# Micom Pack
# Instruction Manual


## Micom Pack for Control Module
## for
## Flash Microcomputer Programmer
## (NET IMPRESS)


# FO909M00


**Target Microcomputer: ML22Q573**
**ML22Q563**


**DTS INSIGHT CORPORATION**

**FO909M00 (ML22Q573/ML22Q563)**

**Revision History**

| Edition | Date of issue | Description |
|---|---|---|
| First Edition | December 16, 2009 | Initial publication |
| Second Edition | February 22, 2011 | Supported baud rate is corrected. |

## *Contents*

# 1    Overview

The FO909M00 is the Micom Pack for the Control Module FO909 supporting the flash microcomputer programmer NET IMPRESS, and contains a parameter file supporting the microcomputer Oki Semiconductor ML22Q573/ML22Q563.

For a Micom Pack for other microcomputers, contact us or your local distributor.

This Micom Pack is supported by the Control Module **FO909**.

CAUTION:
The Micom Pack FO909M00 is built for the specific Control Module FO909. Do not use this Micom Pack with any Control Modules other than the specified Control Module.

To use this Micom Pack, JTAG Adapter AZ473 is required as a communication interface between NET IMPRESS and a target system.

Please contact us or your local distributor for JTAG Adapter AZ473.

The handling instructions are described in the Micom Pack Instruction Manual and be sure to read this Instruction Manual carefully before you start operation.

To use the Micom Pack, you also need the Remote Controller AZ490 that is available for an additional order.

For how to download the Micom Pack to the Control Module, see Chapter 4 "Downloading Micom Pack" of this Instruction Manual.

Check once again if combination of the Micom Pack and Control Module is correct.    Also, check if you have a correct microcomputer, memory size, power supply, etc. Incorrect parameter values would lead to serious damage to your microcomputer and target system.

For any questions or unclear points, please contact at:
support-impress@dts-insight.co.jp.

# 2      Specifications

## 2.1      Target Microcomputer and Specifications

For any items that are not specifically described here, the standard specifications of the NET IMPRESS are applied.

|  | Representative Microcomputer |
|---|---|
| Target Microcomputer | ML22Q573<br>ML22Q563 *2 |
| Flash Memory Capacity | 512 Kbyte |
| Flash Memory Address | ＃000000 to ＃07FFFF |
| Programming Voltage (Vpp) | Not applied. |
| Default | ― |
| Object File Format | Intel HEX<br>Motorola S<br>Binary |
| Default | Motorola S |
| Target Interface | JTAG Interface *1<br>1.25 Mbps |
| Default | 1.25 Mbps |
| Data Transfer Format between NET IMPRESS and Target System | Binary |
| Memory Status when erased | ＃FF |
| MCU Clock during programming | ― |
| Voltage of Target Interface during programming | 2.7 V to 5.25 V (DVDD) |

*1: The signals from NET IMPRESS are converted to JTAG signals by using a JTAG Adapter (AZ473).

*2: Hereinafter described as ML22Q573.

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# 3 Connecting to the Target System and Connector

## 3.1 Signal List

When using this control module, a JTAG adapter (AZ473) is required between the target microcomputer and NET IMPRESS.

| Microcomputer | JTAG Adapter AZ473 | | | | | Microcomputer |
|---|---|---|---|---|---|---|
| TESTI2 (TMS) | TMS | (11) | 1 | TVpp1 | | |
| TESTI1 (nTRST) | /TRES | (12) | 2 | VCC | | |
| Multiplexer | /TICS0 | (13) | 3 | TMODE | | |
| Multiplexer | /TICS1 | (14) | (4) | TVccd | | DVDD |
| Watchdog pulse | WDT | (15) | (5) | GND | | DGND |
| TESTI0 (MODE) | TAUX3 | (16) | (6) | TCK | | TESTI4 (TCK) |
| Reserved | TAUX3 | 17 | (7) | GND | | DGND |
| | NC | 18 | (8) | TDI | | TESTI3 (TDI) |
| | /TSEQ | 19 | (9) | GND | | DGND |
| DGND | GND | (20) | (10) | TDO | | TESTO (TDO) |

**Target Probe Signal List (FO909)**

- Be sure to connect the signals marked with "◯" to the target system.

- For the signals in parentheses, connect them only when necessary.

- For the signals not marked with "◯" or not in parentheses, be sure not to connect them to a circuit of the target system.

