InfoSOSA™ Series

Host Communication Tester
Instruction Manual

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https://www.dush.co.jp/english/

Introduction

This document describes the operation of the tool <Host Communication Tester> that simulates the operation of the host side of the communication with the InfoSOSA unit and the host.
Please read this manual carefully and use the product correctly.

Precautions for Safe Use

Safety notations are written throughout this manual for the product to be used safely.
Please read this manual along with other related manuals carefully to understand the correct handling and functions of the Host Communication Tester.

□ Safety Symbol Legends

Safety symbols as below are noted throughout this document for the Host Communication Tester to be used correctly and safely:

 Caution	Indicates a procedure, condition, or statement that should be noted in order for the equipment to be used correctly.

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Reference Documents

Please refer to the following documents if the contents are not described in this manual.

Reference Manual

A manual describing the details of the Parts and functions, properties, parameters, and commands used in the InfoSOSA Builder.

InfoSOSA Builder Operation Manual

A manual describing how to operate the InfoSOSA Builder and simulator.

Table of Contents

1. Host Communication Tester

1.1 Overview

The Host Communication Tester is a development tool that can send and receive commands, etc. for testing the communication function of the InfoSOSA by connecting a computer and the InfoSOSA instead of using a microcontroller board, etc.

There are 2 functions: "Command" function that sends a single command, and "Script" function that creates a script in advance and communicates continuously.

Please refer to "2. Common Items" for common items such as communication settings, "3. Commands" for "Command" functions, "4. Script" and "5. Script File" for "Script" function.

1.2 Operating Environment

Host Communication Tester works on a computer that satisfies the following environment. Please confirm that your computer meets the following operating environment before installation.

Items	Contents
OS	Microsoft® Windows® 10 (64 Bit) or Microsoft® Windows® 11 (64 Bit)
Framework/ Runtime	Microsoft® .NET Framework 3.5 Microsoft® .NET Framework 4.7 Microsoft® Visual C++ 2015 Runtime
Processor	1GHz or faster
RAM	4GB or more (Recommended: 8GB or more)
HDD	850MB or more free space (Recommended: 1GB or more)
Display	1024×768 dots or more, True Color (32bit) preferred
Serial Port*	Required at serial communication
Ethernet Port	Required at LAN communication

* A communication error may occur according to the output signal level of the serial port (COM) of the computer you will be using. Please use the USB-Serial converter if this is the case.
* Operation under virtual environment will be out of operating warranty.

1.3 Installation

It will be installed at the same time you install the InfoSOSA Builder.
For more information, please refer to the "InfoSOSA Builder Operation Manual".

1.4 How to Start

Click "Start" - "Seedsware" - "Host Communication Tester*.*.*.*" to start the Host Communication Tester.

* "*.*.*.*" displays the version number.

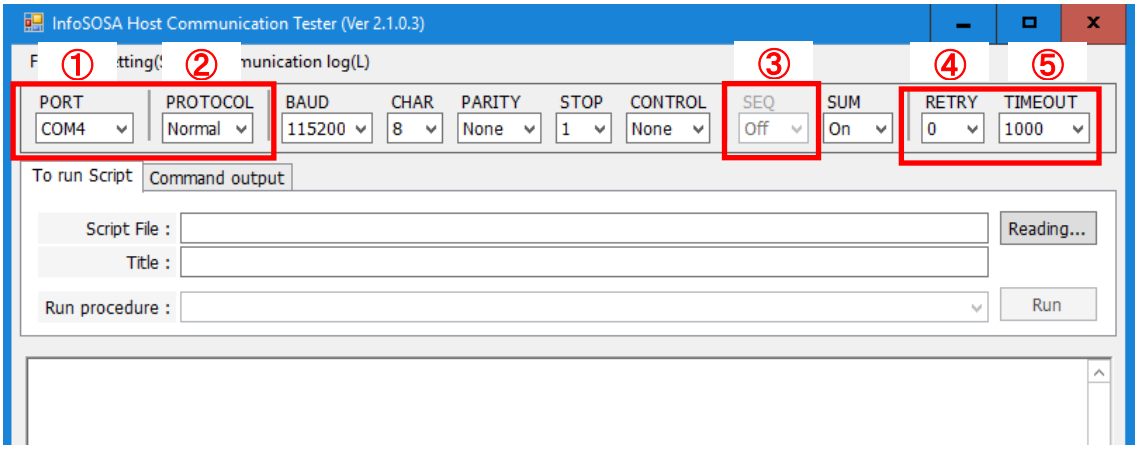
2. Common Items

2.1 Communication Setting Details

You will need to perform Communication Setting before running scripts or issuing commands.

2.1.1 Common Communication Setting

Below is the common setting of serial communication and LAN communication.

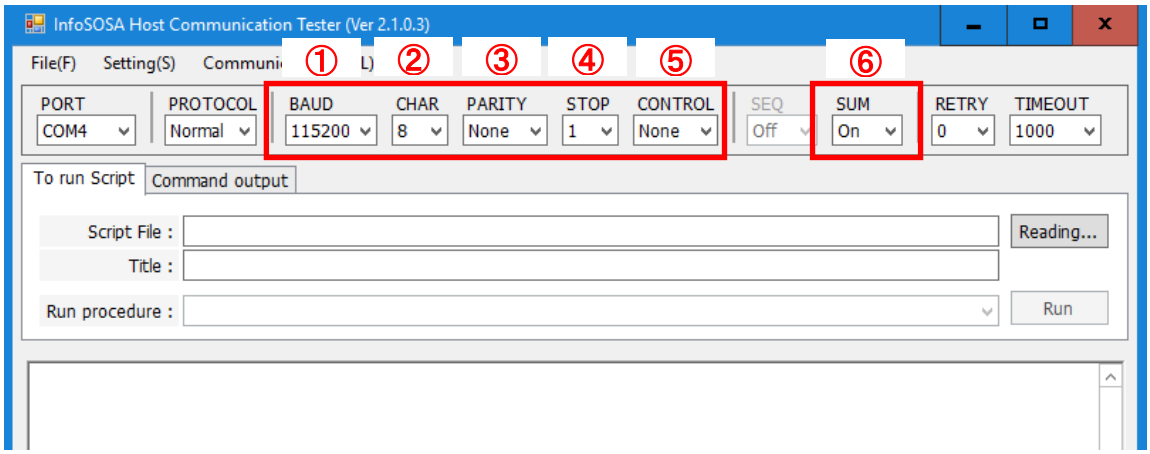


No	Items	Contents
1	PORT	Select COM port of computer side to be used for serial communication. When performing LAN communication, set LAN communication first.
2	PROTOCOL	Set according to InfoSOSA communication mode. Normal is compatible with "InfoSOSA Protocol" Standard is compatible with "Normal Protocol".
3	SEQ	On: Set sequence number 1 to F to communicate. Off: Set sequence number fixed to 0 to communicate. * Valid only when PROTOCOL is set to Standard
4	RETRY	Set number of retransmissions of Host Communication Tester.
5	TIMEOUT	Set time-out period until retransmission of Host Communication Tester. If set to 0, it will be infinite wait state.

* Retry will be performed if there is no ACK from InfoSOSA when sending commands.
(Communication mode of InfoSOSA must be set to "Normal Protocol".)

2.1.2 Serial Communication Settings

Make the setting when performing serial communication.



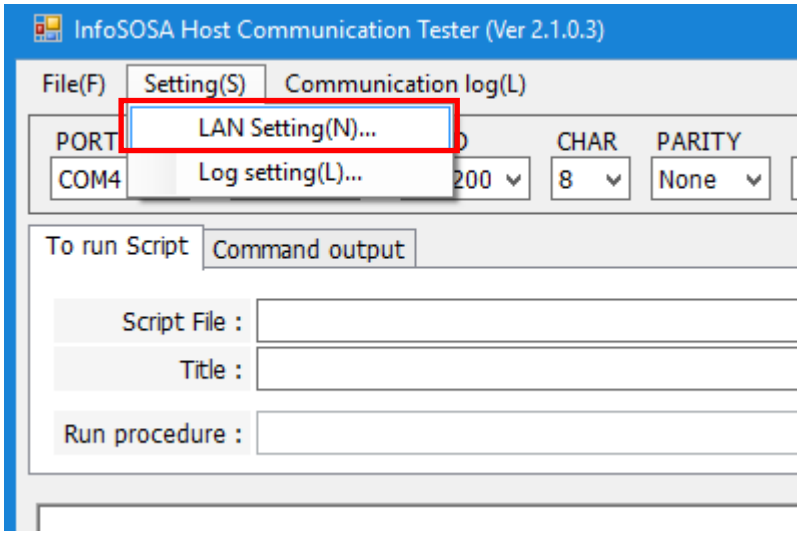
No	Items	Contents
1	BAUD	Set according to "Communication Speed" setting of InfoSOSA.
2	CHAR	Set according to "Character Bit" setting of InfoSOSA.
3	PARITY	Set according to "Parity Bit" setting of InfoSOSA.
4	STOP	Set according to "Stop Bit" setting of InfoSOSA.
5	CONTROL	None: RS232C w/o hardware flow control H/w: RS232C w/ hardware flow control M/d: RS485(2-wire) w/ hardware flow control * M/d/SWctl: RS485(2-wire) w/ hardware flow control *
6	SUM	On: Set checksum and communicate. Off: Fix checksum to 0000 and communicate.

