

*NEW Multi LAN Tester Debut*

# MLT Advance

*Introducing a new Multi LAN Tester*



**Expanding supported protocols as well as number of channels**

**CAN FD/CAN:16ch LIN:10ch CXPI:4ch I2C:2ch ISO14230:2ch IE Bus:2ch  
SPI:2ch UART:4ch Ethernet:8ch**

**Enhancing Programmed sending function  
Increased sending capability can handle  
high load transmissions**

**Strengthening hardware increment function  
Error frame sending function (CAN-FD/CAN·LIN·CXPI)  
Pulse/PWM output function is now available**

**PRISM**

Prism Co., Ltd.

## New functions

### Expanding supported protocols

Supported protocols and maximum number of channels

CAN FD/CAN: 16ch, LIN: 10ch, I2C: 2ch, CXPI: 4ch, IE Bus: 2ch, SPI: 2ch, UART: 4ch, ISO 14230: 2ch, Ethernet: 8ch <sup>1)</sup>

Note1: Ethernet communication requires a separately sold Ethernet Option Module. Select a module from 1ch, 4ch, or 8ch.

### Enhancing Programmed sending function

The number of Programmed sending lines has increased from 10,000 to maximum of 1,000,000 <sup>1)</sup> whilst the transmission resolution improved from 1ms to 100μs. Regeneration of transmission frames can be greatly intensified.

Programmed sending is now available with LIN and CXPI <sup>2)</sup> in addition to CAN-FD/CAN.

Note1: The maximum number of Programmed sending lines will vary depends on conditions which the hardware is used in.

Note2: The function is added in such way that registered response is sent by looking at header information, then the value of the response is overwritten. However, when a device that is being evaluated is operating as a master, integration errors may occur due to a small difference in header schedule time which is caused by clock jitter of the device at logging and programmed sending. In such cases, MLT Advan can be customized to function properly in such test environment. Please consult us for advice.

### Increased sending capability

Scheduler resolution for frame transmission has increased from 1ms to 100μs.

### Handling high load transmission

Achieving 100% of bus loading at up to 2Mbps in CAN-FD/CAN communication, and handling high load test condition which takes almost 100% of bus loading at LIN and CXPI communication.

### Improved analog input accuracy

Measurement voltage range: 0 - 20V, Minimum sampling (1ms), Voltage accuracy within ±0.2V (actual: within ±0.1V)

It can realize such an environment that up to 8ch of voltage waveforms can be logged for 1000hrs continuously.

### Increased port performance

Expanding the number of port input/output from previous MLT hardware, 8ch to 16ch.

It can log, e.g. 120Hz: 0 - 100% Duty waveform for a long time with 10ns resolution.

### Pulse/PWM output function is available

Pulse output: Pulse width 100 μs to 2s (100 μs resolution)

PWM output: Frequency 133.33ms to 208.33 μs (7.5Hz to 4.8kHz) Duty 1% to 100% (Specify in increments of 1%)

It can output up to 3 channels <sup>1)</sup> Note1: Number of output channels vary between products.

### Added error frame sending function

Error frame sending for CAN-FD/CAN and LIN protocols are available.

To be able to use those functions, a separately sold optional software, Multi Protocol Simulator is needed.

Error frames which can be sent differ between CAN-FD/CAN and LIN. See page 9 for details.

#### ◆ MLT Advance Technology

By employing DMA that doesn't required OS, and taking advantage of interrupt handling which can finish processing in a short period of time, the processing speed of the system has improved substantially.

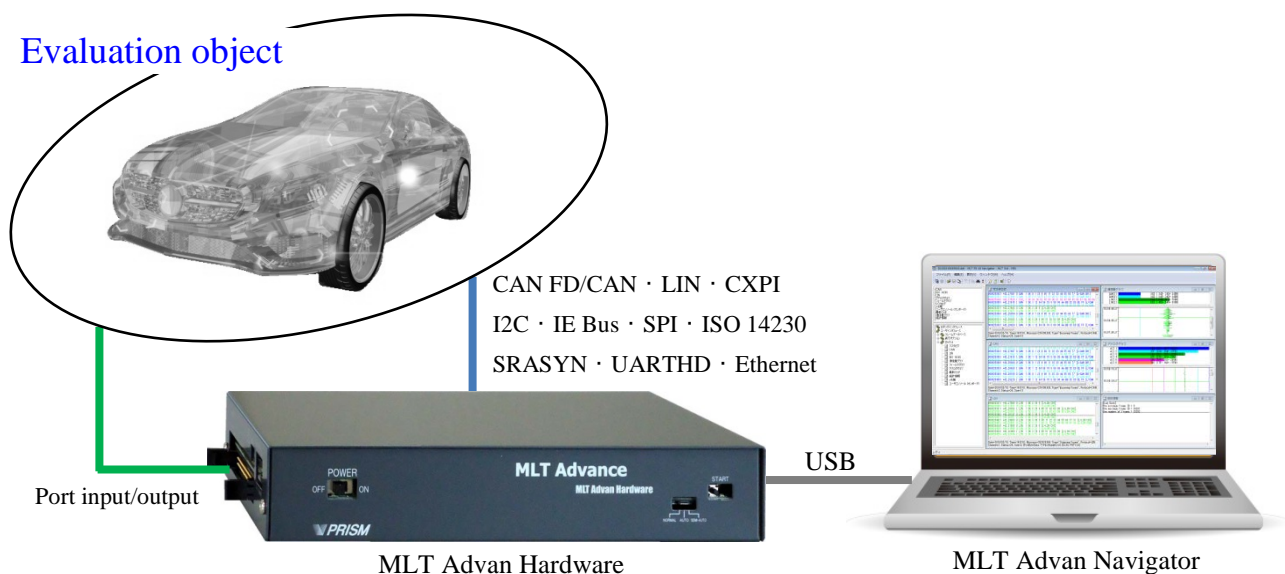
Communication protocols as well as time stamps are processed at FPGA.

## Contents

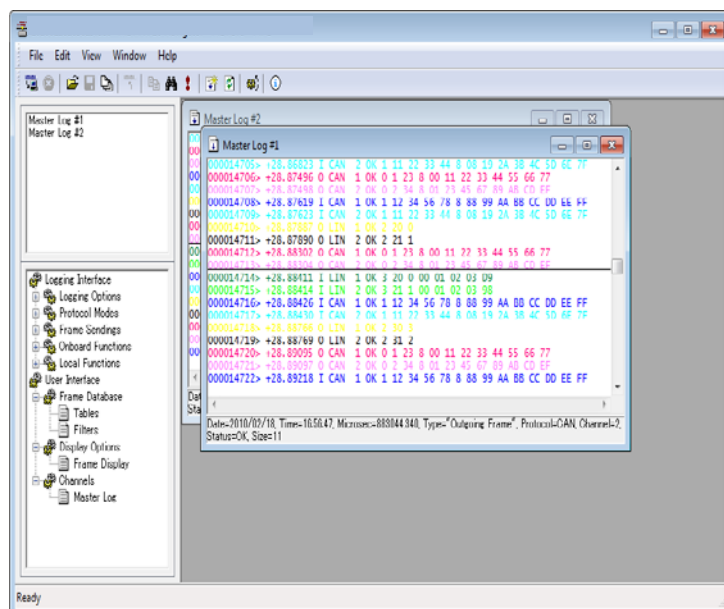
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## Product Configuration