## 3.2　Model Connection to a Target System
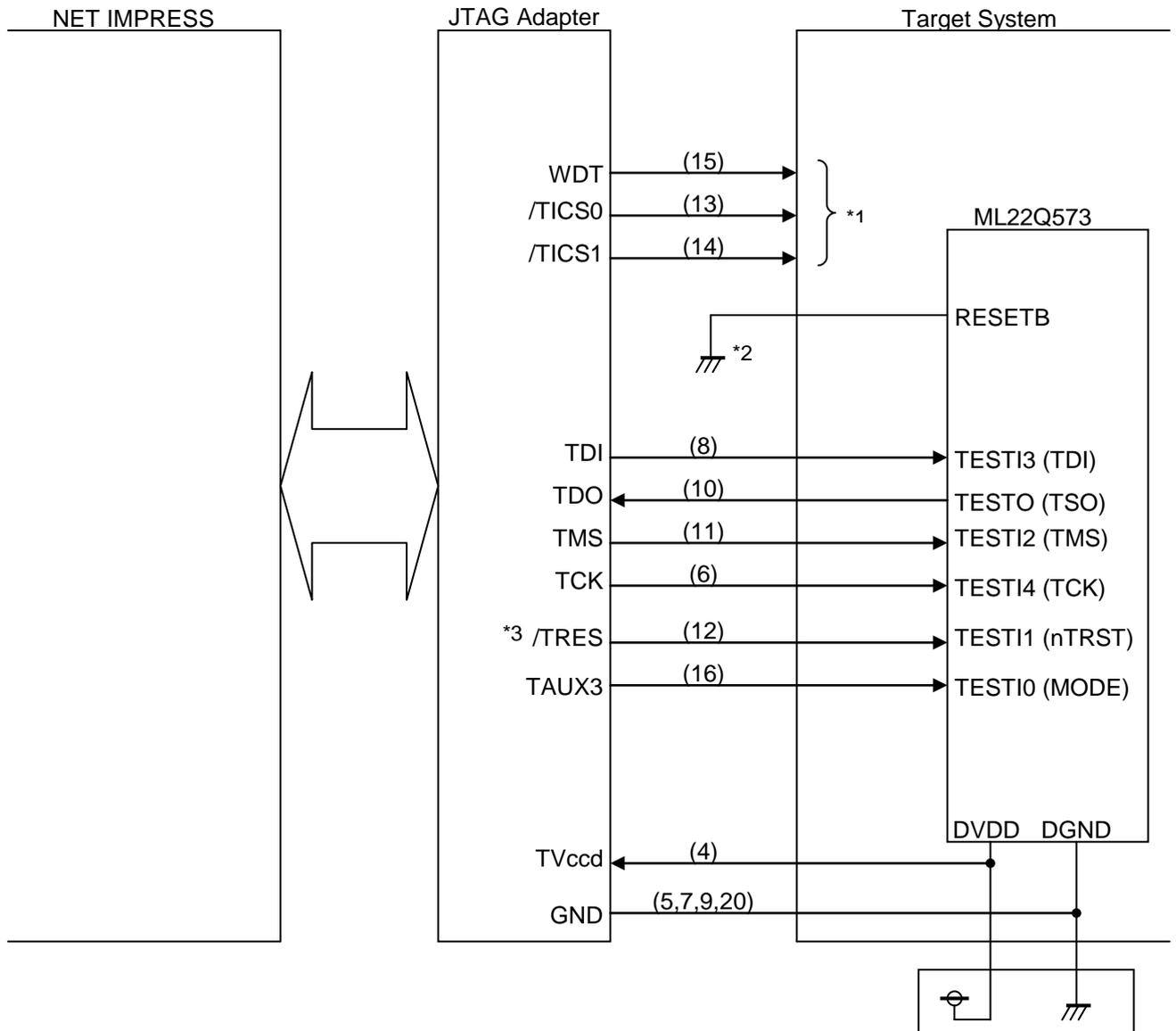


*1: Optional function

*2: Have RESETB terminal asserted when executing programming.

*3: When using pull-down register at TESTI1 (nTRST) on the target circuit, consider that there is 2.7 KΩ pull-up at /TRES on JTAG adapter AZ473.

(1) For the signals defined as shared terminals, multiplexing circuit of these signals must be provided to a target system.

/TICSx signal is asserted only when NET IMPRESS is performing the Device Functions.

/TICSx signal multiplexes signals connected to these shared terminals.

Multiplexing circuits are not required for a target system where these signals for write control are defined as the control signals for the flash microcomputer.

Inserting the multiplexing circuit into a target system can produce the same conditions with a state where NET IMPRESS is not connected (i.e., the connector is unplugged) while /TICSx signal is being negated (when the Device Functions are not executed).

