MULTICHANNEL ANEMOMASTER

SYSTEM 6 2 4 2 / 6 2 4 3
(MODEL 1550)   (MODEL 1560)

INSTRUCTION MANUAL

We thank you very much for purchasing our Multichannel Anemomaster. This manual describes the operating procedure of the Anemomaster System 6242 & 6243. It is therefore suggested to read it carefully for proper and full use of the systems, and store it along with them.
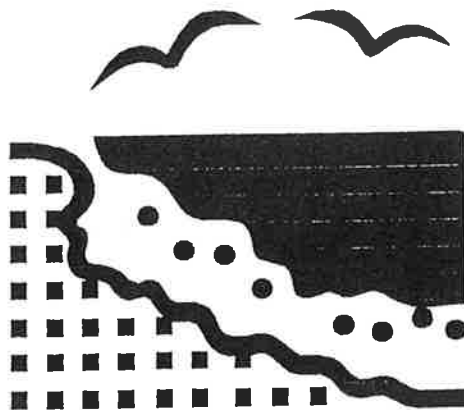
KANOMAX JAPAN INC.

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TABLE OF CONTENTS-CHAPTER 1

PRIOR TO USING THE ANEMOMASTER
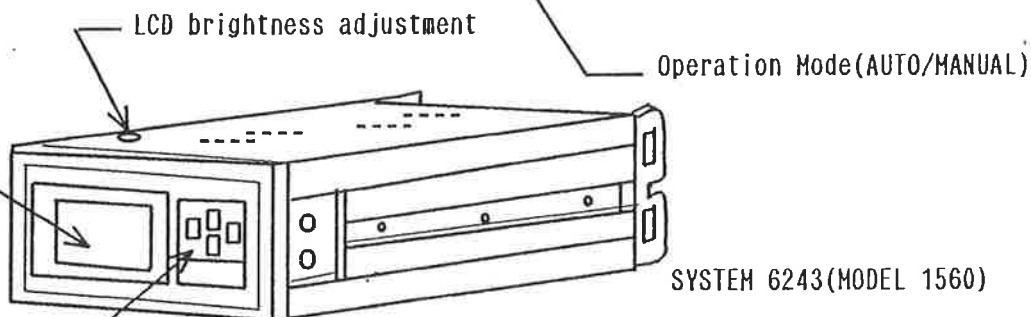
PARTS NAME AND FUNCTION

[An Example of Display]
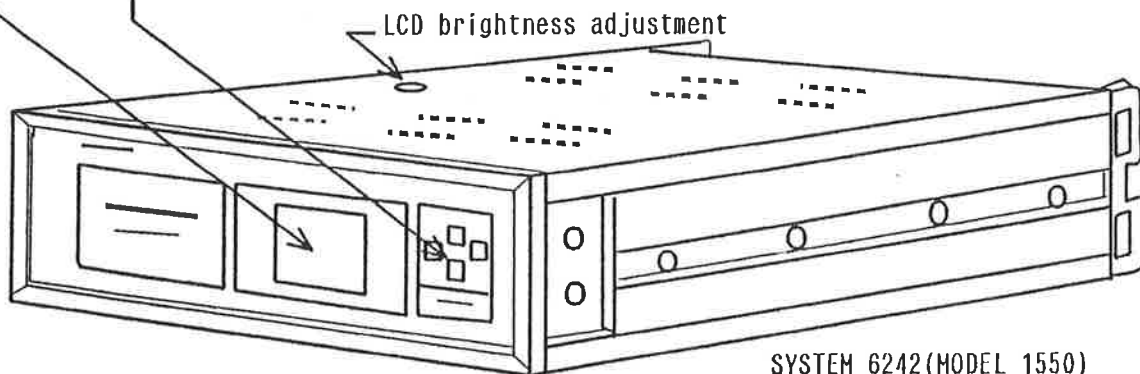The module v displays all data of 4 channels simultaneously.

Display Section

Data is displayed on a module basis.
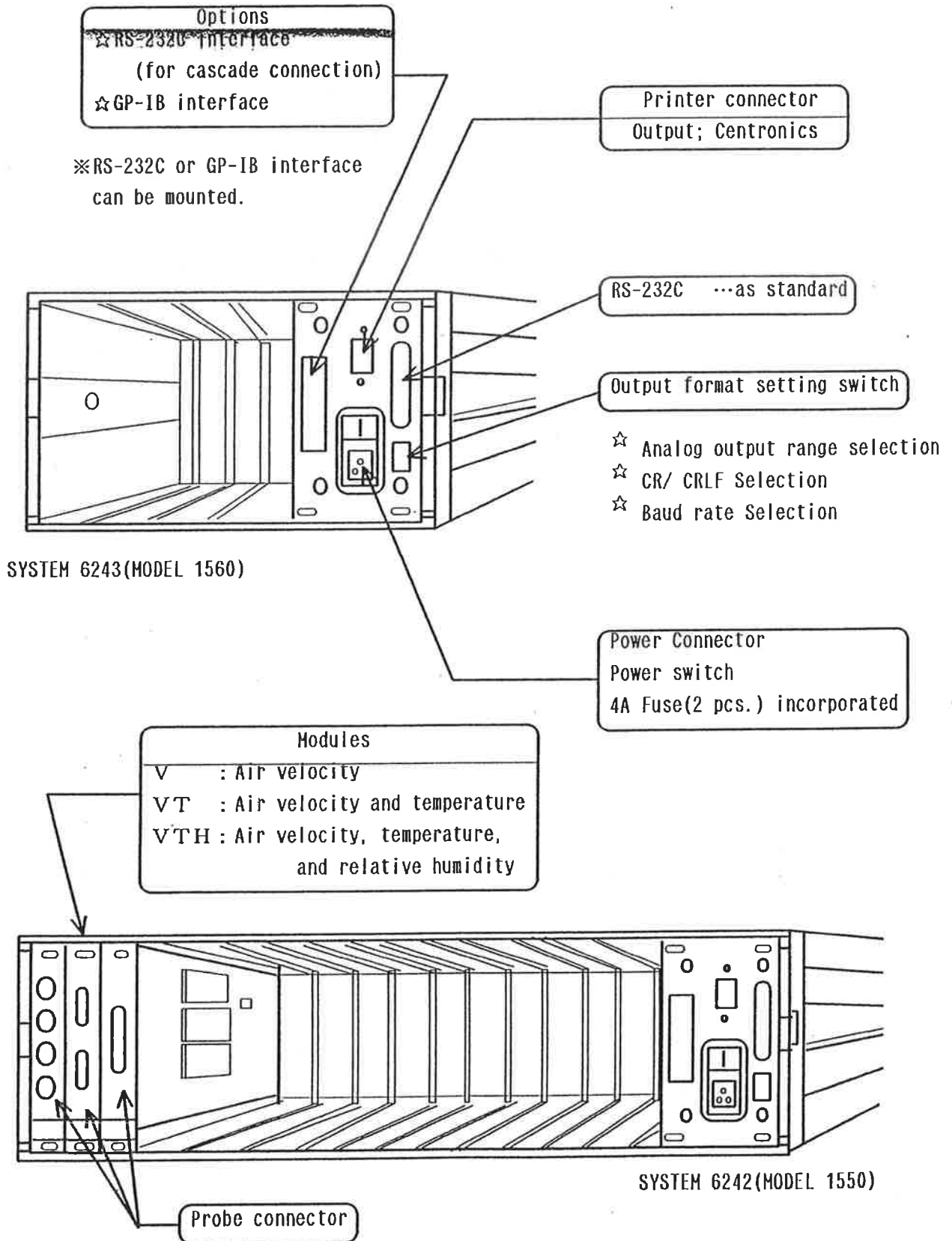In the AUTO mode, the screen auto-matically changes every 2 seconds.