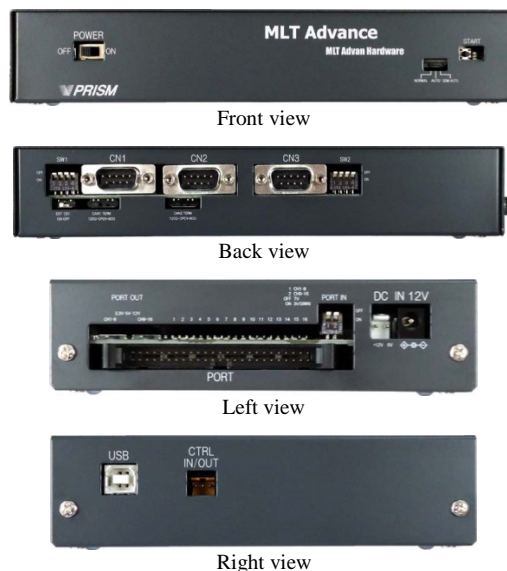
Evaluation object



MLT Advan Hardware	A hardware in the MLT Advance system. It can monitor frames transmitted in the network, and has various functions such as dummy frame sending. It is controlled by MLT Advan Navigator at standard operation mode. It can also be operated without a PC by reading setup information from a flash memory at Stand-alone mode. User module by pScript can be executed at Stand-alone mode operation.
MLT Advan Navigator	A software designed for MLT Advance system that controls the MLT Advan Hardware and generates log files. It runs in Windows operation system and operates logging, testing and simulations. It makes settings required for operating the hardware at Stand-alone mode.



Integrated testing environment software with powerful filtering and database functions: MLT Advan Navigator

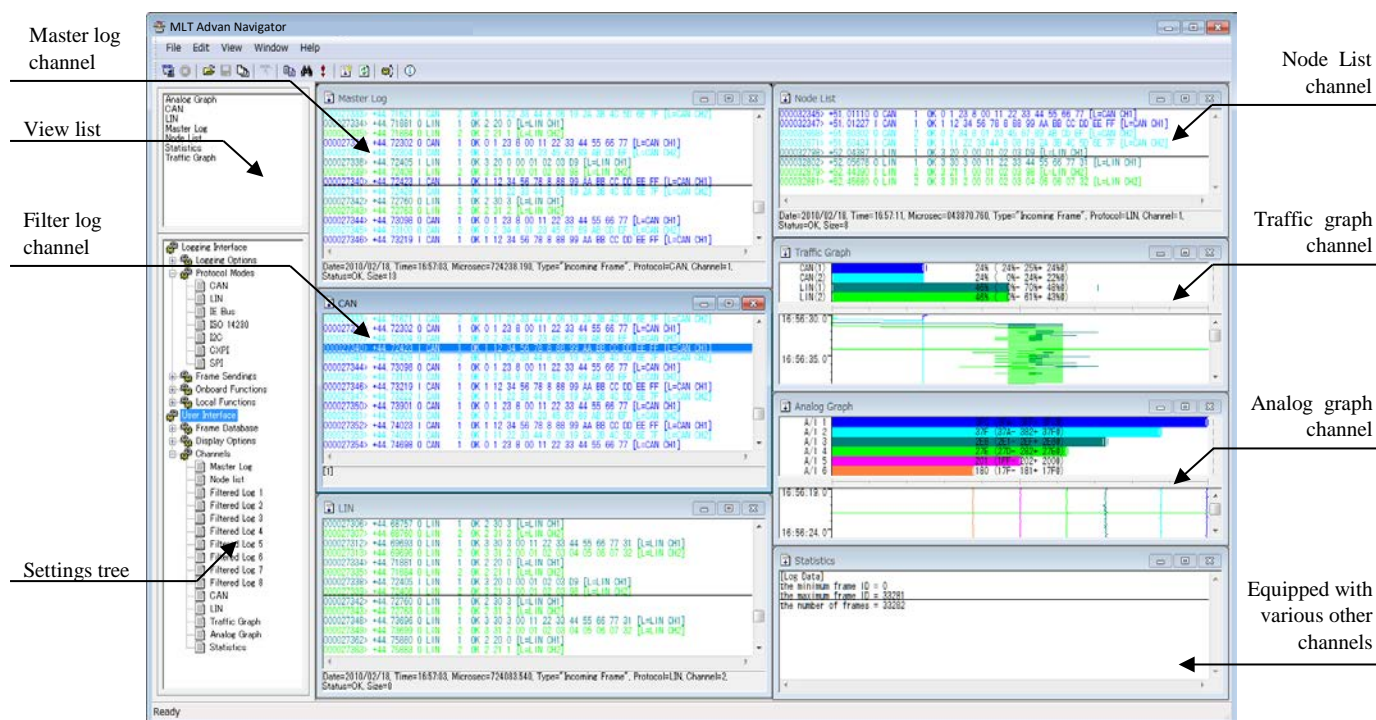


Note:  
The image shows an example of MLT Advan Hardware.  
Actual product may vary depends on models.

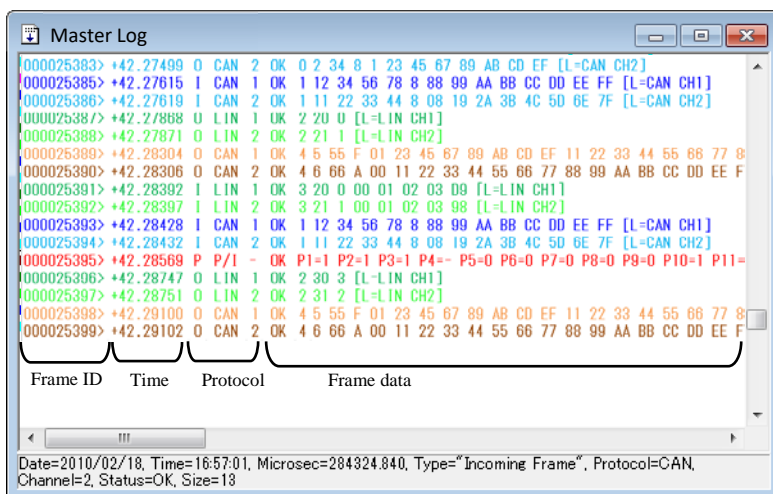
A hardware capable to record timestamps  
nanosecond accuracy:  
MLT Advan Hardware



## Navigator operation screen and functions

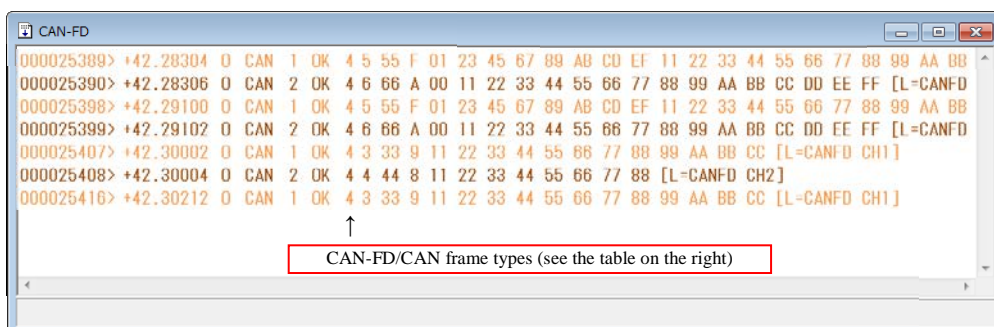


General purpose software realizing consistent operability that creates multifunctional integrated testing environment