* Be sure to select "M/d" when performing the RS485 communication. However, depending on the serial port, it may not communicate properly. If this is the case, please select "M/d/SWctl". Control of the signal line will be done by the application in this setting.

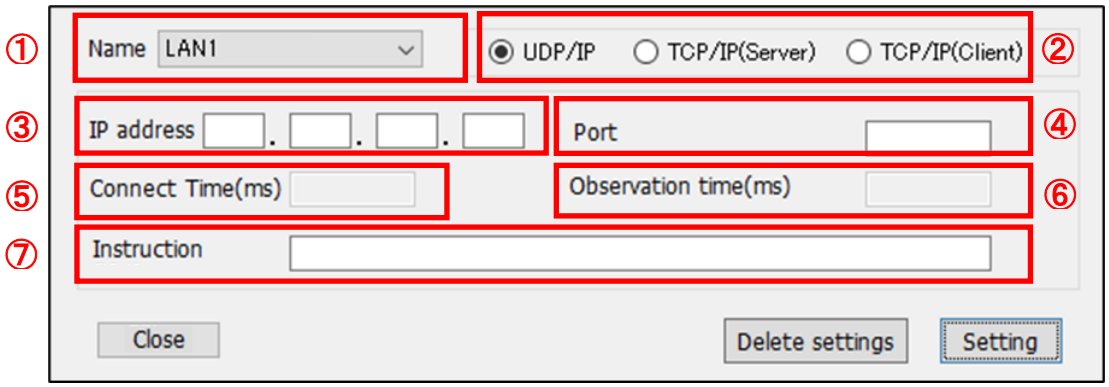
2.1.3 LAN Communication Settings

First, make the setting before performing the LAN communication.
After setting, "Name" will be displayed at "PORT" setting.
* Only possible for models with LAN support

① Choose [Setting] - [LAN Setting] in the menu bar.

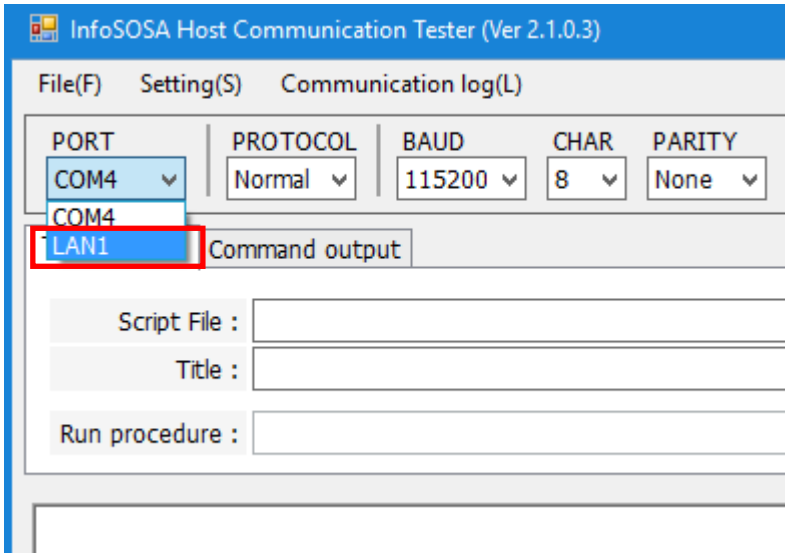


② Click "Set" after each items are set.



No	Items	Contents
1	Name	LAN1 to LAN8 can be set
2	UDP/IP or TCP/IP	Select communication protocol. TCP/IP will work as a server
3	IP address	For UDP/IP and TCP/IP (Client), enter the IP address of InfoSOSA itself. Not required for TCP/IP (Server).
4	Port	Enter port to be used. Enter value set to InfoSOSA's "Notify Event to Host" port.
5	Connect Time(ms)	Time-out time after transmission of KeepAlive packet can be set. TCP connection will disconnect at time-out. Wait will be in infinite state when 0 is specified.
6	Observation time(ms)	Set transmission interval of TCP/IP KeepAlive packet. No transmissions will be made from Host Communication Tester when value is set to 0.
7	Instruction	You can enter any comment.

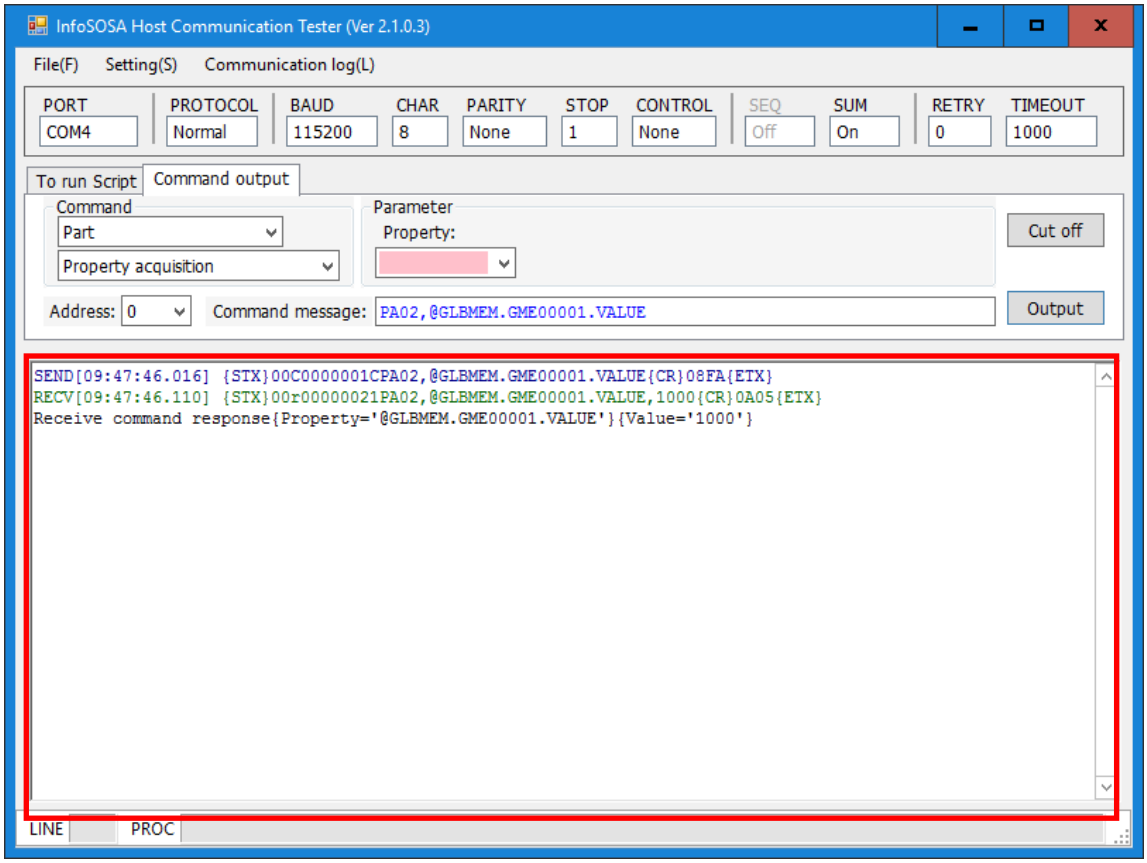
(3). The "Name" set at "PORT" will be displayed.