Module NO. → (M-01)   [V] ← Module Name

V1	12.5	m/s
V2	13.6	m/s
V3	12.9	m/s
V4	14.7	m/s

[AUTO]

[V] : Air velocity
[VT] : Air velocity and temperature
[VTH]:Air velocity, temperature and relative humidity

— LCD brightness adjustment

— Operation Mode(AUTO/MANUAL)

SYSTEM 6243(MODEL 1560)

AUTO		Automatically changes modules every 2 seconds to display data on the LCD screen.
MANUAL		Operating the [UP] and [DOWN] KEYS ALLOWS module selection for display.
MAN.	UP	Module NO. M- 1→2→3······→8···→16
	DOWN	Module NO. M- 16→···8······→3→2→1
PRINT		Prints displayed data to externally connected printer every 2 seconds. AUTO : Automatically selected module MANUAL : Same module

Operation Section

LCD brightness adjustment

SYSTEM 6242(MODEL 1550)

Options
☆ RS-232C interface
(for cascade connection)
☆ GP-IB interface

※ RS-232C or GP-IB interface can be mounted.

Printer connector
Output; Centronics

RS-232C ···as standard

Output format setting switch

☆ Analog output range selection
☆ CR/ CRLF Selection
☆ Baud rate Selection

SYSTEM 6243(MODEL 1560)

Power Connector
Power switch
4A Fuse(2 pcs.) incorporated

Modules
V : Air velocity
VT : Air velocity and temperature
VTH : Air velocity, temperature, and relative humidity

SYSTEM 6242(MODEL 1550)

Probe connector

NEVER TAKE THE FOLLOWING ACTIONS!

※ Take special care when connecting and
   disconnecting the probe.

× ×

Never connect or disconnect
the probe cable when the system is on.

Check for power supply
To be OFF
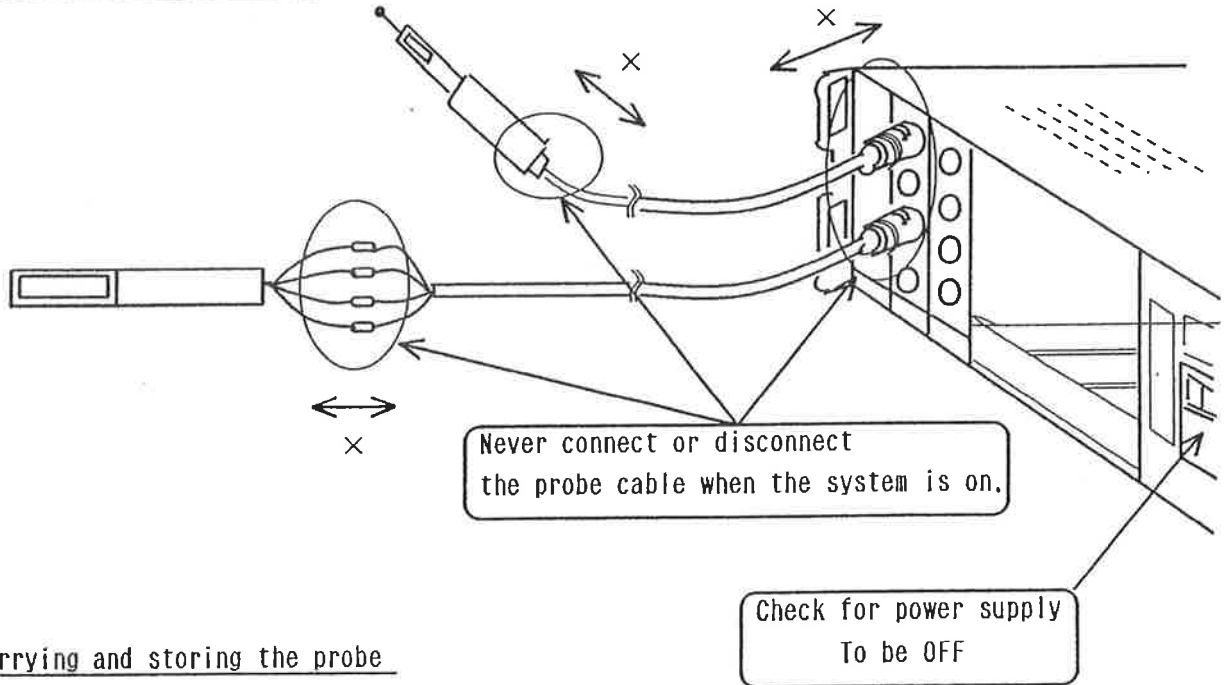
※ Carrying and storing the probe

"Be sure to use a protective cap."