“Master Log Channel” displaying all frames

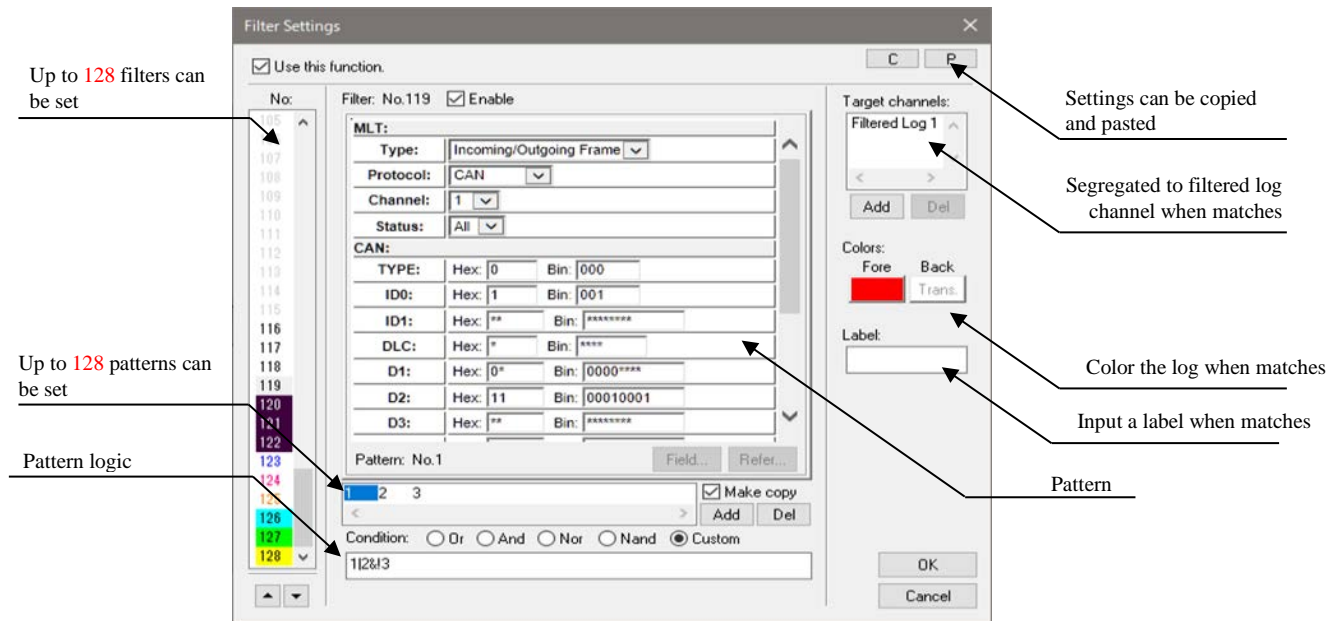
Items to be shown on the display can be set at "Frame Display." Other items such as "date", "time", "microsecond", "filter label" and "database" can also be displayed. Each item can also be punctuated by comma.



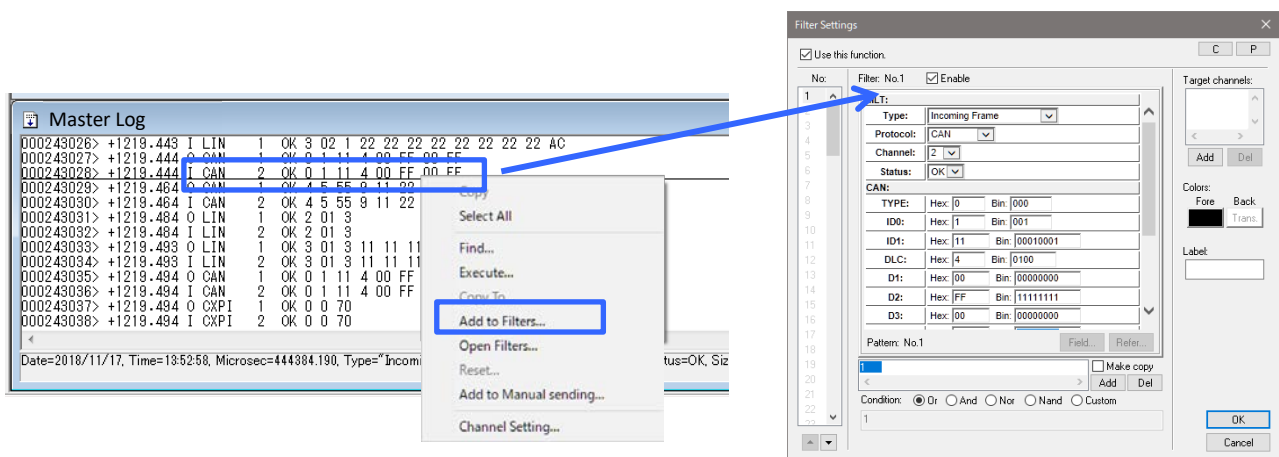
CAN FD/CAN frame types	
4	CAN FD standard frame (flexible bit rate)
5	CAN FD extended frame (flexible bit rate)
6	CAN FD standard frame (single bit rate)
7	CAN FD extended frame (single bit rate)
0	CAN standard frame (data frame)
1	CAN extended frame (data frame)
2	CAN standard frame (remote frame)
3	CAN extended frame (remote frame)

Logs can be filtered for display

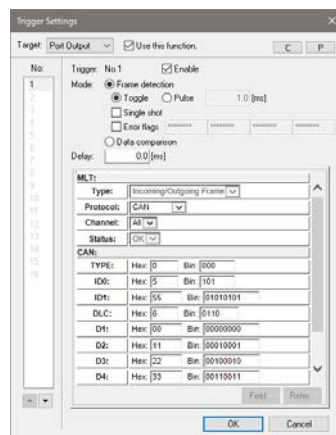
(The example above shows only CAN FD protocol in the display)



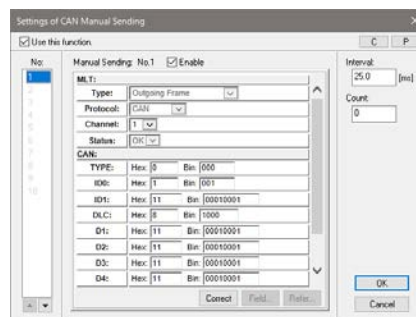
The powerful filtering function which can combine up to 8 patters by arbitrary logic



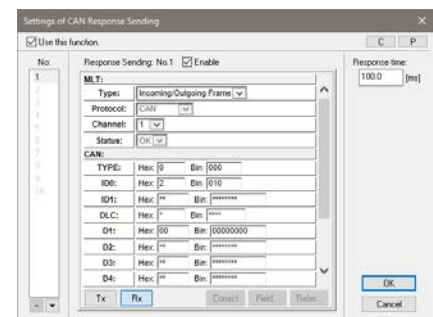
A frame in a view can be easily filtered by using Quick Filter Function



Trigger function which gives triggers to port inputs and port outputs when preset condition is met

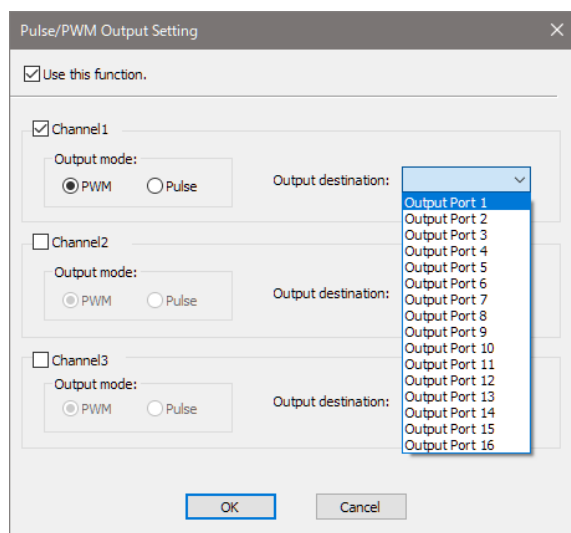


Manual sending function to send registered frames by operating keyboard or mouse



Response sending function to automatically send registered frames to specific frames