(2) WDT Signal:
The clock signal defined with the WDT Clock Period [FUNC D 5] is constantly output from WDT signal terminal by NET IMPRESS. (Open collector output)

Connect this signal to the user circuit that requires a clock signal when programming the flash memory.

(3) /TRES Signal:

/TRES signal of JTAG adapter is an open collector type output.

(There is 2.7 KΩ pull up at /TRES by TVccd power input in JTAG adapter.)

## 3.3 Waveform of Control Signal
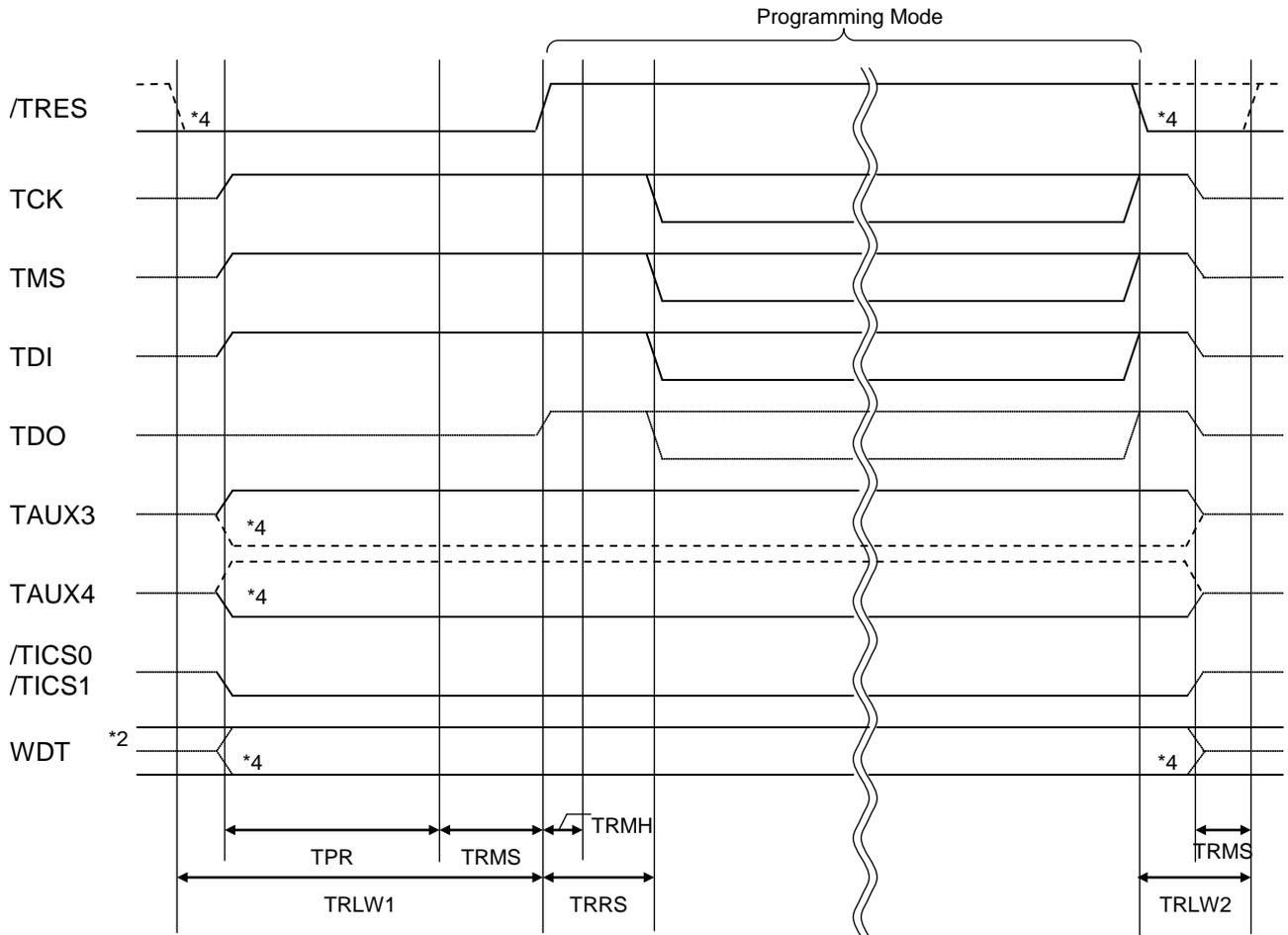


| | NET IMPRESS Specification | |
|---|---|---|
| TPR | 200 ms (Minimum) | |
| TRLW1 | 350 ms (Minimum) | |
| TRLW2 | 100 ms (Minimum) | |
| TRMS | 50 ms (Minimum) | |
| TRMH | 5 ms (Minimum) | *3 |
| TRRS | 100 ms (Minimum) | |

*1: The dotted line " – – – – – – - " indicates HIZ state.