2.2 Communication Log

2.2.1 Display of Communication Log

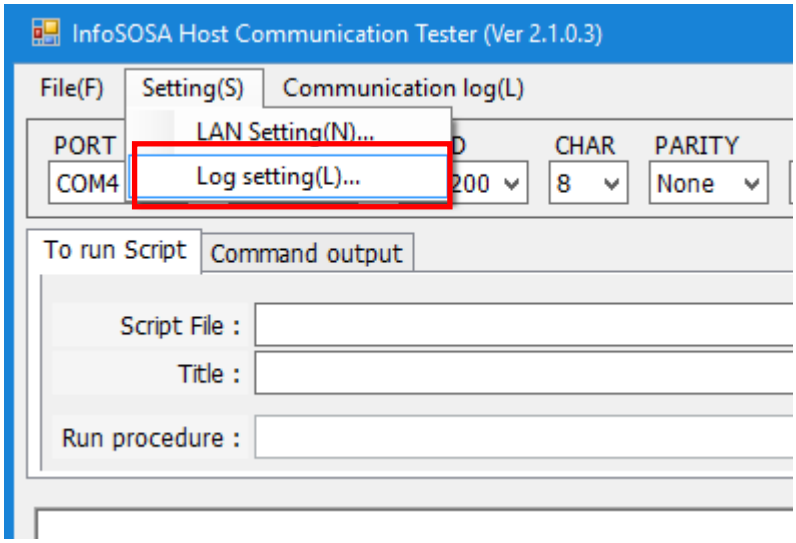
Communication contents of script execution and command issue will be displayed in the log area.
Data transmitted from Host Communication Tester will be displayed as "SEND" in blue characters.
Data received from InfoSOSA will be displayed as "RECV" in green characters.
{STX} is 0x02, {CR} is 0x0d, {ETX} indicates 0x03.
Character code is displayed in ASCII code.
Lines will be removed from the old ones when it becomes more than 5000.



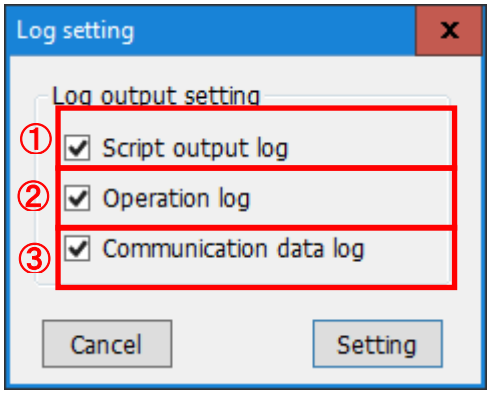
2.2.2 Communication Log Setting

You can set the type of log to be displayed in the communication log area.

(1) Choose [Setting] - [Log setting] from the menu bar.



(2) Click [Setting] after setting each item.

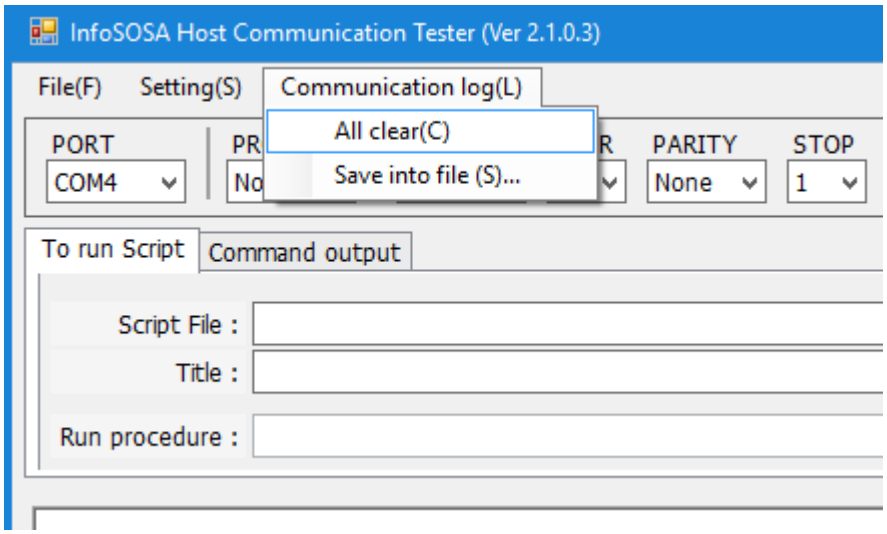


No	Items	Contents
①	Script output log	Displays log specified in script. Please refer to the "5.1.19 Log Output (LOG)" for log output.
②	Operation log	Displays system log.
③	Communication data log	Displays communication data sent and received.

2.2.3 Clear Communication Log

Clear the logs that are displayed.

Select [Communication log] - [All Clear] from the menu bar.

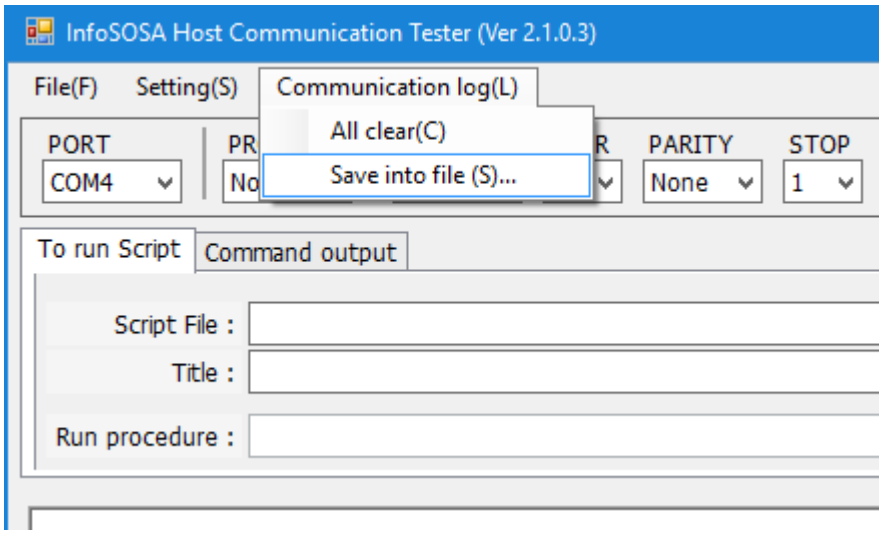


It is also possible to clear from the menu that appears by right-clicking the log area.

2.2.4 Save Communication Log

Save the logs that are displayed in the file.

Select [Communication log] - [Save into file] from the menu bar.



It is also possible to save from the menu that appears by right-clicking the log area.

2.3 Unicode String Transmission

The string will be sent in ASCII code by default.
When sending characters that cannot be sent in ASCII code such as Traditional Chinese from host, change the character code setting to be handled on the InfoSOSA communication command to Unicode (UTF16LE), and then change the setting of Host Communication Tester.

Change Transmission Character Code of Host Communication Tester

Add the following code to the beginning of the string.

Code	Content
\U	Set transmission character code of Host Communication Tester to Unicode.

* In the case of script execution, add to each command.
* In the case of issuing commands, add every time issued.
* Since log area will be displayed in ASCII regardless of the setting, characters other than Unicode will be displayed.

Input Procedure of UTF-16LE Identification Code

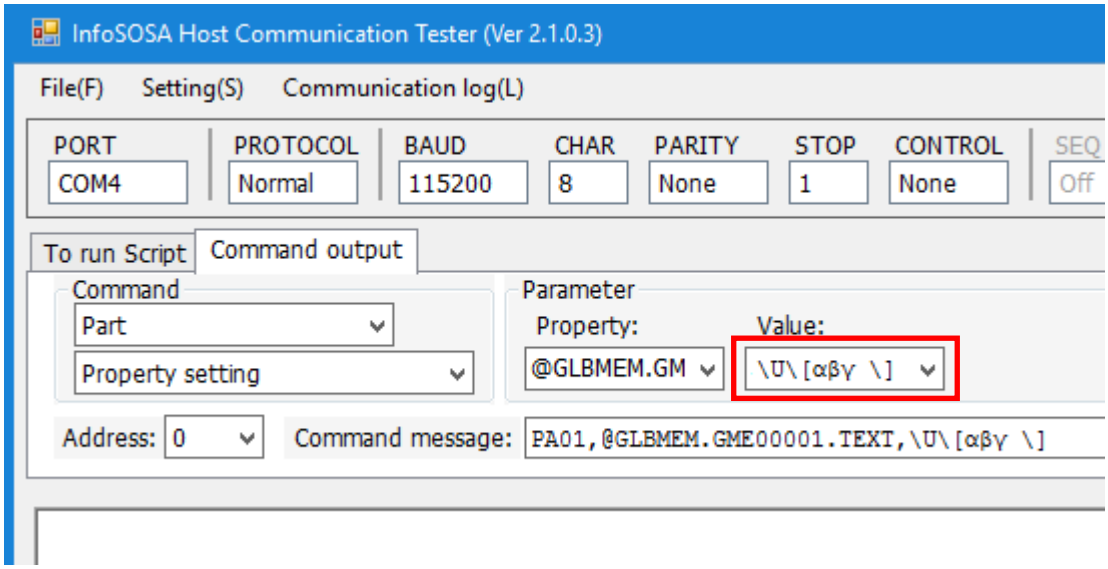
When communicating in Unicode, you must put an identification code at the beginning and end of the string indicating that it is a UTF-16. Usually, the control character cannot be entered with the Host Communication Tester, but the UTF-16LE identification code can be sent using the following escape sequences.

Code	Content
\[	Replaced by start code (0xfe, 0xff) and transmit.
\]	Replaced by start code (0xff, 0xfe) and transmit.