## Pulse/PWM output function



Pulse output or PWM output from a port output terminal

Pulse output specification

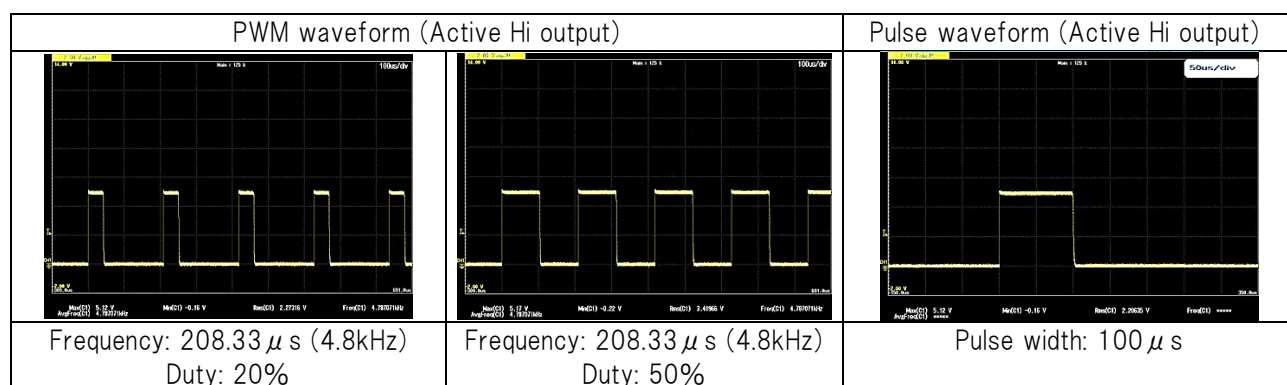
Pulse width : 100 $\mu$ s to 2s (100 $\mu$ s resolution)

PWM output specification

Frequency : 133.33ms to 208.33 $\mu$ s  
(7.5Hz to 4.8kHz)

Duty : 1% to 100% (specify in increments of 1%)

Note: To use this pulse/PWM output function, an user module needs to be developed, or the optional software [Multi Protocol Simulator] is required. (User module sample is enclosed.)



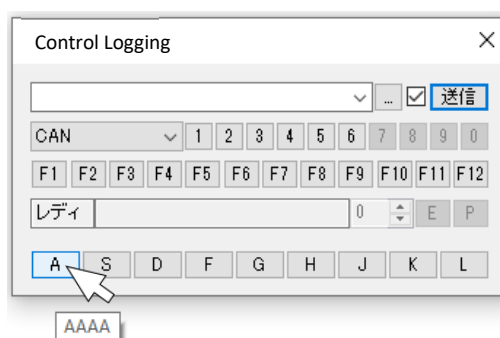
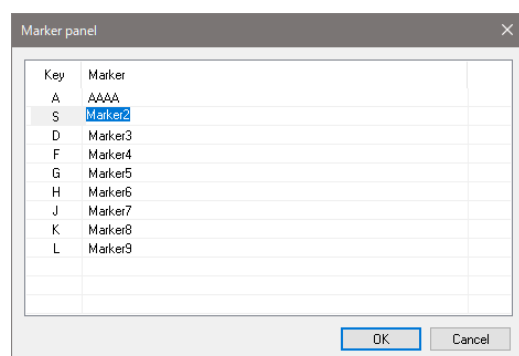
## Marker function

```

Master Log
000000098> +6.113731 I CAN 2 OK 0 1 11 8 11 11 11 11 11 11 11
000000099> +6.113731 M Marker - OK AAAA
000000100> +6.269626 O CAN 1 OK 0 3 33 8 33 33 33 33 33 33 33
000000101> +6.269627 I CAN 2 OK 0 3 33 8 33 33 33 33 33 33 33
000000102> +6.269627 M Marker - OK AAAA
000000103> +6.311240 O CAN 1 OK 0 2 22 8 22 22 22 22 22 22 22
000000104> +6.311241 I CAN 2 OK 0 2 22 8 22 22 22 22 22 22 22
000000105> +6.363740 O CAN 1 OK 0 1 11 8 11 11 11 11 11 11 11
000000106> +6.363741 I CAN 2 OK 0 1 11 8 11 11 11 11 11 11 11
000000107> +6.363741 M Marker - OK BBBB
000000108> +6.519622 O CAN 1 OK 0 3 33 8 33 33 33 33 33 33 33
000000109> +6.519623 I CAN 2 OK 0 3 33 8 33 33 33 33 33 33 33
  
```

A marker can be inserted at arbitrary timing during logging.

Comment on each Marker can be entered uniquely.



Marker is inserted to communication logs with mouse operation at Marker Panel or Control Logging.

Marker can also be inserted with keyboard operation at Control Logging.

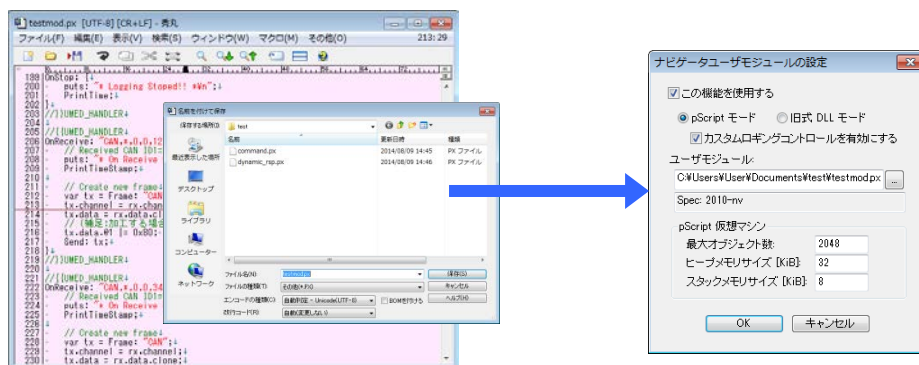
## User module function

### ■Navigator user module function

A development function to create user programs which run on MLT Advan Navigator.

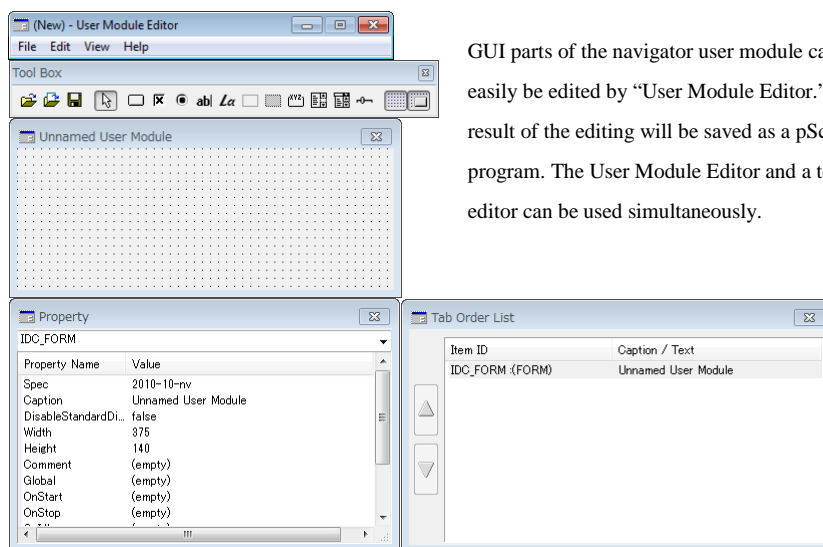
Arbitrary frame sending, responding, displaying as well as user operation by using GUI parts can be performed.