Protective cap

"Take care the element section
is delicate and fragile."
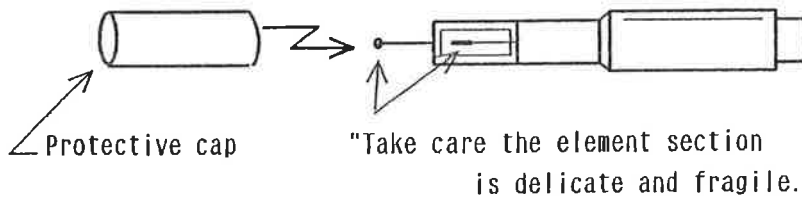
Bending the element section
exerts an adverse effect on
its characteristics.
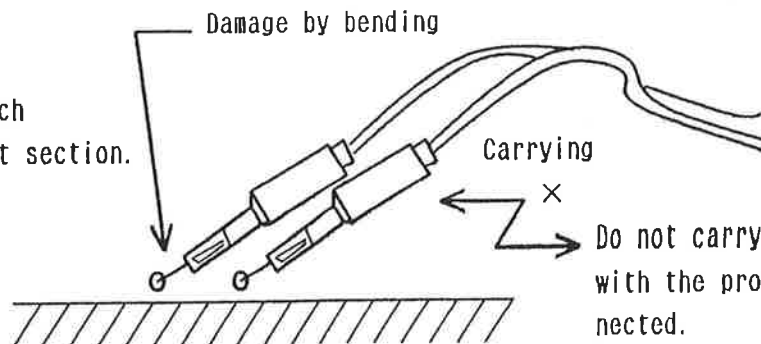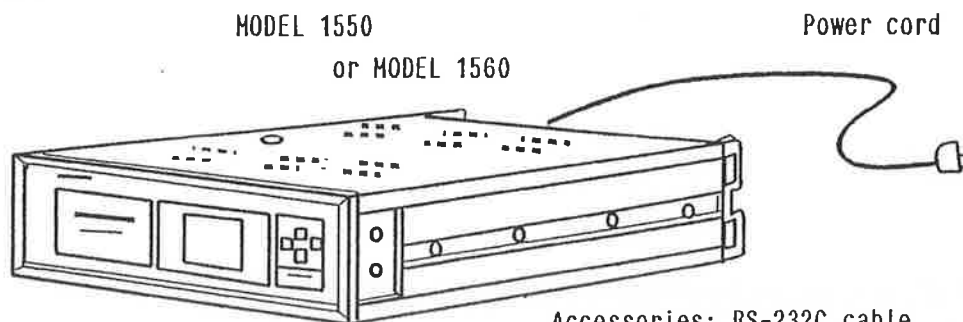Take due care in handling it.

Do not touch
the element section.

Damage by bending

Carrying
×

Do not carry the Anomomastor
with the probe cables con-
nected.

TABLE OF CONTENTS-CHAPTER 2

PREPARING FOR USE

[1] Body

MODEL 1550   Power cord
or MODEL 1560

Accessories: RS-232C cable
              printer cable
              power cord
              & 2 fuses (4A)

[2] Module
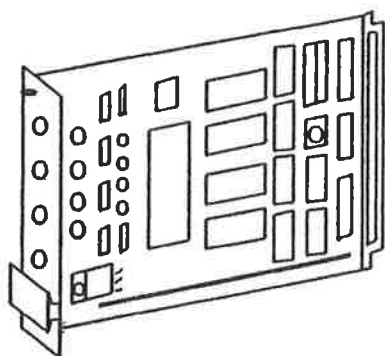
※ Check the module for a model NO.
  ☆ MODEL 1504 : 4 channels for air velocity
  ☆ MODEL 1511 : 2 channels each for air
                  velocity and temperature
  ☆ MODEL 1512 : 1 channel each for air ve-
                  locity, temperature and
                  relative humidity

[3] Probe Cable
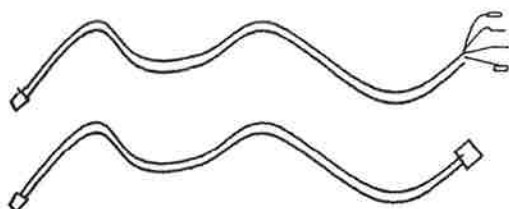
※ A probe cable to be used differs de-
  pending on probe type. So, check for
  the right cable.

[4] Probe   Characteristic ROM

[V 1]   +   [V1]   +   Probe NO. seal (3 pcs.)

[V 2]   +   [V2]   +   Probe NO. seal (3 pcs.)
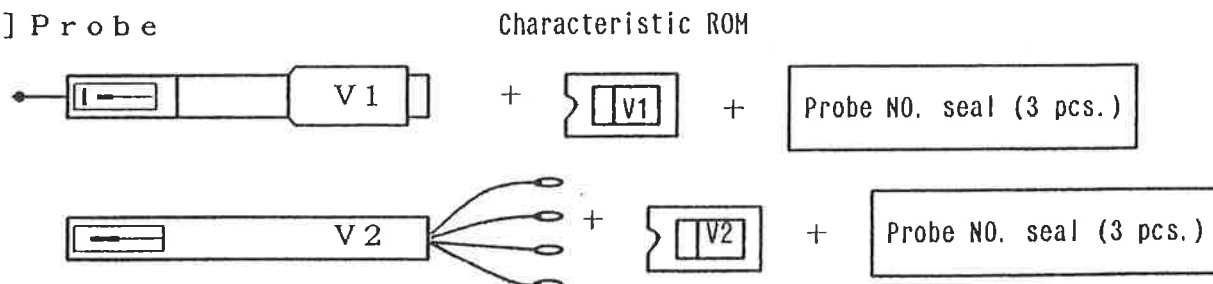
※ A probe and a ROM form a pair. Each Probe has different probe characteristics, and its
  characteristics data is written in the ROM. When mounting the ROM on the module, check
  the ROM for compatibility with the intended probe.