*2: WDT is open collector output.

*3: For input signal to programmer

*4: Optional function

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(1) Power on the NET IMPRESS first and the target system next.

(2) /TICS signal is asserted by execution of the program command, and communication channel for programming is connected to the NET IMPRESS on the target system. (Multiplexing with this /TICS signal is not required for a system where communication channel and related signals for programming are exclusively used by the NET IMPRESS, independently from other user circuit.)

(3) The NET IMPRESS asserts a reset signal to pull the target microcomputer into the programming mode.

(4) TVpp is raised to the specified voltage.

(5) The programming mode that is started by negating a reset signal starts communicating with the NET IMPRESS using a specified communication circuit.

Channels specified in the MPU Clock Frequency [FUNC D F] in advance will be selected for communication circuit.

(6) When programming is finished, applying Vpp automatically ends.

(7) The NET IMPRESS also negates /TICS signal. While /TRES signal is asserted, WDT signal continues to generate periodic pulse signal (the clock to input to a watchdog timer of the target system).

# 4 Downloading Micom Pack

## 4.1 File Structure

The following files are required to use this Micom Pack.

<Provided by DTS INSIGHT CORPORATION>

| File Name | Descriptions |
|---|---|
| V1200O909.CM   *1 | A programming definition file<br><br>Not included in this Micom Pack |
| V1201M00O909.PRM | A parameter table file which stores device information of ML22Q573 |

*1: The version listed above may not be the latest version of programming definition file.

(The version is described with four digits in the file name. "VxxxxO909.CM")

<Prepared by User>

| File Name | Descriptions |
|---|---|
| Object.xxx | An object file to be programmed into flash memory |
| Object.YSM | A file for detecting buffer RAM changed illegally<br><br>See the MegaNETIMPRESS/C"arNETIMPRESS Instruction Manual for the details. |

## 4.2 Connecting the Remote Controller (AZ490)

The remote controller AZ490 runs on a Windows PC.

Connect a PC and the NET IMPRESS using an Ethernet cable (10BASE-T/100BASE-TX).

Install the Control Module, which supports the target microcomputer, in NET IMPRESS. And, download the Micom Pack to the Control Module installed in NET IMPRESS.
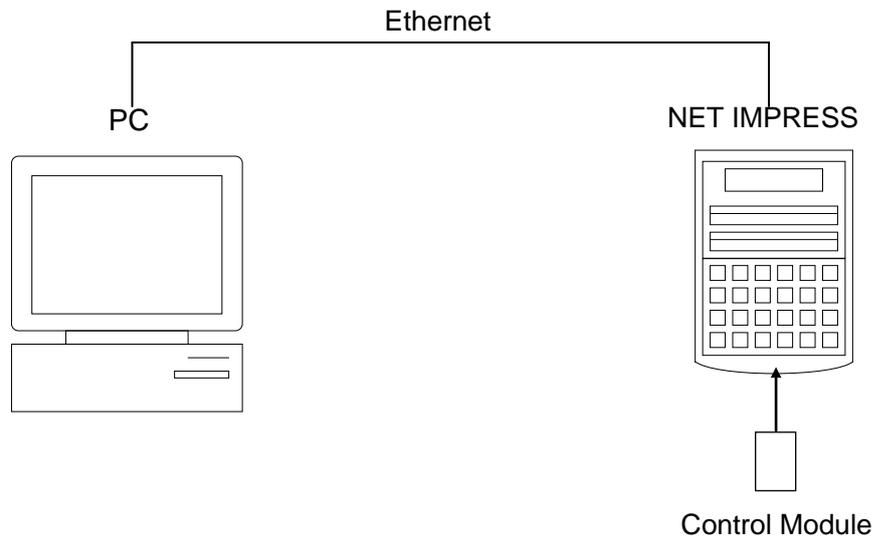
## 4.3 Downloading Micom Pack

You can download the Micom Pack by using the remote controller AZ490, which is available for an additional order. Download the Micom Pack to the Control Module using the Parameter Load from HD function on the File Transfer tab.

