement item: Diode test, Continuity test, Frequency, Period, Temperature

1. Connect the test leads

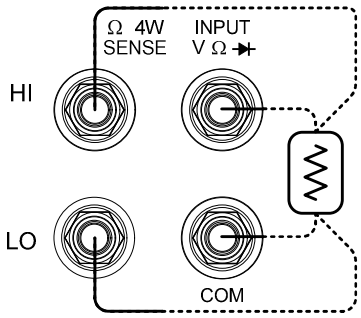
Diode/Continuity

Frequency/Period

Temperature (2W RTD, Thermocouple)



Temperature (4W RTD)

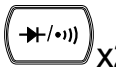


2. Press the measurement key

Press the measurement keys on the front panel (For Continuity, Period, and Temp(˚F), press the same key twice). The measurement result will appear on the display.

Diode

Continuity


x2(twice)

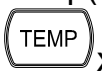
Frequency

Period

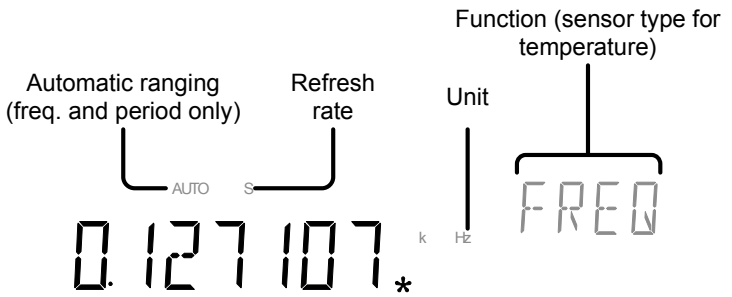
x2 (twice)

Temp(˚C)

Temp(˚F)



x2 (twice)



For further details, see the Diode/Continuity/Frequency/Period/Temperature section of the Basic Measurement chapter in the user manual

ADVANCED MEASUREMENT

Measurement item: dBm, dB, Max, Min, Relative, Hold, Compare, Math

1. Make a basic measurement

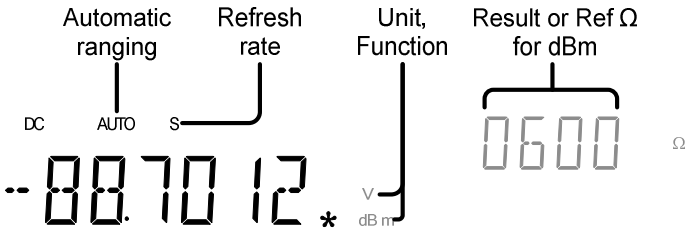
Follow the procedures in the Basic measurement chapter, page 14. For measurement combinations (basic + advanced), see page 18.

2. Press the measurement key

Press the measurement keys as shown below on the front panel. The measurement result will appear on the display.

Item	Keys	Descriptions
dBm	SHIFT/ EXIT → dBm	Shows $10*\log_{10}(1000*Vrdg^2/Rref)$
dB	SHIFT/ EXIT → dB (Hz/P)	Shows dBm − dBmref
Max	MX/MN	Shows the maximum reading
Min	MX/MN x 2	Shows the minimum reading
Relative	REL	Shows the relative value compared with the reference
Hold	HOLD	The Hold measurement retains the current measurement data and updates it only when the reading fluctuates more than the threshold.

Compare	SHIFT/ EXIT → COMP (HOLD)	The Compare measurement checks and updates if the measurement data stays between the upper (high) and lower (low) limit specified.
Math	SHIFT/ EXIT → MATH (2/4W)	Math measurement runs four types of mathematical operations, MX+B, 1/X, Percentage and Statistic, based on the other measurement results.



For further details see the Advanced Measurement chapter in the user manual.

Basic + Advanced Measurement Combinations

Advanced Measurement	Basic Measurement					
	AC/DCV	AC/DCI	2/4W	Hz/P	TEMP	→|/•))
dB	●	—	—	—	—	—
dBm	●	—	—	—	—	—
Max/Min	●	●	●	●	●	—
Relative	●	●	●	●	●	—
Hold	●	●	●	●	●	—
Compare	●	●	●	●	●	—
Math	●	●	●	●	●	—

DUAL MEASUREMENT

Dual Measurement Combinations

Combinations

The dual measurement mode allows you to use the 2nd display to show another item, thus viewing two different measurement results at once.