(Note) ···Do not change the jumper pin posi-
tions as this will be a cause of
malfunction.

Module V

Characteristic ROM

MODEL NO.

V1
V2
V3
V4

1504

V 1
V 2
V 3
V 4

Address setting

Module VT

Characteristic ROM (VT1 & VT2 for
air velocity data, T for air tem-
perature data)

See "NOTE" above.

VT1
VT2

1511

VT 1
T
VT2

Address setting

T-ROM(Characteristic ROM for air temperature)
※ T-ROM and Module VTH are mounted before
delivery from the Factory.

Module VTH

VTH

1512

V
T
H

Characteristic ROM
H: Humidity data
T: Air temp. data
V: Air velocity data

Address setting

◆ Mount a characteristic ROM that is appropriate to the intended probe, in the correct position, in accordance with Step 2 of the previous page.

> ※ Take care of the ROM mounting orientation as wrong mounting may cause malfunction.
> ※ Mount the ROM While taking care not be bend its legs.

[An Example: Module V]

※ Check ROM for mounting direction.

※ Check for probe NO.

※ Take care not to bend the legs.
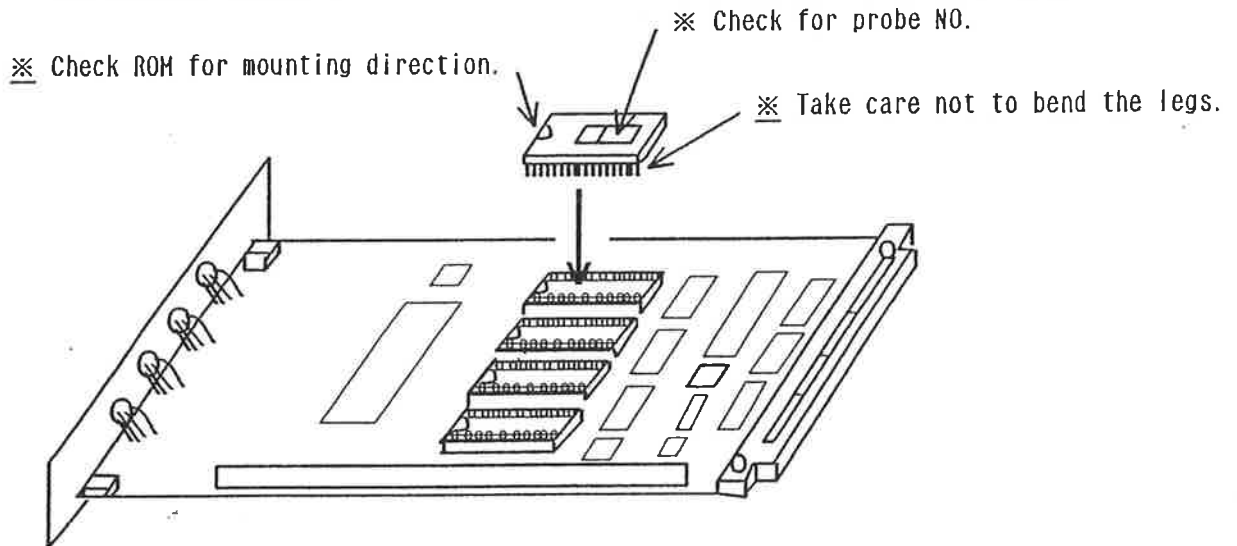
Removing the characteristic ROM

◆ Press in a flat-bladed screwdriver between the ROM and the socket, and gradually lift the ROM from each side.

◆ Take special care not to lift the ROM unevenly as it may bend the ROM legs.

◆ Repeat the procedures (1) to (4) and gradually lift the ROM.

[V]   [VT]   [VTH]

O

[ADDRESSING]