Navigator user module can be developed by using unique script language, “pScript.”<sup>1)</sup>

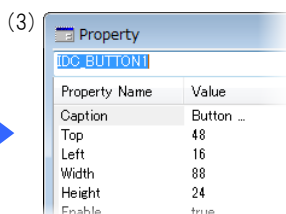
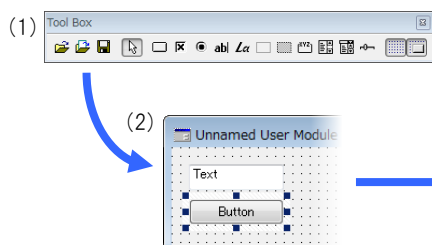


Prepare navigator user module by using common text editor<sup>2)</sup> and register it in the designated frame of the navigator user module to run.

It is a program prepared by a script language, pScript therefore it doesn't need to be compiled.



User Module Editor



User Module Editor operation

- (1) Select a GUI part from Tool Box, and
- (2) After being pasted on Work window,
- (3) Set details in Property screen.

Actions which to be executed can be written by using pScript at the time of use.

Note1: The script language, pScript is a language originated by PRISM. It is constructed with simple grammar structure and can be written without having programming experience.

Note2: Use text editor that supports UTF-8 encoding to handle Japanese character strings.



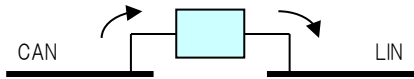
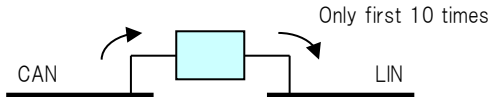
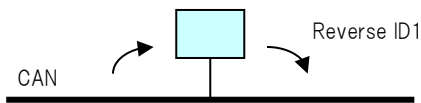
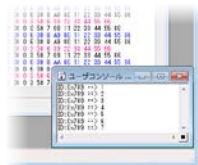
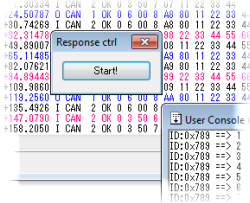
## ■Hardware user module function

User programs (so called Hardware user module) which run on MLT Advan Hardware can be developed by users.

Arbitrary frame sending and responding can be performed by using hardware user module. Hardware user module can be developed in the same way as the Navigator user module by using script language, “pScript.”<sup>1)</sup>

1) Hardware user module can be created only by text editor.

## ■User module development examples

Example 1 Send [ID=0x12, D1-D3=0xAB, 0xCD, 0xEF] frame to LIN when CAN [ID0=1, ID1=0x24] frame is received	
	<pre>OnReceive: "CAN,1,0,1,24", {   Send: "LIN,1,0,12,2,AB,CD,EF,96"; }</pre>
Example 2 Send [ID=0x12, D1-D3=0xAB, 0xCD, 0xEF] frame to LIN when CAN [ID0=1, ID1=0x25] frame is received for up to the first 10 receptions	
	<pre>var count = 0; OnReceive: "CAN,1,0,1,25", {   (count &lt; 10).if_true: {     count += 1;     Send: "LIN,1,0,12,2,AB,CD,EF,96";   } }</pre>
Example 3 Reverse received CAN frame [ID1] and send	
	<pre>OnReceive: "CAN,1,0,1,3*", [ rx    (rx.data.size &gt;= 2).if_true: {     var tx = Frame: "CAN,1";     tx.data = rx.data.clone;     tx.data.@1 ^= 0xFF;     Send: tx;   } }</pre>
Example 4 Collect statistics of frames and display on the screen	
	<pre>var count_789 = 0; OnReceive: "CAN,1,0,7,89", {   count_789 += 1;   printf: "ID:0x789 ==&gt; %d\n", count_789; }</pre>
Example 5 Start Response control by clicking a button	
	<pre>InitDialog: 130, 75, "Response control"; const IDC_BUTTON1 = 1001; AddButton: IDC_BUTTON1, 10, 10, 104, 24, 0, 0, "Start!"; var enable = false; OnClick: IDC_BUTTON1, {   enable = true; } OnReceive: "CAN,1,0,1,26", {   enable.if_true: {     Send: "LIN,1,0,12,2,AB,CD,EF,96";   } }</pre> <p>※Navigator User Module only</p>

## Stand-alone operating mode

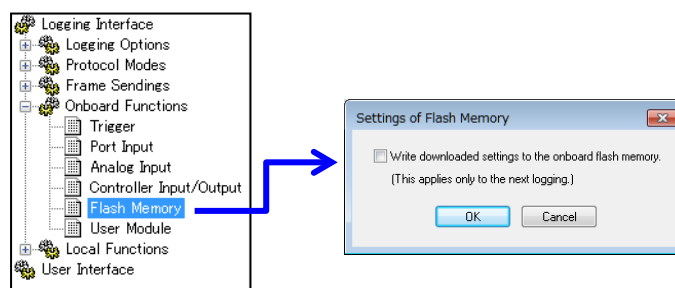
MLT Advan Hardware can run without being connected to a PC. This stand-alone operation can be performed by installing various setting information (protocol settings, transmission settings, input/output settings, etc.) to a flash memory of the MLT Advan Hardware. Hardware user module can also be saved in the flash memory, therefore, user module written with pScript can be executed at stand-alone operating mode.

### ◆ Presetting

To be able to run MLT Advan Hardware with stand-alone operating mode, all the settings required for MLT Advan Navigator must be set at standard operating mode. Make settings and trial loggings alternatively and establish correct settings for stand-alone operation.

### ◆ Write in the flash memory

Once the correct settings for stand-alone operation are made, write the settings into MLT Advan Hardware flash memory.



### ◆ Start stand-alone operation

After all settings are written into the MLT Advan Hardware, set the mode switch to either “AUTO” mode or “SEMI-AUTO” mode, then turn off and on the power. If it is at “SEMI-AUTO” mode, push START switch.

## Providing a development environment for Log analysis application

### ■Tracer user module function

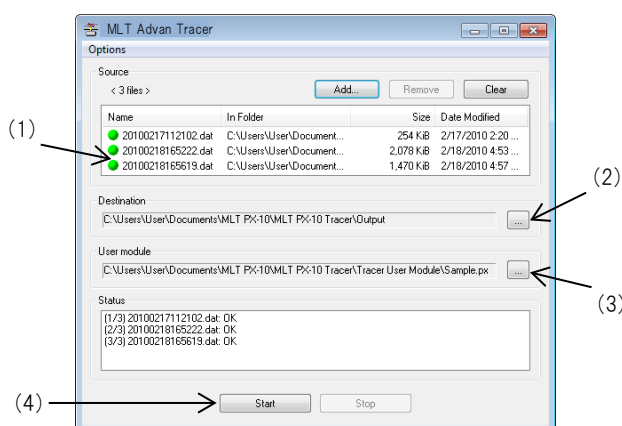
MLT Advan Navigator log files can be analyzed by MLT Advan Tracer. User program (so called Tracer user module) which defines the analysis process can be developed by users. Tracer user module can be developed by using script language, “pScript.”<sup>(1)</sup>

The result of analysis can be output into a text file.

Note1: Tracer user module can be created only by text editor.

### ◆Tracer operation

- (1) Add a target log file from MLT Advan Navigator to the Input source list.
- (2) Designate an output folder where tracer analysis result will be saved.
- (3) Write a tracer user module or take an existing tracer user module in, and designate the tracer user module at setting section.
- (4) Click [Start].