Example:
How to write a script

COMMAND "PA01,@GLBMEM.GME00001.TEXT,\U\[αβγ \]"

Input Procedure at Command Issue



Actual transmitting data *String only

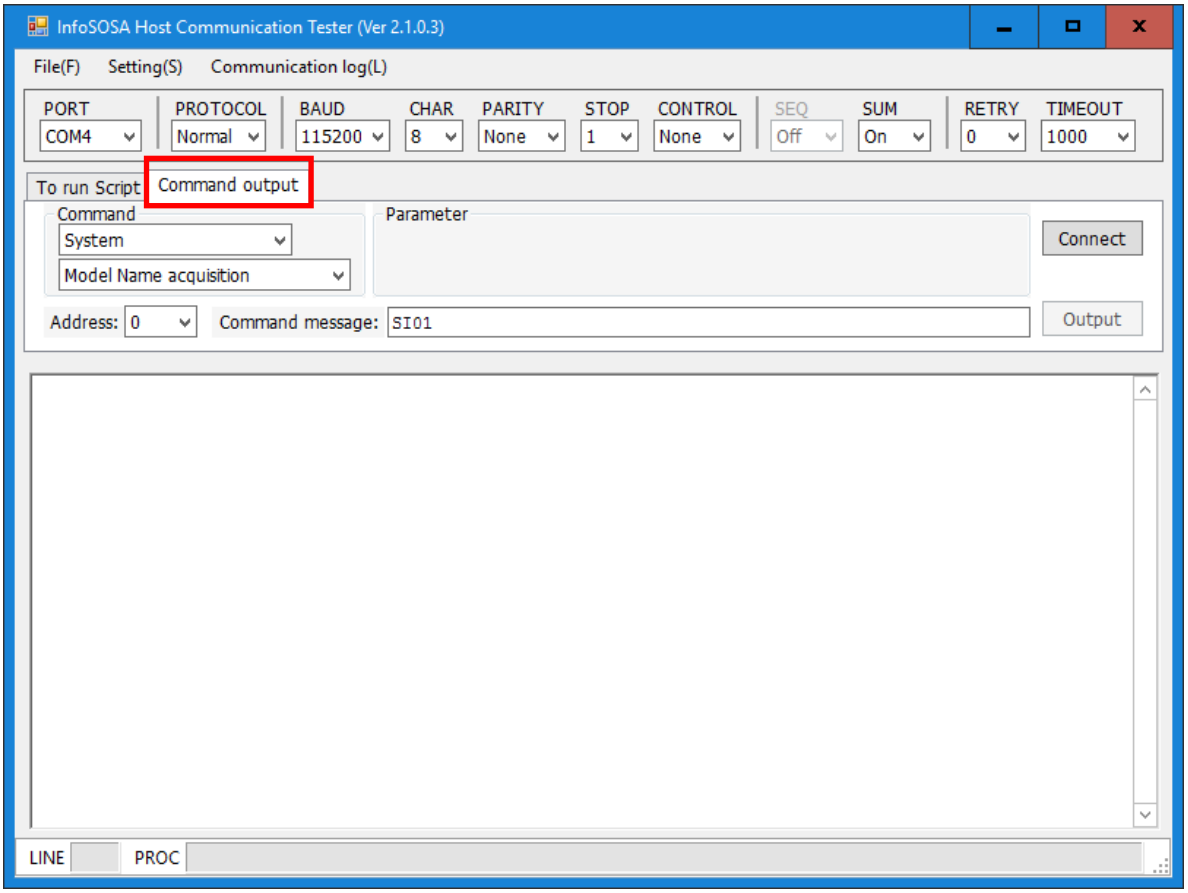
0xfe,0xff,"αβγ",0xff,0xfe

3. Commands

3.1 Command

Selected commands can be sent with the "Command Output" function.

Select the tab for the "Command Output" after start-up to use this function.



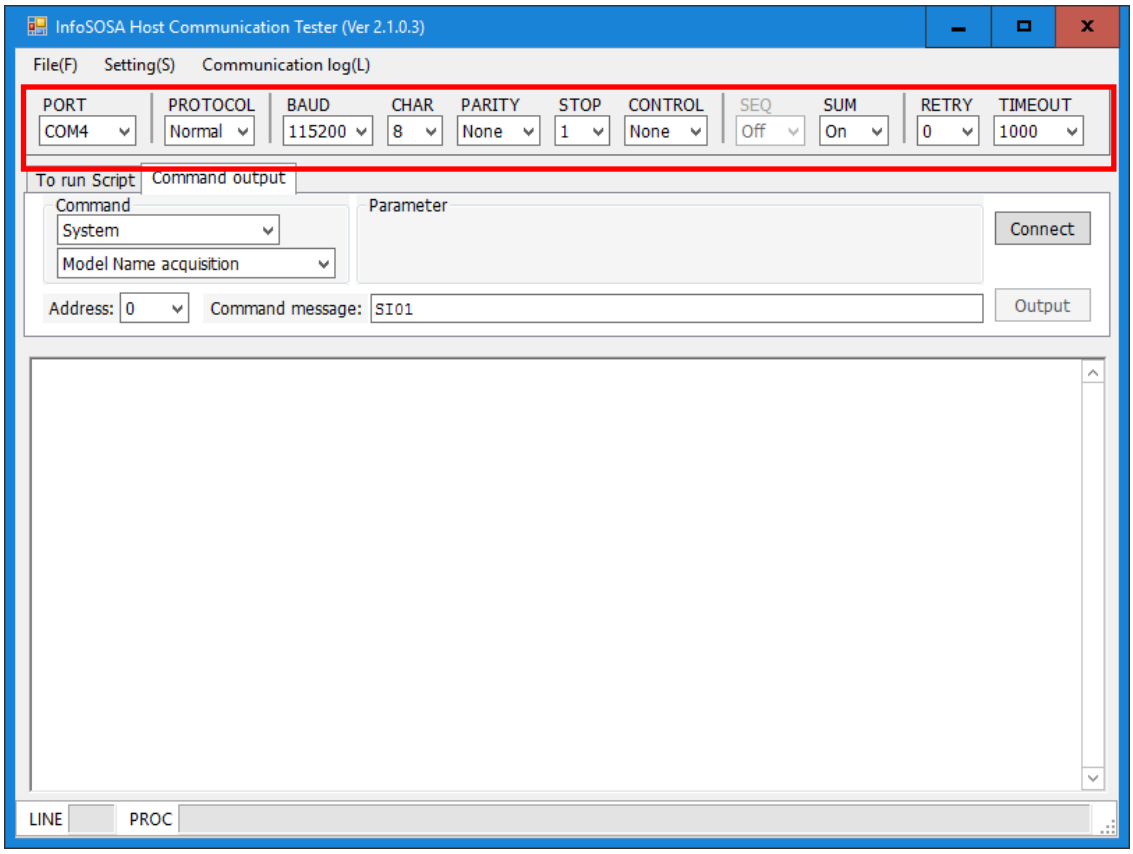
3.2 Connection

To output the command, make the communication setting and connect the computer with the InfoSOSA.

