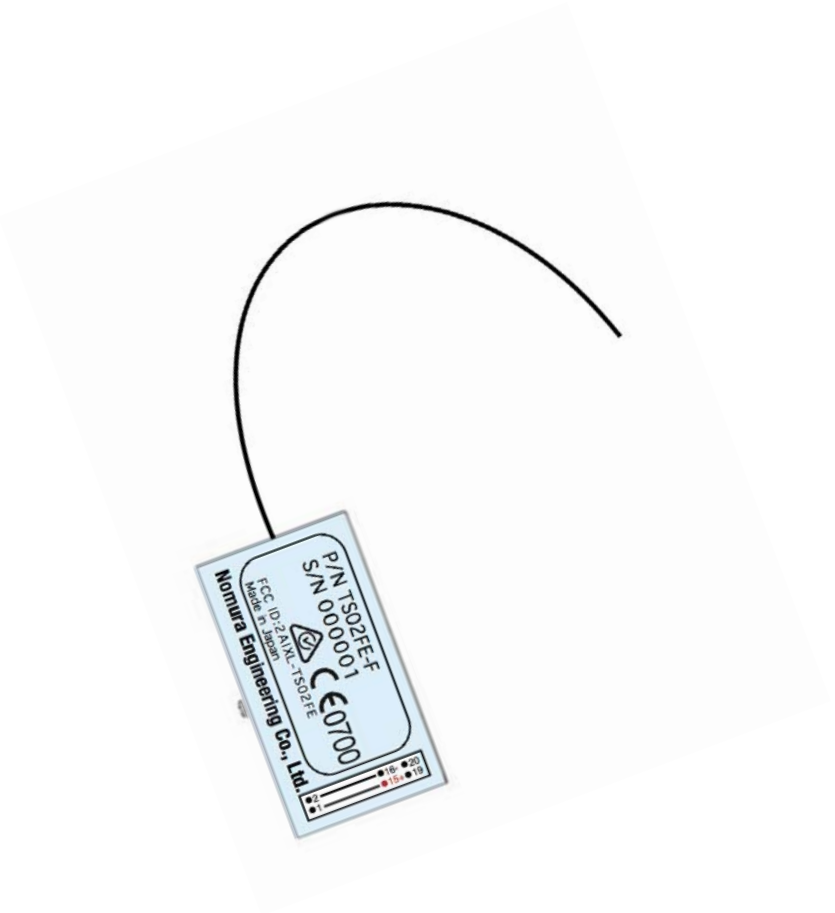
TS02F Series User's Manual



OEM/Integrators Installation Manual

Nomura Engineering Co., Ltd.
Since 1997

Please do not apply this product in a way that its failures and errors may involve human lives..

Nomura Engineering Co., Ltd. URL: http://www.nomura-e.co.jp/ e-mail: info@nomura-e.co.jp

1-7-2 Shibuya, Yamato City, Kanagawa 242-0023 Japan TEL : +81-462-44-0041 FAX : +81-462-44-3551

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Nomura Engineering Co., Ltd. URL: http://www.nomura-e.co.jp/ e-mail: info@nomura-e.co.jp
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General Caution

- Avoid shocks in carrying or operating it. It may cause failure.
- If you use this out of the specifications or modify by yourself, the functions and performance can't be guaranteed.
- Not that the functions and performance might not be fully provided according to the operating condition or environment.
- Take safety measures to avoid potential damages in case of the equipment's failure.

FCC Warning

- Changes or modifications not expressly by the party responsible for compliance could void the user's authority to operate the equipment .
-

- FCC ID: 2AIXL-TA02FE
- Note:

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: --Reorient or relocate the receiving antenna.

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--Increase the separation between the equipment and receiver.

--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

--Consult the dealer or an experienced radio/TV technician for help.

- This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency(RF)Exposure Guidelines in Supplement C to OET65. This equipment has very low levels of RF energy that are deemed to comply without testing of specific absorption ratio(SAR).

Others

- We assume no responsibility whatsoever for any damages resulting from the incorrect usage by users or third parties.
- The specifications are subject to change without notice.

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Introduction

TS02F series RF module is in accordance with the Radio Regulations of each countries and can be used as short range device under the license free frequency band at world wide.

There are 5 kinds of the following model number depend on the destination country.

- TS02FJ for Japan
- TS02FE for EU, US, Australia
- TS02FK for Korea
- TS02FS for China
- TS02FN for Taiwan

The module consists of micro controller, receiver, transmitter and antenna, witch are all in one package with metal shield case. The micro controller contains unique ID number and control the RF section to meet with the regulations.

The module communicates with external micro controller via serial line act as modem.

An interface is 20-pin 2.0 mm pitch socket connector, and can be easily embedded onto the various kinds of applications.

