RX-MEFA0416-P1

CHINO

IR-FA Series

Communications (Options)

INSTRUCTIONS

Always keep this instruction with your unit.

Please be sure to deliver this instruction manual with the unit to a final user.

CHINO

CONTENTS

■Symbols in this instruction manual

The symbols shown below are used depending on important degrees for using the communications safely and avoiding unexpected situations.

Important degree	Symbols	Contents
1		This symbol is indicated with a title for an explanation with Warning
2	Warning	For avoiding the risk of a fire or electric shock or other dangers that may result in serious injury or death of personnel or malfunctions/damage to this product
3	Caution	For avoiding injury or in physical damage to the communications.
4	Reference	Information that you can use as a reference.

1. General

This optional communications is for monitoring measuring condition by communications and for setting and reading parameters of IR-FA series fiber optic thermometers (Model: IR-FAIS□□, IR-FASS□□, IR-FAQHS□, IR-FACRS□) through a personal computer.

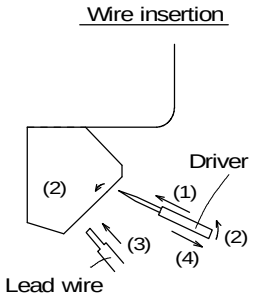
2. Communications specifications

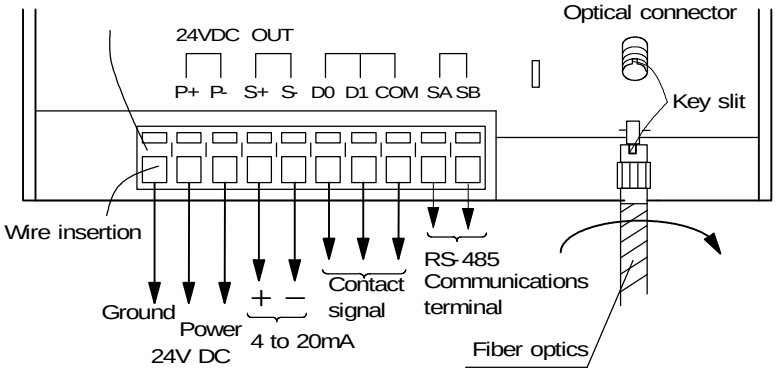
In this communications, the transmission speed is variable but other parameters are fixed.
Also, for the connection with multiple thermometers, it is necessary to set an address to each thermometer. For the setting of the address, refer to the separate instruction manual IR-FA series Fiber type radiation thermometer (INST.No.INE-378-P□) and IR-FACR series Fiber type radiation thermometer (INST.No.INE-414-P□).

Start-stop synchronizing system	
Half-duplex communications system	
Transmission speed	19200, 9600, 4800bps selectable
Start bit	1 bit
Data length	7 bits
Parity bit	Even
Stop bit	1 bit
Character code	ASCII
BCC (Block check code)	None
Data transmission procedure	None

3. Connections

Warning Make sure that all mains power is turned off to prevent an electric shock, when connecting power to the power terminals.





(1) Insert a driver to the concave part at the upper side of the terminal board.
(2) Lift the driver shank up and push up the metal hook with the tip of the driver.
(3) Insert a lead wire to the opening of the lower side of the terminal board.
(4) The lead wire is fixed by removing the driver.

Caution When connecting the optical connector of the fiber optic assembly to the optical connector of the thermometer, make sure to turn it with your hand. (Never turn it by using a tool like as pliers.)

4. Communications procedures

4.1 Basic communications format

1) Commands

STX	Command	Sub-command	Data	ETX	CR	LF

Command (1 character)

□

R: Reading
W: Writing
A: Answer

Sub command

□ □ □ □

Type (2 characters) Data No. (2 characters)

Type : PV…Data
SV…Parameter

Data No.: 01 to 09

2) Positive answer to reading

STX	A	Sub-command	=	Data	ETX	CR	LF

Reference

A sub-command in the "Reading" command returns as the sub-command in the answer.

3) Negative answer to reading/writing

STX	A	Error code	:	Error data No.	ETX	CR	LF

Reference

Error data No.: First data position (the position counted from the position next to "STX") where an error was detected

4) Positive answer to writing

STX	A	0000	:	0000	ETX	CR	LF

4. Communications procedures

4.2 Procedure for multi-drop connection

The followings are the formats for the connection of 2 sets of IR-FA or more (applicable to 1-set connection, too.).

1) Command

ENQ	**	STX	Command	Sub-command	Data	ETX	CR	LF

Reference

"** in "ENQ **" shows an instrument address.
Make sure to set it by 2 digits (** or △*).

2) Positive answer to reading

ACK	**	STX	A	Sub-command	=	Data	ETX	CR	LF

Reference

"** in "ACK **" shows an instrument address.
Make sure to transmit it by 2 digits (** or △*).

3) Negative answer to reading/writing, positive answer to writing

ACK	**	STX	A	Error code	:	Error data No.	ETX	CR	LF

Reference

"** in "ACK **" shows an instrument address.
Make sure to transmit it by 2 digits (** or △*).

4.3 Data expression

■ Numeric data

◆ Data is characters with fixed length and right justified.

◆ Sign

At receiving: " + " or "space (△)" is acceptable

At transmitting: " – " is placed just left to a numeric figure. " + " is expressed by "space (△)"

◆ "0" at higher digits

At receiving: "0" (zero) or "space (△) " is acceptable.

At transmitting: "0" (zero) is suppressed except specified parameters.

Caution

The following data are not acceptable as numeric figures.
"12△3", "-△123", "-.123", "123△", "123. " etc. (" " mark means a space.)