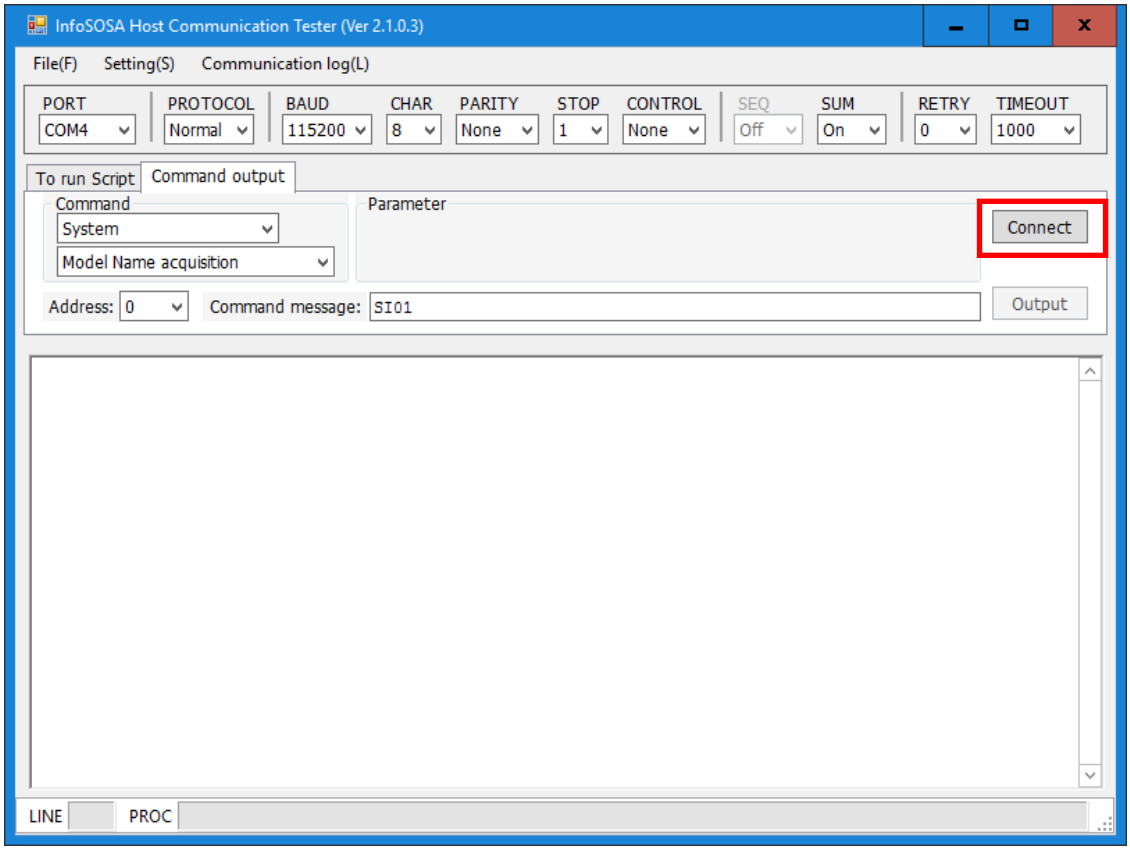
Procedure

(1) Perform Communication Settings

* For more information on each item, please refer to "2.1 Communication Setting Details".



(2) Click "Connect".



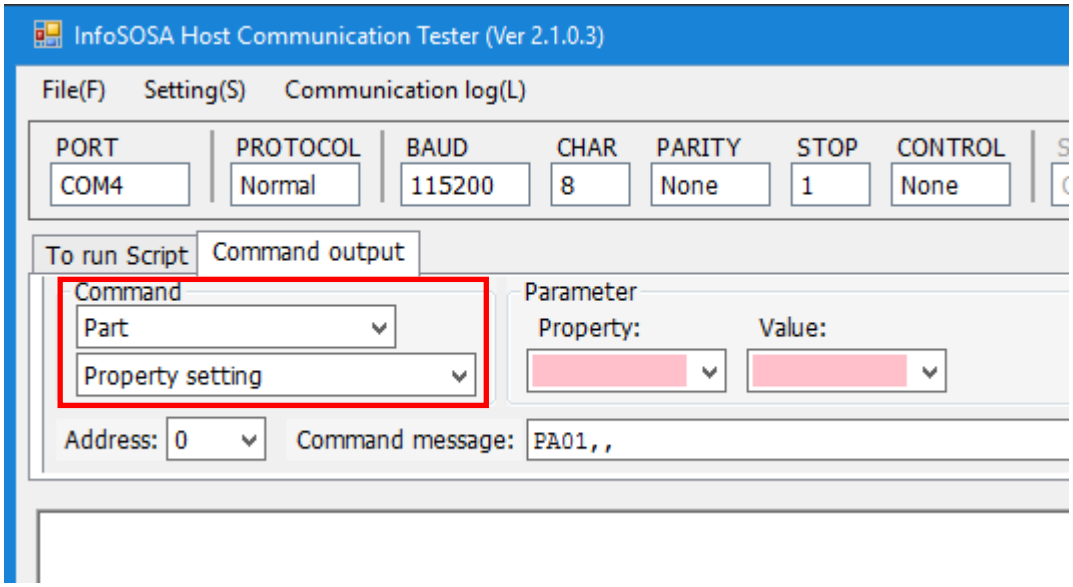
3.3 Output of Command

Please perform the following steps after connecting the computer and the InfoSOSA.

Procedure

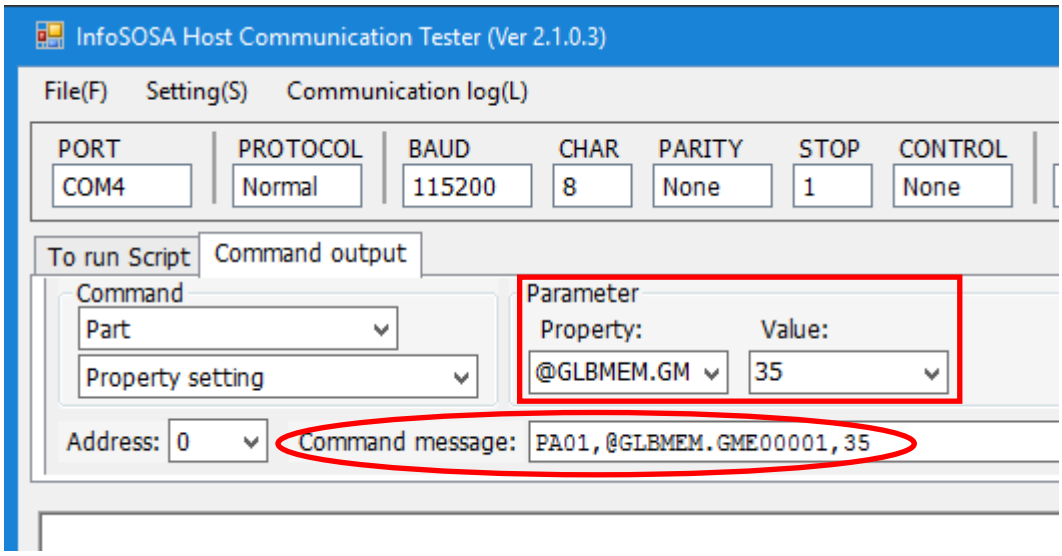
(1) Select the command to be sent

* Please refer to the separate "Reference Manual" for details of each command.



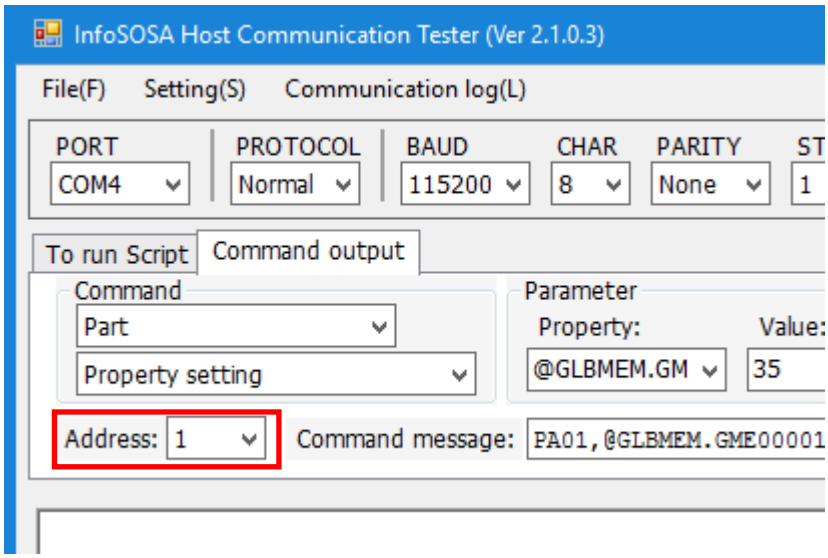
(2) Set the parameters of the command to be sent

* Please refer to the separate "Reference Manual" for the format of the parameters.

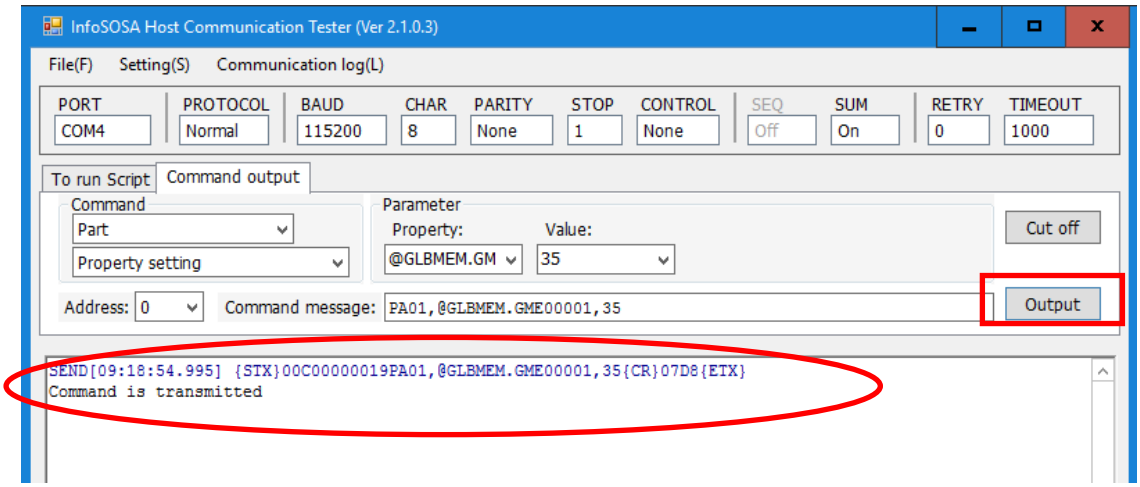


Generated Message (data portion only) will be displayed in the "Command message" area.