SYSTEM 6243(MODEL 1560) ······0～5 (6 types)
SYSTEM 6242(MODEL 1550) ······0～F (16 types)
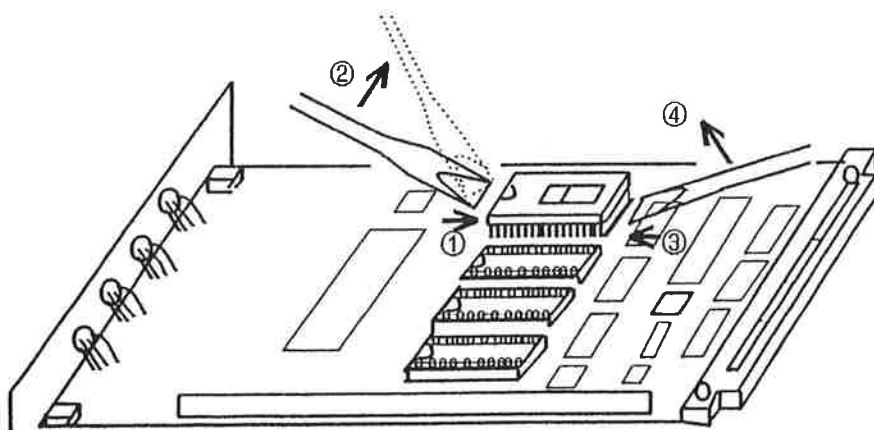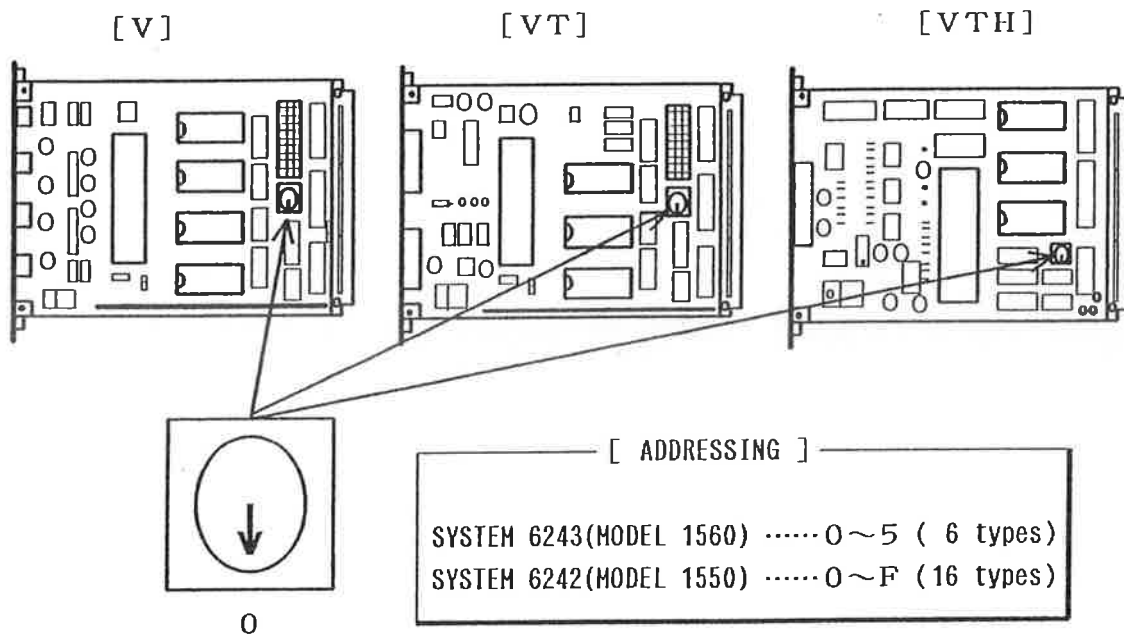
◆ Address each module as follows:
  Take care not to use the same address as this will be a cause of malfunction.

Module NO.···M-01 02 03 04 05 06

Address → 0 1 2 3 4 5
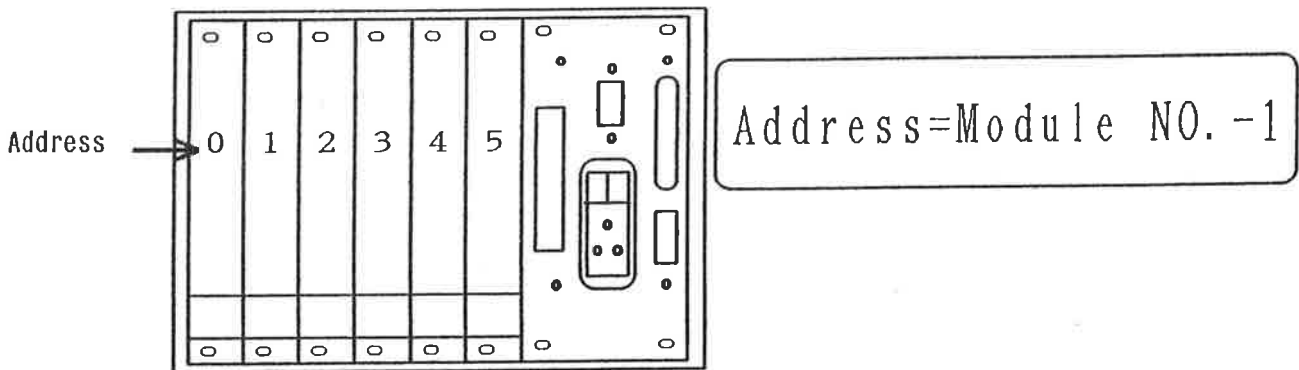
Address=Module NO.-1

Module NO.···M-01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16

Address → 0 1 2 3 4 5 6 7 8 9 A B C D E F
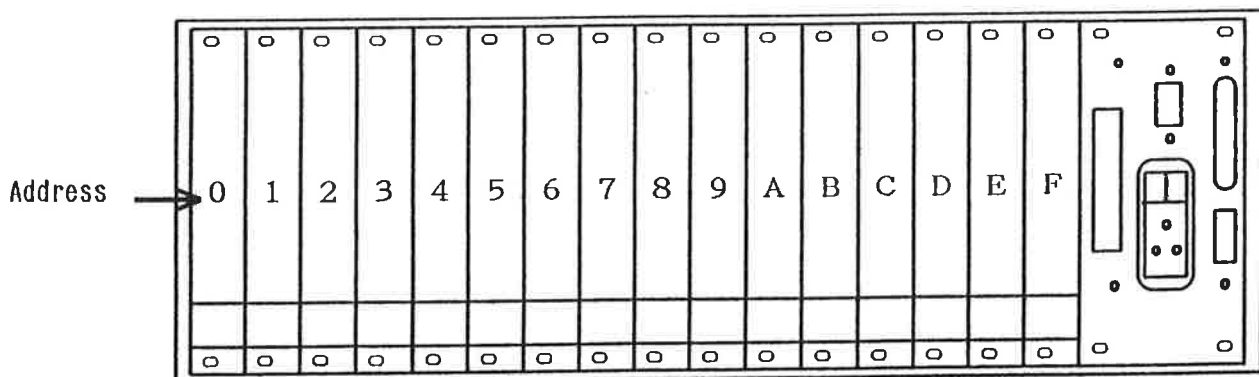
① Make sure that power is off.

② Insert the module along the guide rails and place it
at the position addressed as per Step 4.