4.4 Control code

ASCII commands	ASCII codes
STX	02h
ETX	03h
ENQ	05h
ACK	06h
LF	0Ah
CR	0Dh

5. Details of format

This followings are the descriptions of the "Command", "Sub-command" and "Data".

5.1 Data commands

5.1.1 Measured data (1st data: 1 byte, 2nd data: 6 bytes)

Reading
RPV01
APV01= □, □□□□□□

◆ 1st data: Data status
0: Normal
1: Overflow
2: Underflow
3: Cramp (For 2-color type IR-FAQH)
4: Hardware abnormal
(Element abnormal, parameter abnormal)

◆ 2nd data: Temperature data

Reference — Temperature data: Integer: 4 digits, Decimal: 1 digit

5.1.2 Alarm status (Data: 2 bytes)

Reading
RPV02
APV02= □ □

◆ Self-diagnosis
0: Not activated
1: Activated

◆ Temperature alarm
0: Not activated
1: Activated

5.1.3 Thermometer inside temperature (Data: 4 bytes)

Reading
RPV51
APV51= □□□□

◆Thermometer inside temperature

Reference — Temperature data: Integer: 2 digits, Decimal: 1 digit

5. Details of format

5.2 Parameter settings

5.2.1 Alarm setpoint temperature (Data: 4 bytes)

Reading

RSV02

ASV02= □□□□

Writing

WSV02=□□□□

◆**Alarm temperature**

Reference

Alarm temperature setting range: 0 to 6280ºC
Integer: 4 digits, No decimal digit

5.2.2 Analog output scaling (1st data: 4 bytes, 2nd data: 4 bytes)

Reading

RSV23

ASV23= □□□□, □□□□

Writing

WSV23=□□□□, □□□□

◆ **1st data: Analog output low limit value**

◆ **2nd data: Analog output high limit value**

Reference

Setting range of analog output high and low limit value: 0 to 6280ºC
Integer: 4 digits, No decimal digit

5.2.3 Alarm temperature mode (Data: 1 byte)

Reading

RSV30

ASV30= □

Writing

WSV30=□

◆ **Alarm temperature mode**

0: Alarm disable
1: High alarm
2: Low alarm

5. Details of format

5.2.4 Emissivity (Data: 5 bytes)

Reading

RSV51

ASV51= □□□□□

Writing

WSV51=□□□□□

◆ **Emmisivity**

Reference

Emissivity setting range: 1.999 to 0.050
Integer: 1 digit, Decimal: 3 digits

5.2.5 Sample hold/peak hold (Data: 1 byte)

Reading

RSV53

ASV53= □

Writing

WSV53=□

◆ **Sample hold/peak hold**

0: Disable
1: Peak hold
2: Sample hold

5.2.6 Peak hold reset system (Data: 1 byte)

Reading

RSV54

ASV54= □

Writing

WSV54=□

◆ **Peak hold reset system**

0: No reset
1: Internal reset (Time reset)
2: External reset (Remote contacts input)

5. Details of format

5.2.7 Peak hold reset time (Data: 4 bytes)

Reading

RSV55

ASV55= □□□□

Writing

WSV55=□□□□

◆**Reset time**

Reference

Reset time setting range: 0.0 to 99.9 (seconds)
Integer: 2 digits, Decimal: 1 digit

5.2.8 Signal modulation mode (Data: 1 byte)

Reading

RSV61

ASV61= □

Writing

WSV61=□

◆**Signal modulation mode**

0: Delay

1: Peak

5.2.9 Modulation ratio (Data: 4 bytes)

Reading

RSV62

ASV62= □□□□

Writing

WSV62=□□□□

◆**Modulation ratio**

Reference

Modulation ratio setting range: 0.0 to 99.9
Integer: 2 digits, Decimal: 1 digit

5. Details of format

5.2.10 Damping factor at peak (Data: 1 byte)

Reading
RSV63
ASV63= □

Writing
WSV63=□

◆ **Damping factor at peak**
0: 0°C/sec
1: 2°C/sec
2: 5°C/sec
3: 10°C/sec

5.2.11 Laser sighting (Data: 1 byte)

Reading
RSV67
ASV67= □

Writing
WSV67=□

◆ **Laser sighting enable/disable**
0: Laser sighting disable
1: Laser sighting enable

5.2.12 Contact output type (Data: 1 byte)

Reading
RSV85
ASV85= □

Writing
WSV85=□

◆ **Contact output type**
0: No contact output
1: Alarm output
2: Self-diagnosis abnormal

5.2.13 Measurement unit (Data: 1 byte)

Reading
RSV91
ASV91= □

Writing
WSV91=□

◆ **Measurement unit**
0: °C
1: °F

6. Error codes

Error No.	Error contents	Error answer Error code: Error data No.
1	Framing error	A0001 : 0000
2	Overrun error	A0002 : 0000
3	Parity error	A0003 : 0000
4	Checksum error	A0004 : 0000
10	Command error (Undefined numbers other than R, W, PV, SV, MV, not specified number)	A0010 : ****
12	Text format error (Checking after "=": "="missing, data missing after "=", etc.)	A0012 : ****
13	"STX" missing (Not placed at specified position)	A0013 : 0000
14	"ETX" missing	A0014 : 0000
15	Receiving buffer overflow	A0015 : 0000
20	Numeric figure out of range	A0020 : ****
22	Not specified character or numeric figure received	A0022 : ****
9999	Other errors	A9999 : 0000

Reference

Asterisks "****" are filled with an error data position (the position counted from the position next to "STX").

CHINO

CHINO CORPORATION

32-8, KUMANO-CHO, ITABASHI-KU, TOKYO 173-8632

Telephone: +81-3-3956-2171
Facsimile: +81-3-3956-0915
Web site http://www.chino.co.jp/