* Set a destination Address for the RS485 (2-wire) communication.



(3) Click "Output".



Message sent is displayed.

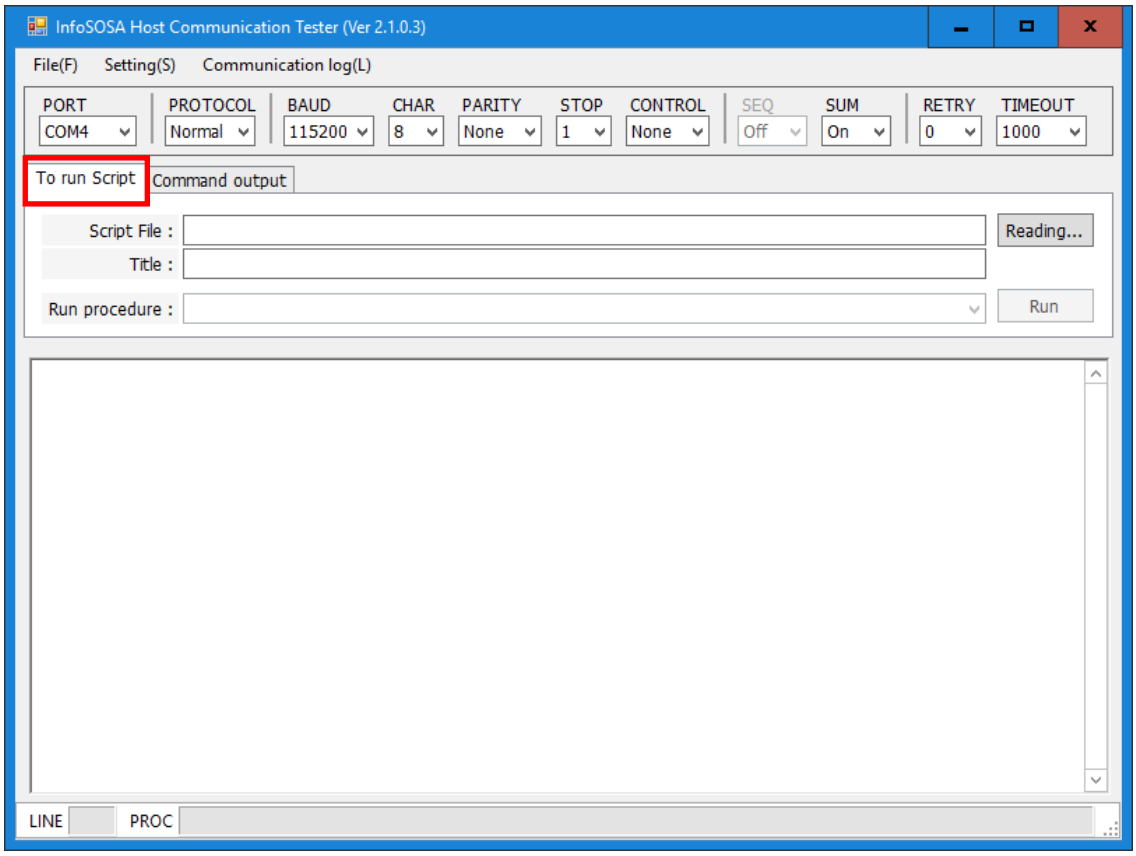
4. Script

4.1 Script

"Script" function can continuously communicate by creating a script file in advance.

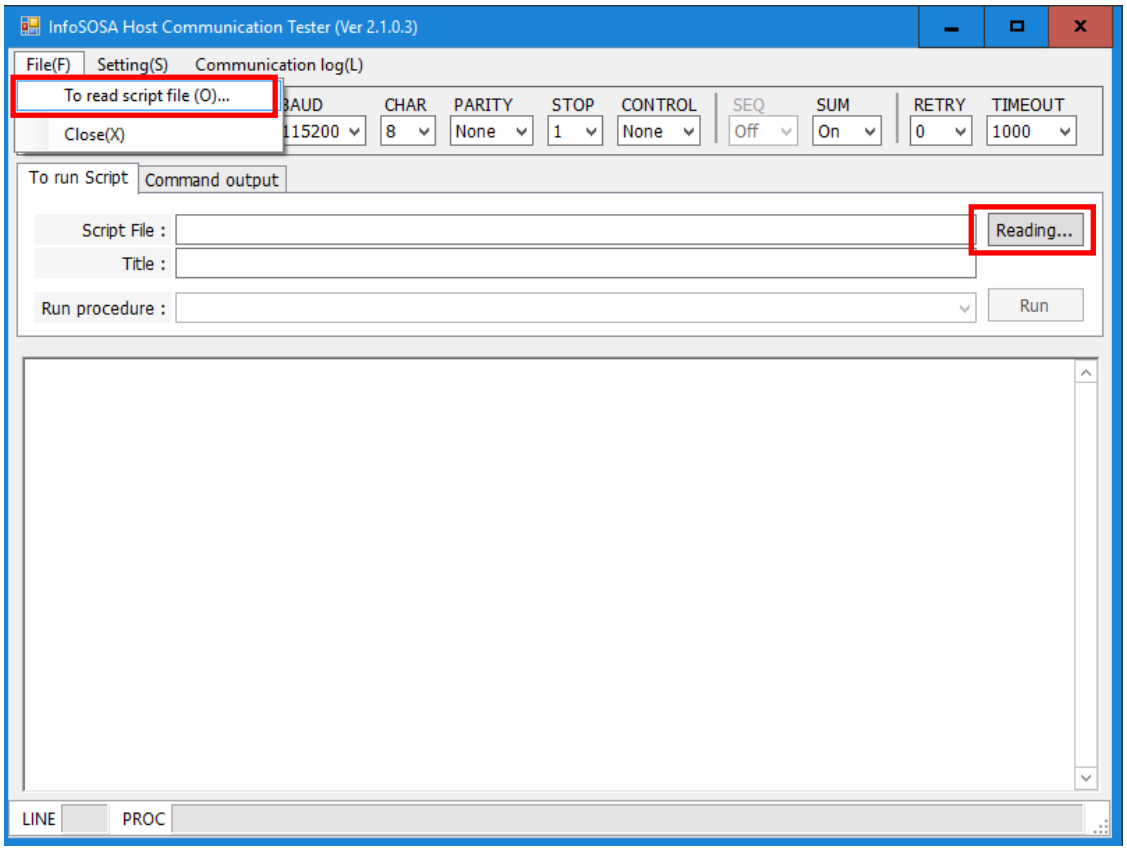
* Please refer to "5.Script File" for how to create a script file.

Select the tab for "To run Script" after start-up to use this function.



4.2 Reading of Script File

Click "Reading...".
(Select [File] - [To read script file (O)...] from the menu bar also possible)



Choose the script file that was created after "To read InfoSOSA script file" dialog is displayed.

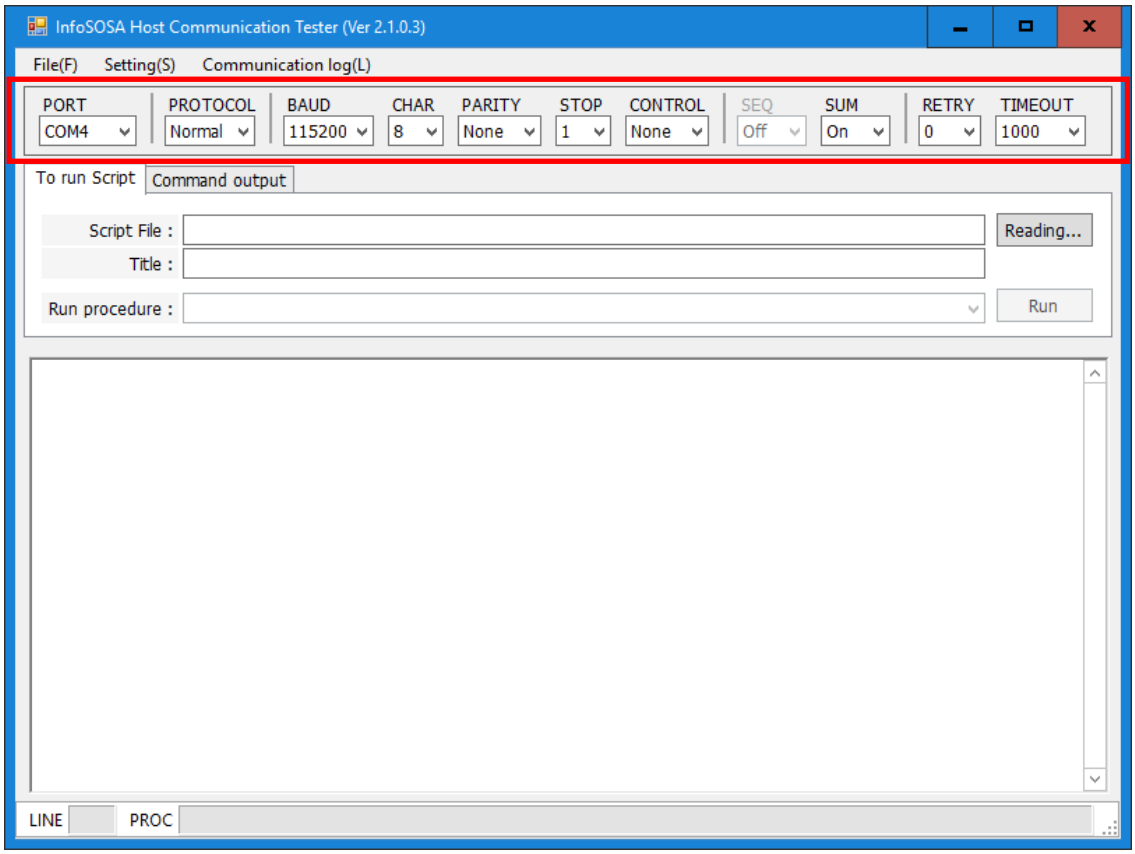
Check the contents of the script at the time of reading and make sure the results will be displayed in the communication log display unit. If there is no problem, "Finish reading" will be displayed. If there is a problem in the script, an error message will be displayed.