③ When the module has been properly positioned,
secure it using a flat-bladed screwdriver.

To be fixed at two locations
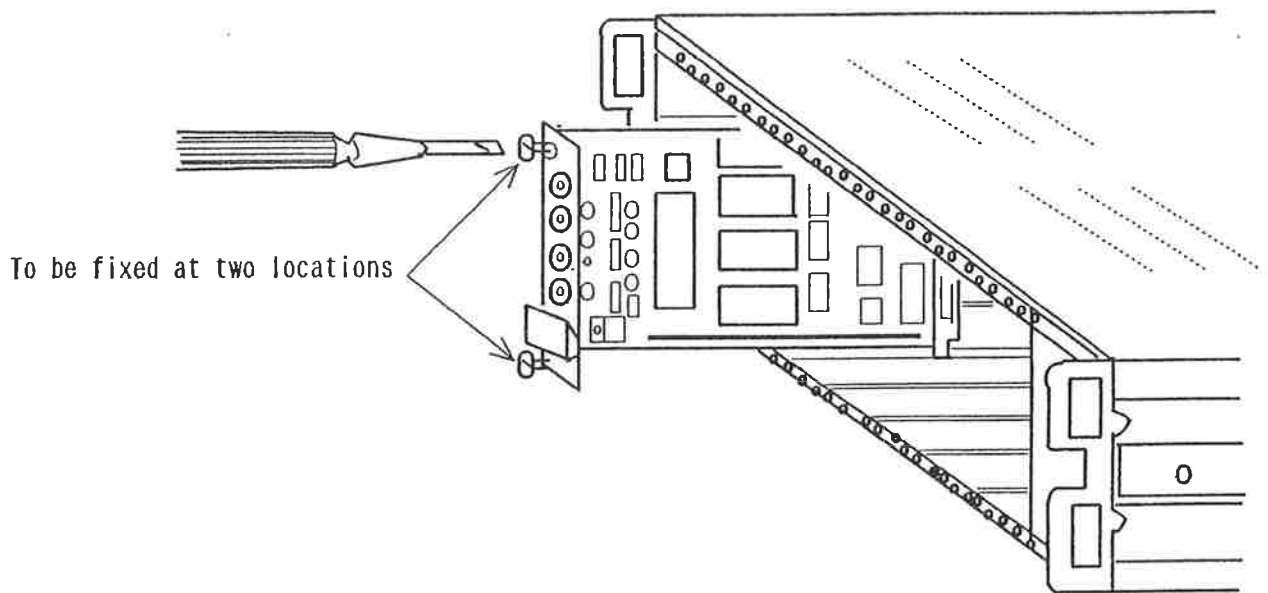
Memo

Attach probe NO. seals.   Three probe NO. seals are provided for each probe.
Use them at the positions illustrated in the figures.

Characteristic ROM
Probe NO.

Seal③

Probe NO.
Seal①   Seal②

※ Removing the attached seal(s) weakens
   its adhesive strength. So, take care
   not to reattach it.

1504

※ Make sure that each probe NO. corresponds
   to that of the characteristic ROM.   ....   O K !
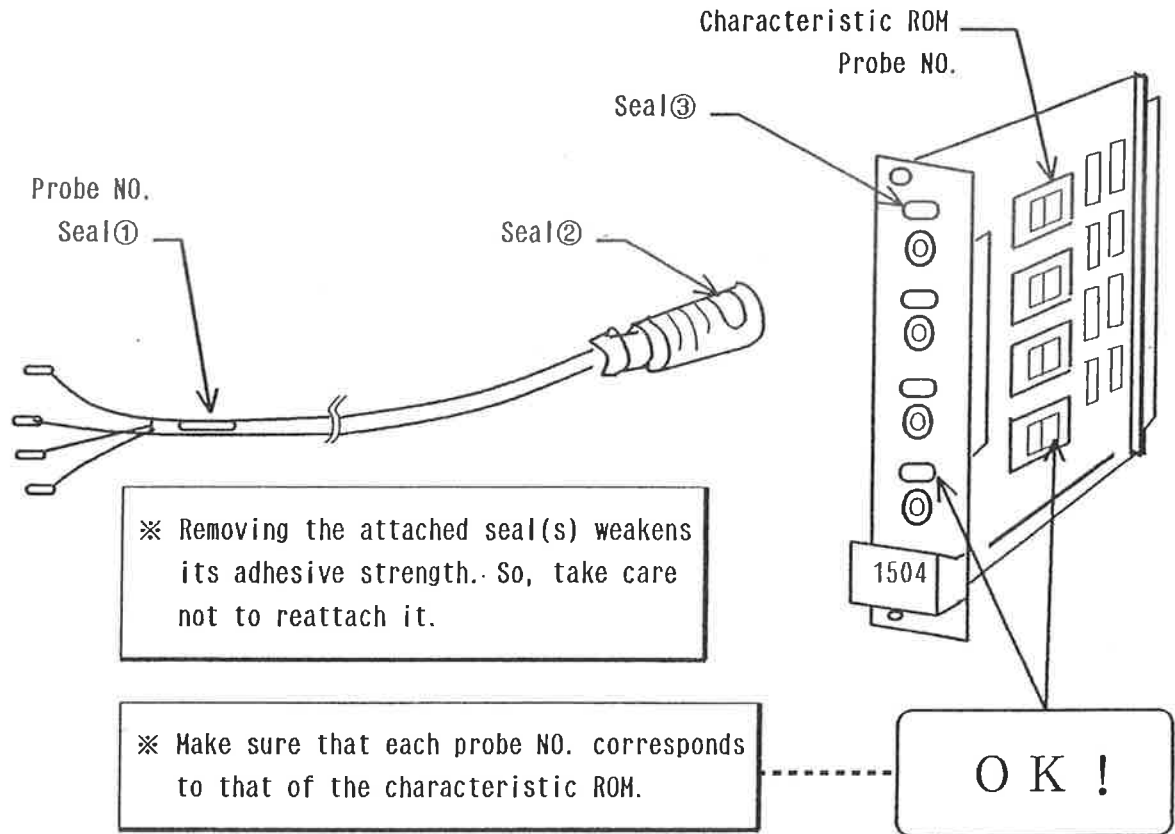
Connecting a probe cable to each module

Connect a probe cable to each module while taking care to ensure the cable NO. is the same
as the probe NO. attached on the module.