### ◆An example of Tracer user module

Counting how many CAN FD [ID=0x123] frames in the logs.

```
var count = 0;
OnReceive: "CAN,1,4,1,23,*", {
    count += 1;
}
OnStop: {
    printf: "ID:0x123 ==> %d\n", count;
}
```

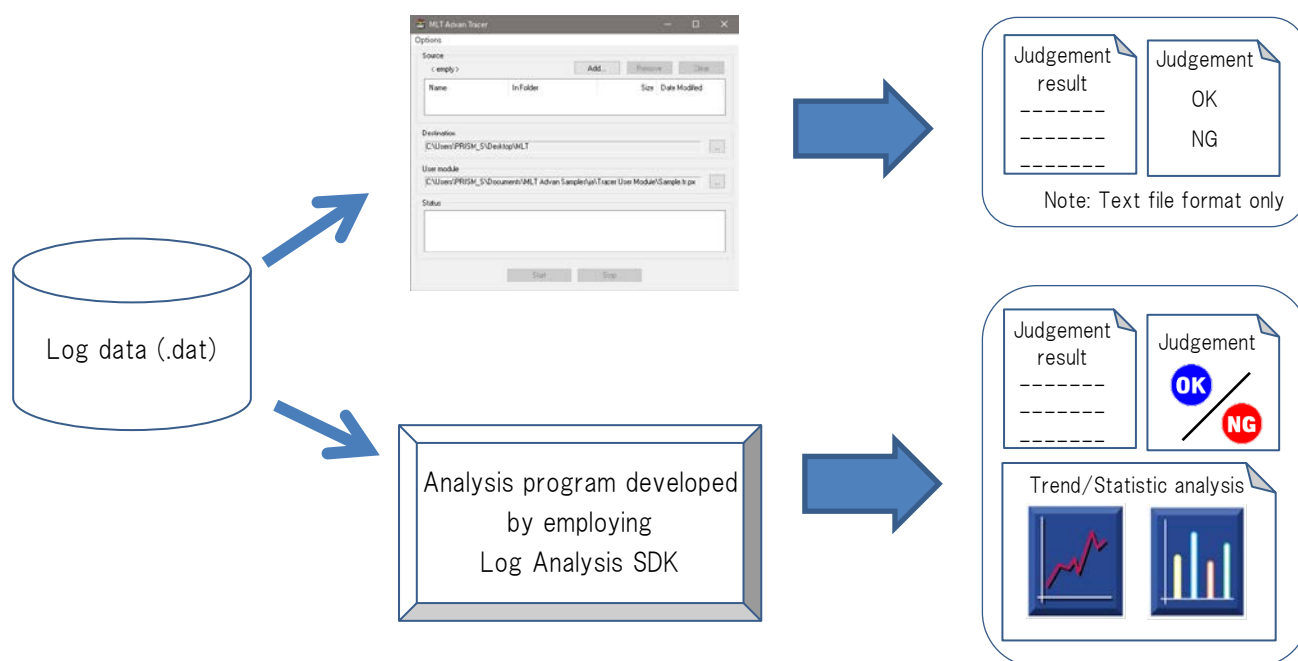
Increment the variable [count] when CAN-FD [D1=0x123] is detected.

Output the [count] value at the end.

### ■Log Analysis SDK

A library manual which can be developed with C#, C++ and VBA, and their samples are available.

Now, an environment to directly analyze log files (.dat file) obtained by MLT Advan Navigator can be created



## Error frame sending function

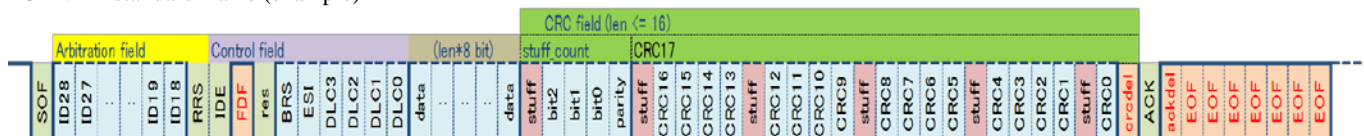
### ■CAN error frame sending function

No	Item	Description	Note
1	Error response	Output an error flag (at EOF) after ACK when receiving the frame	Transmitter side detects EOF FORM error
2	CRC error (1)	Reverse the CRC end bit (receiver side becomes CRC error)	Receiver side detects CRC error
3	CRC error (2)	Reverse the Stuff Count end bit	Receiver side detects CRC error Valid only with CAN FD
4	Forced correct sending	Forcibly output ACK at sending (correct the frame even without a receiving node)	Invalid at monitoring mode
5	Forced error sending	Output an error flag after ACK when receiving the frame	Receiver side detects EOF FORM error
6	stuff error (1)	Normal stuff bit error sending (transmit without reversing when inserting stuff)	This error is not available for a frame that stuff which becomes stuff error at receiving side does not occur
7	stuff error (2)	Fixed stuff bit error sending (transmit without reversing)	Receiver side detects FORM error Valid only with CAN FD
8	Error value sending (1)	SRR error sending (transmit "0")	Valid only with expanded frames
9	Error value sending (2)	RRS error sending (transmit "1")	Valid only with CAN FD
10	Error value sending (3)	r0/res error sending (transmit "1")	
11	Synchronized sending	SOF detection synchronized sending (synchronize a tool sending with other node SOF)	ID arbitration check function (Sending time out: 60sec)

### CAN standard frame (example)



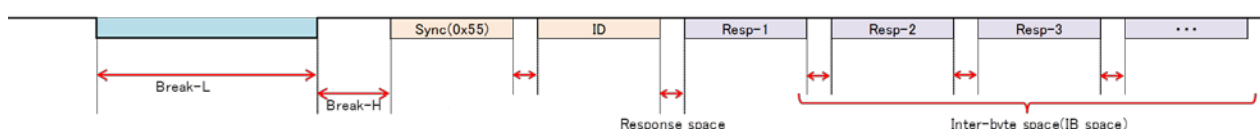
### CAN FD standard frame (example)



### ■LIN error frame sending function

No	Item	Description	Note
1	Response data length error	Make response data length wrong	Available up to 9byte
2	Parity setting	Send parity with error value (arbitrary value)	
3	Inter-byte space setting	Set the inter-byte space within 0 - 255Tbit	Adjust inter-byte space of an arbitrary location of the frame
4	Sync field pattern setting	Fixed sending Sync field pattern [default=0x55]	
5	Header frame bit destruction	Sync field data destruction (output 8bit "0") Sync field stop bit destruction ID field data destruction (output 8bit "0") ID field stop bit destruction	ID can be selected only at ID field stop bit destruction
6	Response frame bit destruction	Response space destruction Data field destruction (output 8bit "0") Data field stop bit destruction Inter-byte space destruction	Location of the destruction and destruction ID can be selected except for Response space destruction

### LIN standard frame (example)

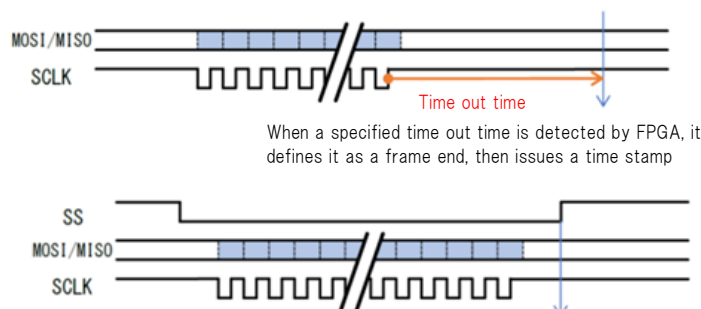
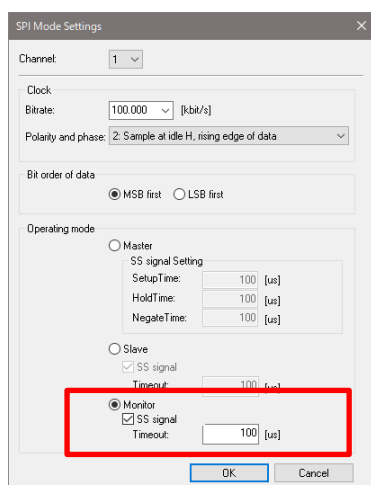


Note : To be able to use error frame sending function, a separately sold optional software, Multi Protocol Simulator is needed.