* "Finish reading" will not appear if "Operation Log" is set to hide in the log settings.

4.3 Communication Settings

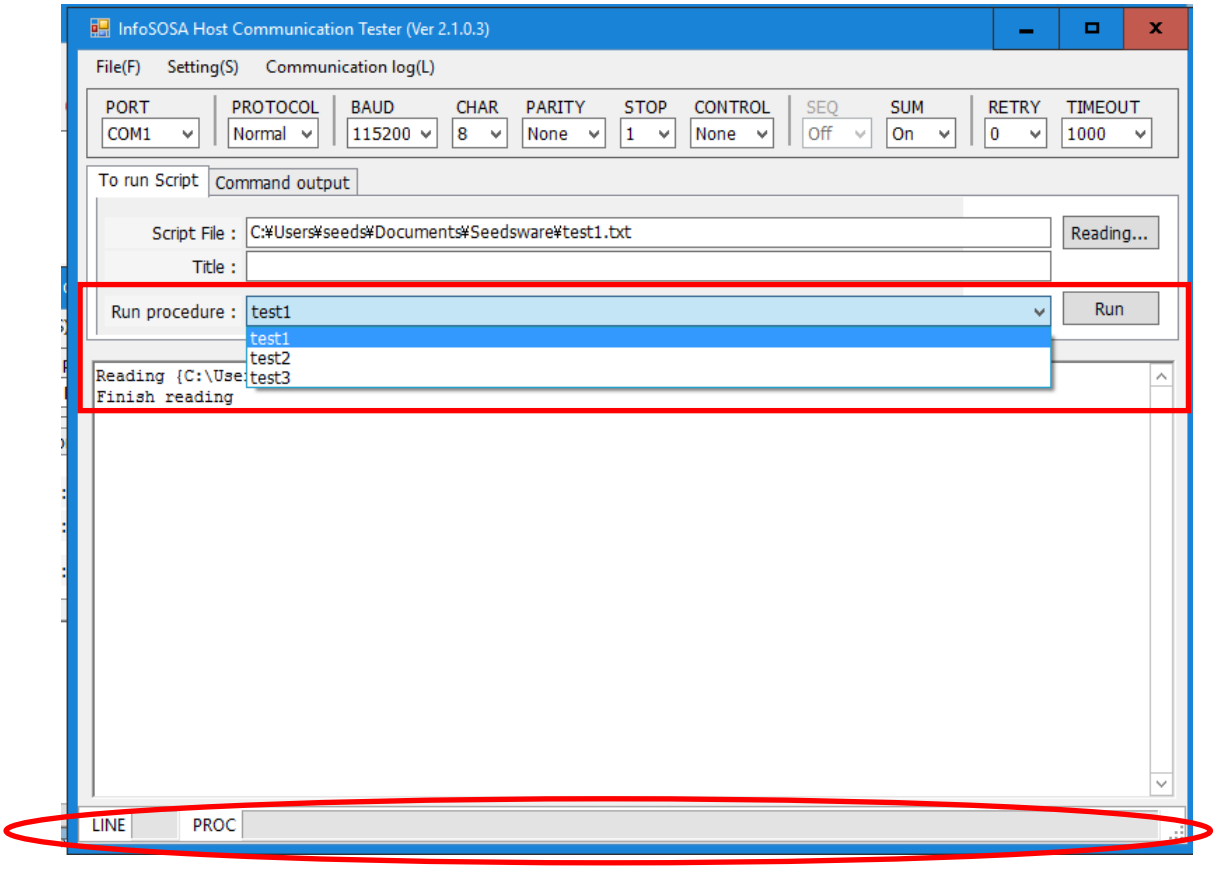
Set the communication settings before running the script.

* For more information on each item, please refer to "2.1Communication Setting Details".



4.4 Run Script

Select the procedure to be executed after reading the script file.
Then click "Run" and the procedure you choose will be executed.



The line number of the executing script and so on will appear in the status bar at the bottom.

5. Script File

5.1 Syntax

Please use character code UTF-8.
Identifier such as a reserved words and procedure names are not case-insensitive.
Series of procedures will be described in the Procedure (PROC to ENDP).
Multiple procedures can be written in one script file.

5.1.1 Procedure (PROC to ENDP)

When PUBLIC is specified with PROC statement, it will be registered to the execution procedure of the Host Communication Tester .
It will not be registered to the execution procedure if PRIVATE is specified.
It will be treated as PUBLIC if PUBLIC and PRIVATE are both omitted.

<Syntax>
PROC [PUBLIC|PRIVATE] <procedure name>
  <Script line 1>
    :
  <Script line n>
ENDP

5.1.2 Communication Setting [Protocol] (SET PROTOCOL)

Set the communication protocol.
It will be InfoSOSA Protocol if NORMAL is specified.
It will be Normal Protocol if STANDARD is specified.

<Syntax>
SET PROTOCOL<NORMAL|STANDARD>

5.1.3 Communication Setting [Communication Speed] (SET BAUDRATE)

Set the communication speed.

<Syntax>
SET BAUDRATE<4800 | 9600 | 19200 | 38400 | 57600 | 115200>

5.1.4 Communication Settings [Character Length] (SET CHARBITS)

Set the character bits.

<Syntax>
SET CHARBITS <7 | 8>

5.1.5 Communication Settings [Parity] (SET PARITY)

Set the parity bit.

<Syntax>
SET PARITY < NONE | EVEN | ODD >

5.1.6 Communication Setting [Stop Bits] (SET STOPBITS)

Set the stop bit.

<Syntax>
SET STOPBITS < 1 | 2 >

5.1.7 Communication Settings [Flow Control] (SET CONTROL)

Set the flow control.

<Syntax>
SET CONTROL < NONE | HARDWARE >

5.1.8 Communication Settings [Sequence Number] (SET SEQUENCE)

Set the presence or absence of the sequence number confirmation.

<Syntax>
SET SEQUENCE < OFF | ON >

5.1.9 Communication Settings [Sum Check] (SET SUMCHECK)

Set the On or OFF of Sum check run.

<Syntax>
SET SUMCHECK < OFF | ON >

5.1.10 Communication Setting (SET ADDRESS)

Set the destination address (InfoSOSA unit device ID) when communicating with RS485 (2-wire, half duplex).
*Setting only necessary when communicating with RS485 (2-wire)

<Syntax>
SET ADDRESS < 0～31 >

5.1.11 Event Processing Settings (ON EVENT)

Set to perform the procedure if an event message that matches the specified content is received.
The setting will be canceled if NOP is specified in the procedure name.

<Syntax>
ON EVENT <"event statement"> < procedure name | NOP >

5.1.12 Command Issue (COMMAND)

Send the specified command to the target and wait for a response.
More than one command can be sent by separating the command statement with a comma.
(Multi-command)

ex) COMMAND "PA01,BAS00001.MEM00001.VALUE,1",
"PA01,BAS00001.MEM00002.VALUE,2"

<Syntax>
COMMAND <"command statement">

5.1.13 Repetitive Processing (REPEAT to ENDR)

Repeat the process to the specified number of times.

<Syntax>
REPEAT <repeat count>
<Script line 1>
:
<Script line n>
ENDR

5.1.14 Procedure Call (CALL)

Execute the specified procedure.