When you choose the Parameter Load from HD function, the window to select a parameter table appears, enabling you to choose an appropriate Micom Pack.
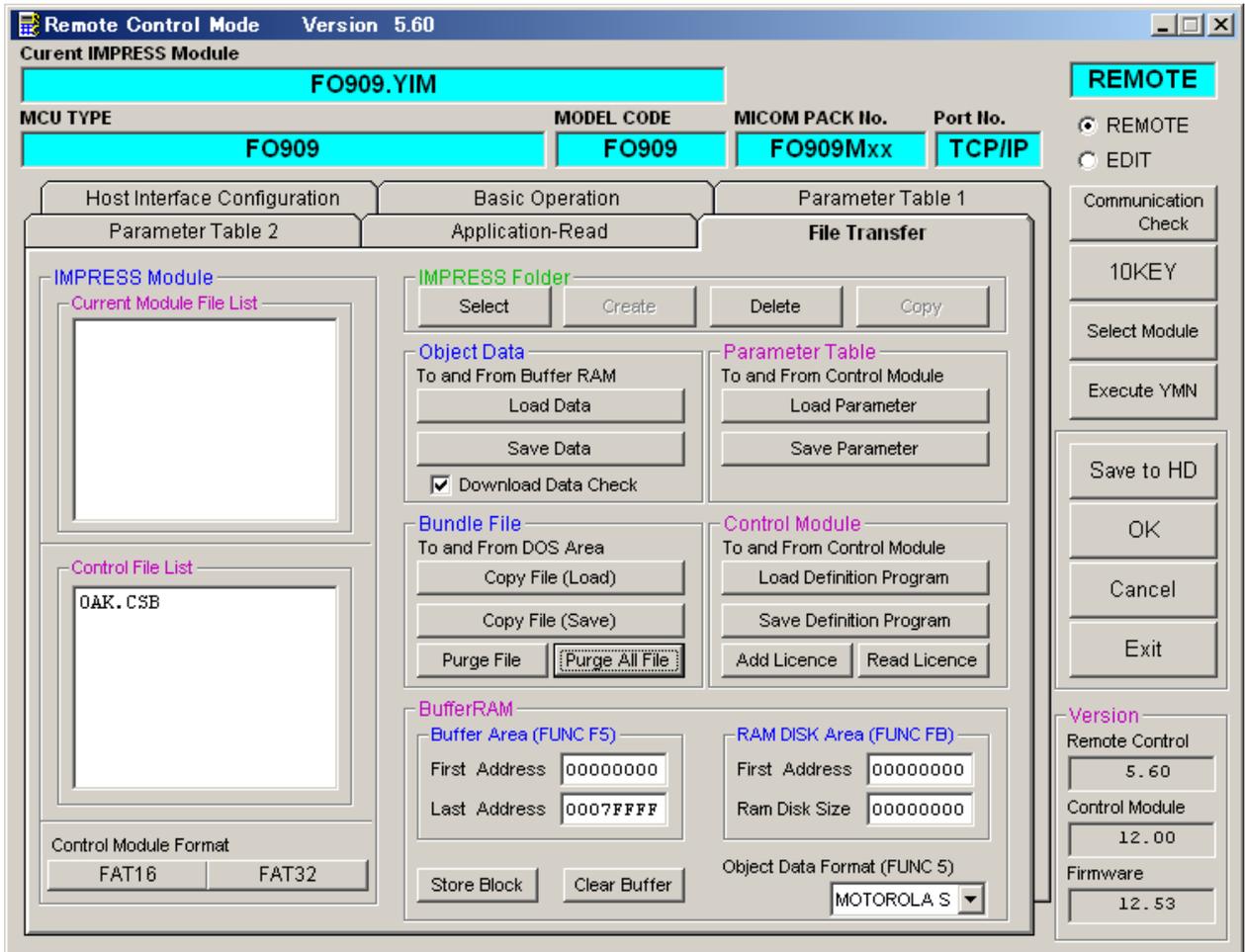
# 5 Notes and Cautions for Using Control Module

(1) The Control Module FO909 is built for the flash microcomputer programmer NET IMPRESS. *DO NOT* use this Control Module for any flash microcomputer programmers other than the NET IMPESS series.

(2) The Control Module FO909 is built tailored to the specific microcomputer. Do not use this Control Module for programming microcomputers other than the specified microcomputer. Using this Control Module for microcomputers other than the specified microcomputer would damage your target system.

(3) The NET IMPRESS consumes power of several mA from Tvcc1 terminal to drive the interface IC with the target system (IC inside the NET IMPRESS).

(4) *Be sure NOT to* initialize (format) the Control Module (Compact Flash Card). The Control Module contains the definition program (the control program), besides the DOS area where you can save your files. Initializing the Control Module results in destroying this control program.

(5) *DO NOT insert or remove* the Control Module while the Device Functions or the Function key operations are being executed. Be sure not to insert or remove the Control Module from the flash microcomputer programmer while accessing it.

(6) Use the flash microcomputer programmer with the Control Module inserted into it.