## Enhancing the Time stamp function (SPI / I2C / UART)

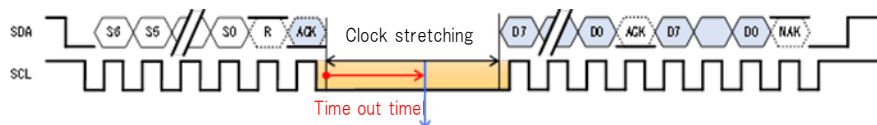
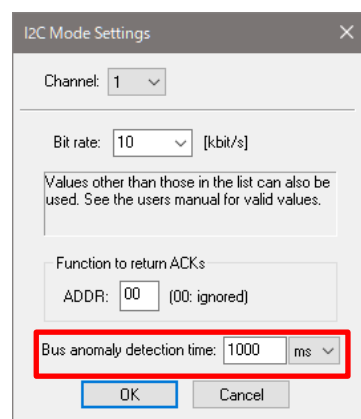
### ■ SPI time out setting

Time out setting range: 1  $\mu$ s to 1000ms



### ■ I2C bus error detection time setting

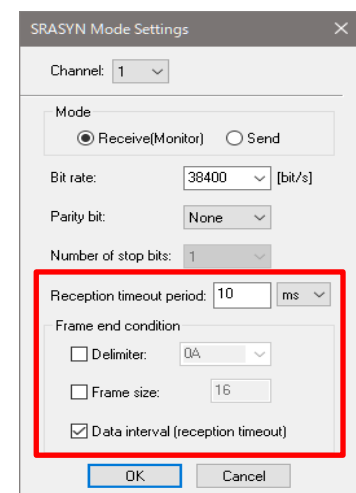
Time out setting range: 1  $\mu$ s to 1000ms



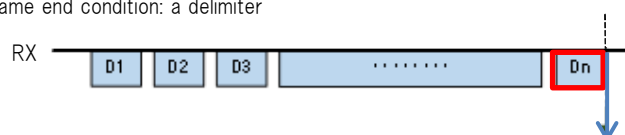
When a clock stretching is exceeding a specified time out time and it is detected, then a bus error is detected.

### ■ SRASYN , UARTHD Time out setting / Frame end condition setting

Time out setting range: 1  $\mu$ s to 1000ms

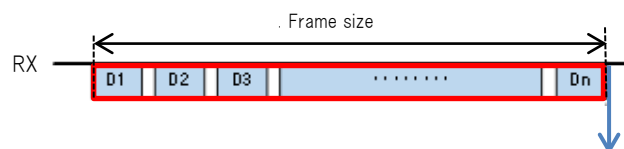


Frame end condition: a delimiter



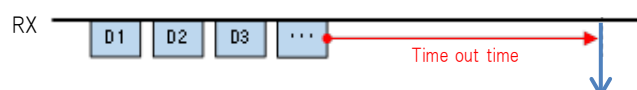
When a frame end is detected by FPGA, then issues a time stamp

Frame end condition: Frame size



Detect frame size with FPGA.  
Define as a frame end and issue a timestamp

Frame end condition: Data interval (reception timeout)



When a specified time out time is detected by FPGA, it defines it as a frame end, then issues a time stamp



## Product description

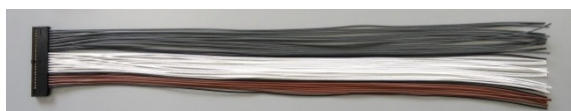
### ■Contents of product

- |                                  |         |                                   |         |
|----------------------------------|---------|-----------------------------------|---------|
| ① MLT Advan Hardware .....       | 1 unit  | ② MLT Advan Installation CD ..... | 1 piece |
| ③ AC adapter .....               | 1 piece | ④ USB cable .....                 | 1 piece |
| ⑤ Network connection cable ..... | ※1      |                                   |         |



D-sub 9pin  
Cable length: approx. 500 mm Wire type: PVC AWG-22  
※1 : Number of included cables varies depends on models.

- ⑥ Analog input, port input/output cable ..... 1 cable



MIL connector  
Cable length: approx. 500 mm Wire type: PVC AWG-22

### ■Hardware structure

#### Specification

Model	MLT Advan
External input	Port input (16 channels) · Analog input (8 channels)
External output	Port output (16 channels)
External input/output	
Power Input voltage	DC 12 V
Current conduction	125 mA (typ)
AC adapter (attached)	Input: AC (100 to 240) V, (50 to 60) Hz, 0.3 A / Output: DC 12 V, 1. A
Operating temperature	(5 to 40) °C (no condensation)
Storage temperature	(-40 to 65) °C
Outer dimensions	approx. 206 mm (width) × approx. 38 mm (height) × approx. 146 mm (depth)
Weight	approx. 450 g

### ■Software operation environment

- PC/OS..... Windows 7 or Windows 10 PC (recommended CPU : 2 or more core 32-bit or 64-bit processor)
- Memory..... 2 GB or bigger (for 32-bit) or 4 GB or bigger (for 64-bit) are recommended
- Display..... Resolution of 1366×768 (HD) or higher is recommended. 256 colors or higher (high color is recommended)
- HDD free space..... 120 MB or more
- Device..... USB port, CD-ROM drive, Pointing device (such as mouse and touch pad)
- Others ..... PDF browsing software

### ■License Policy

The license for this product is one for each MLT Advan Hardware.

The license becomes effective when the person responsible for managing the MLT Advan hardware registers it as a user, and is eligible for user support.

The MLT Advan Navigator of this product does not have a lock mechanism, so it can be installed on multiple PCs.

If you want to use MLT Advance with multiple people, you can use it by registering as a user with the consent of the person in charge of management. In this case, user support is assumed to be provided by the person in charge of administration.

## Optional Products

### ■Related hardware products (Option)

- Optical-electrical conversion tool (Supported protocol : CXPI · CAN FD/CAN · LIN)

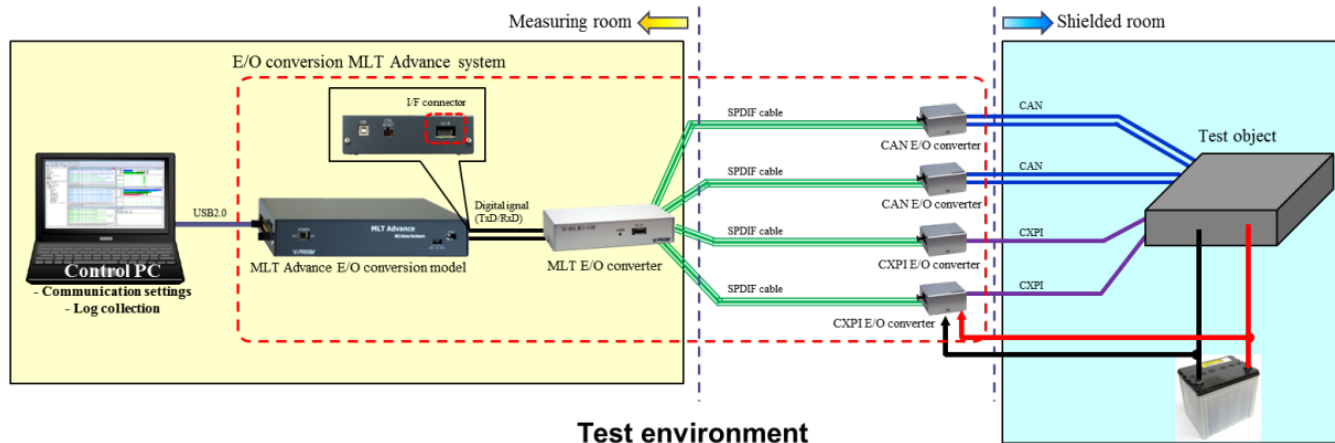
Electrical signals are converted to optical signals and transmitted through SPDIF cable. This will electrically isolate the system and improving EMI resistance.<sup>1)</sup>

By using optical signal communication, it can also reduce wave distortion and noise interference caused by cable handling.<sup>2)</sup>

Contact us for more details. MLT Advance E / O conversion model is required.