Check probe NO.

Check probe NO.

MODEL 1504

MODEL 1511 / 1512
(9PIN / 15PIN)

Hold here and press in until it clicks.

After the probe cable is connected,
tighten the screws to secure it in position.
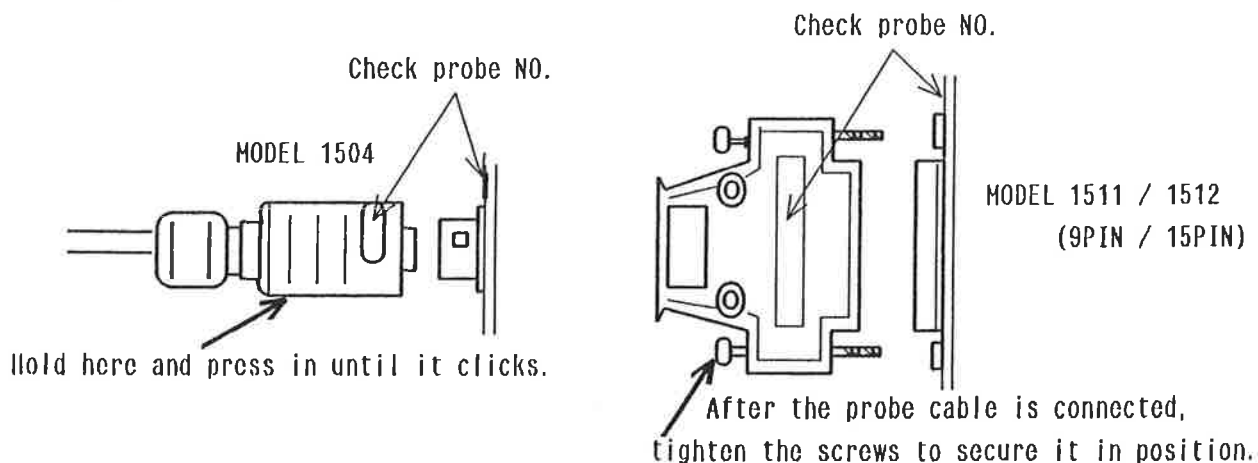
Connecting a probe	※ Connect and disconnect the probe only after the main switch is turned off, as the probe element may burn to thereby change its characteristics or probe element wire wire may be broken.

Green   Types A AND C
White
Black
Red
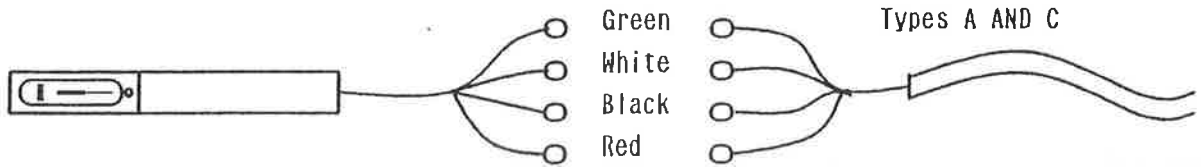
◆ Be sure that the wires of same color are connected together. Otherwise the probe may be dameged.

Types B,D & E
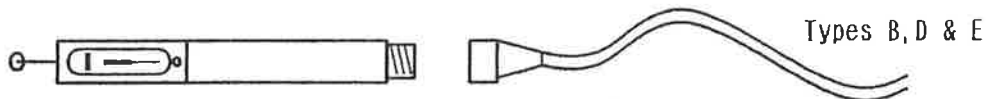
※Firmly fasten the probe to avoid causing damage to the probe due to poor contact.

Setting the probe	[An Example]

※ Be sure to set the probe with the wind direction mark facing windward. Although a spherical sensor and other nondirectional probes can measure air characteristics irrespective of air flow directions, calibration is performed with the air flow direction mark facing windward.

Air flow

Face the air flowdirection markwindward.

※ The higher the air velocity is, the better the response for air temperature becomes. Specifically, a response of approx. 20 to 30 seconds is obtained at 1 m/sec of air velocity. Take the reading when the indication has become stable.

※ Measuring an air flow for temperature in an airflow-free condition gives an indication of higher temperature. Therefore, to measure air temperature with accuracy, it is necessary to maintain the air velocity at more than 0.1 m/sec.

※ Performing prolonged measurement in an atmosphere of high humidity or measurement in an atmosphere subjectded to a sudden temperature change may caouse dew condensation, which may in turn give a measured value of abnormally high humidity. When such dew condensation is observed, leave the system standing at a rerative humidity of below 40%RII for 24 hours.
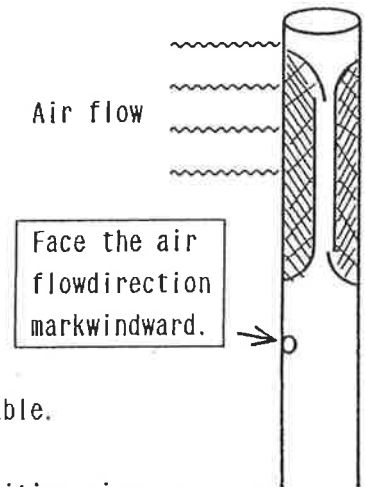
Write down the probe NO. and the module NO. under the table for prevending a mistake of the channel NO.