<Syntax>
CALL <procedure name>

5.1.15 Conditions Call (CASE)

Execute the procedure according to the response content of the command.

<Syntax>
CASE [NOT] < "response sentence" | ACK | NACK | BUSY | ERROR> <procedure name>

5.1.16 Exit Repetitive Processing (CASE)

Exit from the repetitive process according to the response contents of the command.

<Syntax>
CASE [NOT] < "response sentence" | ACK | NACK | BUSY | ERROR> EXITR

5.1.17 Execution Standby (WAIT)

Wait the specified time for the execution of the script (msec).
Wait infinitely if you omit the wait time or specify 0.

<Syntax>
WAIT [<wait time>]

5.1.18 Conditional Statement (IF to ELSEIF to ELSE to ENDIF)

Execute a script within the statement when conditional expression is true.
If more than one expression is true, only the statement written first will be executed.
If none is true, the script in the Else range will be executed.

<Syntax>
IF <conditional expression 1>
<Script line 1>
:
<Script line n>
ELSEIF <conditional expression 2>
<Script line 1>
:
<Script line n>
ELSEIF <conditional expression 3>
<Script line 1>
:
<Script line n>
ELSE
<Script line 1>
:
<Script line n>
ENDIF

5.1.19 Log Output (LOG)

Displays optional statements on Host Communication Tester.

<Syntax>
LOG "any statement"

5.1.20 Exit Repeat (EXITR)

Exit from repeat processing. (It runs only on by reserved words unlike the CASE version)

<Syntax>
Exits from repeat if variable continue is 0

```
REPEAT 100
    IF continue == 0
            EXITR
    ENDIF
ENDR
```

5.2 Variable

Variable is a global variables only.
They do not have to be declared.
Characters that can be used in the variable name are "alphanumeric characters, @, underscores, periods, wide characters."
However, the first character cannot be numbers and periods.
In addition, upper-case and lower-case for both normal and wide characters, will not be distinguished.
Alphabetic characters and wide characters are treated as a separate variable.
Values that can be assigned to the variable are integers (-2147483648 to 2147483647), or character strings.
It is determined not by type, but by the constant/arithmetic expression to be substituted.
In the case a substitute is assigned, it will be the type of constant/arithmetic expression last assigned.
Implicit type conversion will be done if necessary at the time of reference.

5.3 Operator

5.3.1 Arithmetic Operators

Items	Contents
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Remainder

ex) 3 will be assigned to "a" for "a = 1 + 2".

5.3.2 String Operator

Items	Contents
&	String concatenation

ex) "abcde" will be assigned to "b" for "b = "abc" & "de"".

LOG "test"&b is output "test abcde" in the communication log display unit

5.3.3 Comparison Operators

Items	Contents
==	Left-side operand is equal to right-side operand.
!=	Left-side operand is not equal to right-side operand.
<>	Left-side operand is not equal to right-side operand.
>=	Left-side operand is more than or equal to right-side operand
<=	Left-side operand is less than or equal to right-side operand
>	Left-side operand is greater than right-side operand
<	Left-side operand is smaller than right-side operand

The comparison is carried out in accordance with the type of the left side value.

ex) In case of a=10, b="010",

a == b is true because the comparison is made as a numerical value.

b == a is false because the comparison is made as a string.

If a & "" == b, it will be treated as a string

If b + 0 == a, it will be the comparison of numerical value.

In addition, because the implicit type conversion is performed

If a=10 and b="10", then a == b is true.

5.3.4 Logical Operators

Items	Contents
AND	Logical AND
OR	Logical OR
XOR	Exclusive OR
NOT	Invert

Ex) In case of a=1, b=2,

IF a == 1 AND b == 3, then false

IF a == 1 OR b == 3, then true

5.4 Function

Function name is case-insensitive.

5.4.1 length (STRING)

Acquire the length of the string.
ex) If a = "abcde" b = length(a),
5 is assigned to b.

5.4.2 substr (STRING, FROM, LEN) * LEN optional

Acquire a substring.
Cut out the string with the length of the LEN from the position of the FROM.
The head position of the string is 0.
If FROM is negative, it will be in the position specified from the end.
If LEN 1 omitted, it will be equal to the length of FROM to the end.
ex) The case of a = "abcde" b = substr(a,2,2),
"cd" is assigned to b.
The case of a = "abcde" b = substr (a,-4,2),
"bc" is assigned to b.

5.4.3 RespType()

Returns the packet type of the received message numerically.
The value returned will be the following.

Items	Contents
-1	No reply
0	Response
1	Acknowledgment
2	Negative Acknowledgement
3	Busy response

In addition, the word beginning with # can be used as a constant value.

Items	Contents
#NONE	No reply
#RESP	Response
#ACK	Acknowledgment
#NACK	Negative Acknowledgement
#BUSY	Busy response

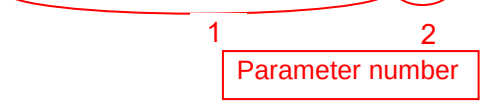
```
ex) IF RespType () == #BUSY
        LOG "busy response has occurred"
ENDIF
```

5.4.4 RespStr (Command Number, Parameter Number)

It returns a substring of the received message.
Command number is in the order of command at the time of multi-command. (from 1)
Please specify 1 for the single command.
If you omit the parameter number or if you specify 0, all parameters are returned to the command.
If you specify 1 or more of the value n to the parameter number, only the n-th parameter is returned.

ex) If the value "1000" is stored in the Global Memory GEM00001,
a COMMAND "PA02,@GLBMEM.GME00001.VALUE" is sent, then

{STX}00r10000021PA02.@GLBMEM.GME00001.VALUE.1000{CR}0A06{ETX}



will return.

In the case a = RespStr(1,2),
Then string "1000" is assigned to "a".

5.5 Sample Script

This sample is a script for the parking demo.
It is used by connecting to the InfoSOSA with the InfoSOSA Builder that has the sample project (parkingdemo_***.ipp) downloaded. When you press the parking number button, the parking time that was written in the script gets set.

The sample scripts are found on the Builder Install location, inside the [Script] folder.
* The default install location is [C:\Seedsware\InfoSOSABuilder***]

On how to use scripts, please refer to, 4 Script for more details.

```
PROC Start          'Parking Demo Start
   LOG "Communication Setting Start"
   SET PROTOCOL STANDARD
   SET BAUDRATE 115200
   SET CHARBITS 8
   SET PARITY NONE
   SET STOPBITS 1
   SET CONTROL HARDWARE
   SET SUMCHECK ON
   LOG "Communication Setting End"

    LOG "Event Response Procedure Set Start"
   ON EVENT "PA04,BAS00002.BTN00001.PRESS" SetMemory1
   ON EVENT "PA04,BAS00002.BTN00002.PRESS" SetMemory2
   ON EVENT "PA04,BAS00002.BTN00003.PRESS" SetMemory3
   ON EVENT "PA04,BAS00002.BTN00004.PRESS" SetMemory4
   LOG "Event Response Procedure Set End"

    LOG "Event Response Waiting State Starts (Wait Indefinitely)"
   WAIT 0

ENDP


PROC PRIVATE SetMemory1 'Memory Set (1)

   LOG "Memory Set (1) Event Start"
   COMMAND "PA01,@GLBMEM.GME00011.VALUE,15500","PA01,@ GLBMEM.GME00012.VALUE,31200"
   LOG "Memory Set (1) Event Completion"

ENDP
```

It will be displayed when you choose the execution procedure.

Setting in the script takes precedence than the communication parameter display/setting unit.

Procedure of SetMemory1 will be executed when the button BTN00001 of screen BAS00002 is pressed.

```
PROC PRIVATE SetMemory2 'Memory Set (2)

    LOG "Memory Set (2) Event Start"
    COMMAND "PA01,@GLBMEM.GME00011.VALUE,24500","PA01,@GLBMEM.GME00012.VALUE,50200"
    LOG "Memory Set (2) Event Completion"

ENDP

PROC PRIVATE SetMemory3 'Memory Set (3)

    LOG "Memory Set (3) Event Start"
    COMMAND "PA01,@GLBMEM.GME00011.VALUE,62340", "PA01,@GLBMEM.GME00012.VALUE,72300"
    LOG "Memory Set (3) Event Completion"

ENDP


PROC PRIVATE SetMemory4 'Memory Set (4)

    LOG "Memory Set (4) Event Start"
    COMMAND "PA01,@GLBMEM.GME00011.VALUE,19330","PA01,@GLBMEM.GME00012.VALUE,78920"
    LOG "Memory Set (4) Event Completion"

ENDP
```

You can have more than one transmission by separating the command statement with a comma (,) in one COMMAND. (Multi-command)

6. Others

6.1 Inquiries

If you have any questions, feel free to contact us.

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