Any of the following items can be combined together for dual measurements (for example ACV + Hz, DCV + DCI)

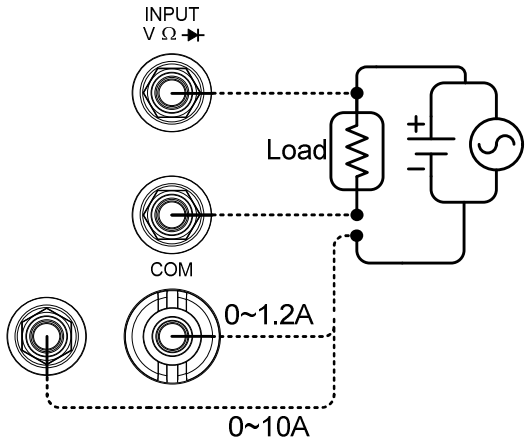
- ACV
- DCV
- ACI
- DCI
- 2W/4W
- Hz/P

Note

- 2W/4W measurements in combination with other measurements are possible but may not be practical as the measurement accuracy is not guaranteed.

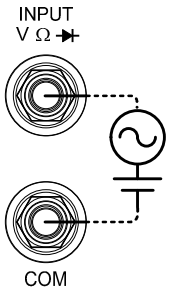
1. Connect the test leads

Voltage/Frequency/Period/Resistance and Current Measurement

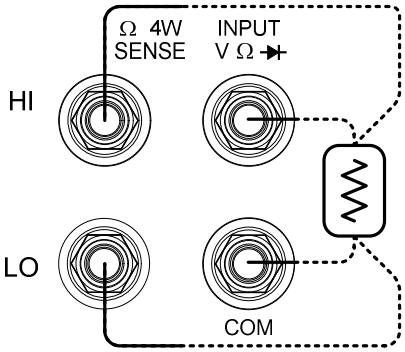


Note: The above measuring configuration is used to measure the voltage present on the resistance under test and the current through the resistance under test when using the DCI/DCV or ACI/ACV dual measurement function.

Voltage and Frequency/Period Measurement



2W/4W Resistance Measurement

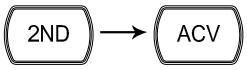


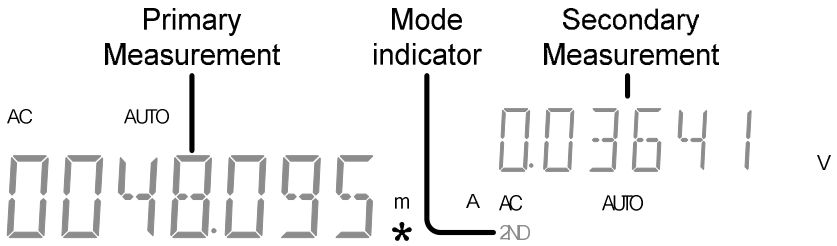
2. Choose a primary measurement

Follow the procedures in the Basic measurement chapter (page 14) to choose a primary measurement.

3. Choose a secondary measurement

Press the 2nd key, then the target item (example: ACV). The display updates the measurement result. (example: ACI + ACV)





For further details, see the Dual Measurement chapter in the user manual.

If there are any misplaced or missing pages, we will replace the manual. Contact the sales representative.

NOTES

- Reproduction of the contents of this manual is forbidden by applicable laws.
- The contents of this manual may be revised without notice.
- Information provided in this manual is intended to be accurate and reliable. However, we assume no responsibility for any damage regarding the contents of this manual.
- We assume no responsibility for influences resulting from the operations in this manual.

Copyright 2012, **NF Corporation**

DM2561A QUICK START GUIDE

NF Corporation

6-3-20, Tsunashima Higashi, Kohoku-ku, Yokohama

223-8508 JAPAN

Phone +81-45-545-8128 Fax +81-45-545-8187

http://www.nfcorp.co.jp/

NF Corporation

6-3-20, Tsunashima Higashi, Kohoku-ku, Yokohama 223-8508 JAPAN