It is applicable to various wireless systems like remote control for an industrial machine, telemetry for a green house, data transfer, home security and so on.

Both hardware and software are optimized to the extent of low operating voltage from as low as 2.4V power supply.

Features

RoHS compliant

High Receiver sensitivity

High Receiver selectivity

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small size, 6.5mm Low-profile

Low voltage operation down to 2.4V DC

Low power consumption

Wide operating range from -20 to 70 degree C

Pre-programmed 40 channels

Selectable firmware and antenna

Easy detachable hardware design

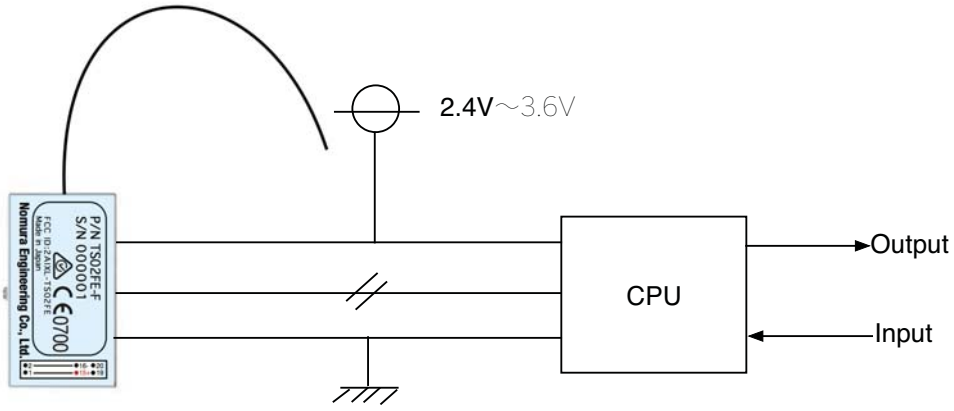
Usage

Application Block diagram

The module needs an external micro controller (CPU) and communicate with serial bus.

The module will work as a modem device and automatically link with mating module. The external CPU does not need to establish the communication between the modems, and just provide 9 bytes data to the module or receive 9 bytes data from the module.

The communication between the modems is kept going by themselves, which is like as 9 bytes data shuttle bus in 100ms cycle.



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The device has been evaluated to meet general RF exposure requirement, The device can be used in portable exposure condition without restriction

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

A certified modular has the option to use a permanently affixed label, or an electronic label. For a permanently affixed label, the module must be labelled with an FCC ID: 2AIXL-TS02FE. The OEM manual must provide clear instructions explaining to the OEM the labelling requirements, options and OEM user manual instructions that are required

For a host using a this FCC certified modular with a standard fixed label, if (1) the module's FCC ID is notvisible when installed in the host, or (2) if the host is marketed so that end users do not have straightforward commonly used methods for access to remove the module so that the FCC ID of the module is visible; then an additional permanent label referring to the enclosed module:

"Contains Transmitter Module FCC ID: 2AIXL-TS02FE or "Contains FCC ID: 2AIXL-TS02FE " must be used. The host OEM user manual must also contain clear instructions on how end users can find and/or access the module and the FCC ID.

Host product is required to comply with all applicable FCC equipment authorizations regulations, requirements and equipment functions not associated with the transmitter module portion. compliance must be demonstrated to regulations for other transmitter components within the host product; to requirements for unintentional radiators (Part 15B).

To ensure compliance with all non-transmitter functions the host manufacturer is responsible for ensuring compliance with the module(s) installed and fully operational. If a host was previously authorized as an unintentional radiator under the Declaration of Conformity procedure without a transmitter certified module and a module is added, the host manufacturer is responsible for ensuring that the after the module is installed and operational the host continues to be compliant with the Part 15B unintentional radiator requirements. Since this may depend on the details of how the module is integrated with

the host, we suggest the host device to recertify part 15B to ensure complete compliance with FCC requirement: Part 2 Subpart J Equipment Authorization Procedures , KDB784748 D01 v07, and KDB 997198 about importation of radio frequency devices into the United States.

Antenna Type:	λ/4 antenna
Antenna Gain:	2.14dBi

The module is limited to OEM installation ONLY

The OEM integrators is responsible for ensuring that the end-user has no manual instructions to remove or install module

The module is limited to installation in mobile or fixed applications, according to Part 2.1091(b)

That separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and different antenna configurations

The Maximum ERP/EIRP and maximum antenna gain required for compliance with Part 22H and 24E etc., OR authorized antennas per Part 15.204

Federal Communication Commission (FCC) Radiation Exposure Statement

When using the product, maintain a distance of 20cm from the body to ensure compliance with RF exposure requirements.