Note1. Noise resistance of the system has not been evaluated (e.g. ESD, BCI)

Note2. Noise emitted from the system (R/N) has not been evaluated.



- UART12V Level Conversion Cable / Level Converter

It can monitor SRASYN communication of a 12V system

Note: The cable is designated to either Tx 1ch or Rx 1ch, however, the converter can be switched between Tx and Rx, total of 2 channels.

- UART - RS232C Conversion Cable / Converter

By connecting to 3.3V UART interface, it can convert the connection to RS232C interface

Note: The cable is designated to either Tx 1ch or Rx 1ch, however, the converter can be switched between Tx and Rx, total of 2 channels.

- BroadR-Reach Converter

This Ethernet physical layer converter can convert between BroadR-Reach (100Base-T1) and 100Base-TX

BroadR-Reach (100Base-T1) 4ch / 100Base-TX 4ch

It operates with 12V power (7~24V), and equipped with a 5V output

Note: We can also provide other testing environment such as evaluation board. Please contact us for details.

### ■Related software (Option)

- Multi Protocol Simulator (MPS)

Multifunctional simulator for multi LAN tester

Supported protocols: CAN FD/CAN, LIN, CXPI

- MLT User Module Interface Library

Interface library to control on the MLT Advan Navigator

- MLT Direct Interface Library

Interface library to directly control MLT Advance

- Ethernet option module

Add-in module which makes MLT Advan Navigator to be able to log Ethernet and other protocols simultaneously

- CAN Send Simulator (under development)

Set up to 8 programmed sending files, then it can perform various playbacks such as loop playback, single play back and combined playback

Note : License Policy for those optional software mentioned above will vary. Please contact us for details.

Note : We can also develop custom-made user module by using pScript. Please contact us for details.

## Price list

The list price is the price when purchased in Japan.  
When purchasing from overseas, please contact a trading company..

### ■Model code description

MLT Advan model 5 CF 1 L 1 CX 1

①                      ②   ③   ④

- ① Model name  
② Model number  
③ Protocol : CF = CAN FD/CAN CX = CXPI  
L = LIN SD = SRASYN<sup>1)</sup>  
IS = ISO14230 UH = UARTHD<sup>1)</sup>  
IE = IE Bus SP = SPI  
IC = I2C E = Ethernet (Hardware)
- ④ Number of channels  
(The example: CAN FD/CAN 1ch LIN 1ch CXPI 1ch)

Note 1: SRASYN & UART HD

MLT Advance has "SRASYN" and "UART HD" for asynchronous (or synchronous start / stop) serial communication.

You can log data streams in your network ending in 0x0D or 0x0A and data streams of a specific length as frames. You can also use "send timeout" as the end of the frame.

SRASYN channels are designated as either send or receive and can be configured with the MLT Advan Navigator. The SRASYN interface voltage can be selected from 5V, 3.3V, and 2.5V.

There are 12V level conversion cable and RS-232C conversion cable (sold separately).

UART HD is a single-wire half-duplex communication with an interface voltage of 12V.

Please contact us for more information.

## Basic Model (model5)

### ■348,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF2	2									
5CF1L1	1	1								
5CF1IS1	1		1							
5CF1IE1	1			1						
5CF1IC1	1				1					
5CF1CX1	1					1				
5CF1SD2	1						2			
5CF1SP1	1								1	
5L2		2								
5L1IE1		1		1						
5L1CX1		1				1				
5L1SD2		1					2			
5L1SP1		1							1	
5IE2				2						
5IE1SD2				1			2			
5IC2					2					
5IC1CX1					1	1				
5IC1SP1					1				1	
5CX2						2				
5CX1SD2						1	2			
5SD2SP1							2		1	
5SP2									2	

### ■447,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF3	3									
5CF2L1	2	1								
5CF2IS1	2		1							
5CF2IC1	2				1					
5CF2SD2	2						2			
5CF1L2	1	2								
5CF1IC2	1				2					
5CF1L1IS1	1	1	1							
5CF1L1IC1	1	1			1					
5CF1L1CX1	1	1				1				
5CF1SD4	1						4			
5L3		3								
5IC2CX1					2	1				

## ■ 546,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF4	4									
5CF2L1IS1	2	1	1							
5CF2L1IC1	2	1			1					
5CF2L1CX1	2	1				1				
5CF2IC2	2				2					
5CF2CX2	2					2				
5CF1L1IC2	1	1			2					
5L2CX2		2				2				

## ■ 645,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF1L2CX2	1	2				2				
5CF2L1CX2	2	1				2				

## ■ 744,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF2L2CX2	2	2				2				
5CF2IE2IC2	2			2	2					

## ■ 942,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF2L2CX2SD4	2	2				2	4			
5CF2L2CX2UH4	2	2				2		4		

## ■ 1,140,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF4L2IC2SP2	4	2			2				2	

## ■ 1,239,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF2L3IE2IC2SP2	2	3		2	2				2	

**Professional Model (model7)**

## ■ 645,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
7CF4SD2	4						2			

## ■ 843,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
7CF2L4SD2	2	4					2			

## ■ 1,140,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
7CF10	10									
7CF4L4IS2	4	4	2							

## ■ 1,338,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
7CF4L4CX4	4	4				4				

## ■ 1,635,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
7CF4L3CX4SD4	4	3				4	4			
7CF4L4IS2IC1CX4	4	4	2		1	4				



**Ultra Model (model9)**

## ■ 1,041,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
9CF2L6SD2	2	6					2			

## ■ 1,338,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
9CF10L2	10	2								

## ■ 1,536,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
9CF8L2IE2CX2	8	2		2		2				
9CF10L2IE2	10	2		2						

## ■ 1,932,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
9CF10L4CX4	10	4				4				
9CF16E2	16									2

## ■ 2,328,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
9CF10L4IE2CX4E2	10	4		2		4				2

## ■ 2,724,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
9CF10L8CX6UH4	10	8				6		4		

## ■ 3,120,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
9CF10L10IE2IC2CX4SP2	10	10		2	2	4			2	

## ■ 3,318,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
9CF16L4IE2IC2CX4SD4E2	16	4		2	2	4	4			2
9CF16L4IE2IC2CX4UH4E2	16	4		2	2	4		4		2

**Plus Model (MLT AdvanPlus model91)**

## ■ 2,328,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
91CF4L4IC6CX4UH4E2	4	4			6	4		4		2

## ■ 2,526,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
91CF4L4IC4CX8UH4E2	4	4			4	8		4		2

***E/O conversion Model***

## ■ 348,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF2-P	2									
5L2-P		2								
5L1CX1-P		1				1				
5CX2-P						1				

## ■ 447,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF1L1CX1-P	1	1				1				

## ■ 546,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF2CX2-P	2					2				

## ■ 744,000 JPY models

Model	CAN	LIN	ISO	IE Bus	I2C	CXPI	SRASYN	UARTHD	SPI	ETH Hw
5CF2L2CX2-P	2	2				2				

**Overseas sales inquiries**

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