MODULE NO. (V)	PROBE NO.			
	V 1	V 2	V 3	V 4
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

MODULE NO. (VT)	PROBE NO.	
	VT 1	VT 2
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		

MODULE NO. (VTH)	PROBE NO.
	VTH
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

For the mixed modules (V,VT and VT module)

MODULE		PROBE NO.								MEMO
NAME	NO.	CH	NO.	CH	NO.	CH	NO.	CH	NO.	
V	1									
V	2									
V	3									
VT	4									
VT	5									
V	6									
VTH	7									
V	8									
VT	9									
VT	10									
V	11									
	12									
	13									
	14									
	15									
	16									

[An Example]

MODULE		PROBE NO.								MEMO
NAME	NO.	CH	NO.	CH	NO.	CH	NO.	CH	NO.	
V	1	V1	0001	V2	0002	V3	0003	V4	0004	
V	2	V1	0015	V2	0016	V3	0017	V4	0018	
V	3	V1	0029	V2	0030	V3	0031	V4	0032	
VT	4	VT1	1011	VT2	1012					
VT	5	VT1	1015	VT2	1016					
V	6	V1	0009	V2	0010	V3	0011	V4	0012	
VTH	7	VTH	2001							
V	8	V1	0129	V2	0130	V3	0131	V4	0132	
VT	9	VT1	1111	VT2	1112					
VT	10	VT1	1115	VT2	1116					
V	11	V1	0109	V2	0110	V3	0111	V4	0112	
	12									
	13									
	14									
	15									
	16									

◆ When the steps (1) ～(7) have been performed, turn on the main switch.
   This will display the following screen (for Module V)

Module NO.(Address + 1)   Module Name
                                          ☆V : Air Velocity (4 channels)
                                          ☆VT : Air velocity and temperature
                                                                (2 channels each)
                                          ☆VTH : Air velocity, temperature and relative
                                                      humidity (1 channel each)

```
 (M-01)        [V]

 V1    12.5  m/s

 V2    15.3  m/s

 V3    14.7  m/s

 V4    13.9  m/s

 [MANUAL]
```

Operation mode (can be selected using operation key)
   ☆ MANUAL … Allows module selection for display by operating the [UP] and [DOWN] Keys.
   ☆ AUTO …… Automatically changes modules every 2 seconds for display.

※ When no module is mounted, the screen
   shown in the figure on the right will
   appear. In this case, make preparations   ----->
   for measurement once again in accordance
   with the steps (1) to (7)

```
 KANOMAX

   MODULE

 MULTICHANNEL
          ANEMOMASTER
 (SYSTEM 6242/6243)


         Ver.1.01
```
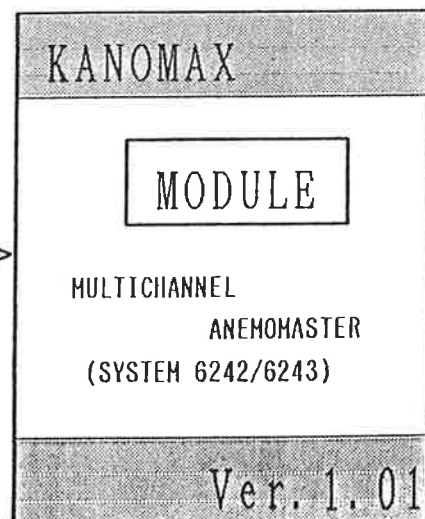
Examples of the screen for the mixed modules.

(M-01)		[V]
V1	12.5	m/s
V2	15.3	m/s
V3	14.7	m/s
V4	13.9	m/s
[AUTO]		

▽

(M-02)		[V]
V1	13.4	m/s
V2	16.7	m/s
V3	15.3	m/s
V4	12.9	m/s
[AUTO]		

▽

(M-03)		[VT]
V1	16.3	m/s
T1	25.8	℃
V2	14.6	m/s
T2	26.5	℃
[AUTO]		

▽

(M-04)		[VT]
V1	13.8	m/s
T1	26.5	℃
V2	12.8	m/s
T2	24.7	℃
[AUTO]		

▽

(M-05)		[VTH]
V	13.8	m/s
T	25.7	℃
H	43.8	%RH
[AUTO]		

▽

(M-06)		[V]
V1	14.6	m/s
V2	16.8	m/s
V3	13.3	m/s
V4	12.7	m/s
[AUTO]		
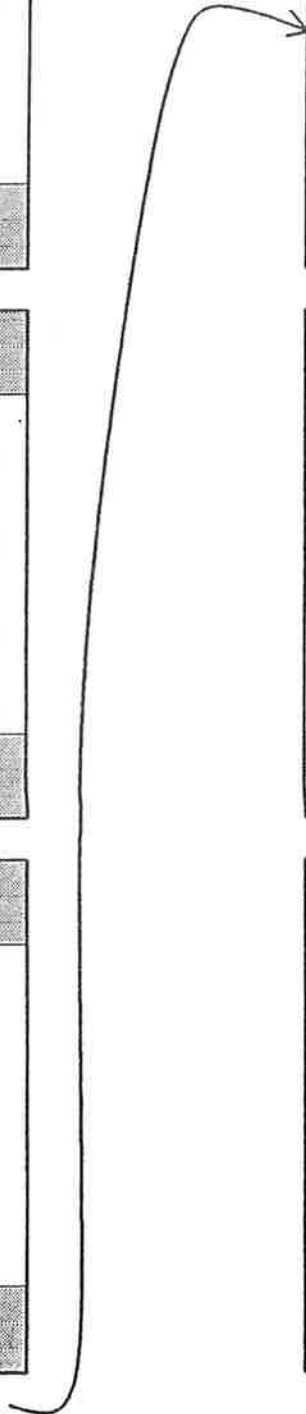
▽

MEMO

MEMO

TABLE OF CONTENTS-CHAPTER 3

```
┌─────────────────────────────────────┐
│                                     │
│            PRINTING DATA            │
│                                     │
└─────────────────────────────────────┘
```

PRINTING DATA

Connecting a printer cable

Output connector
(DDK 14PIN)
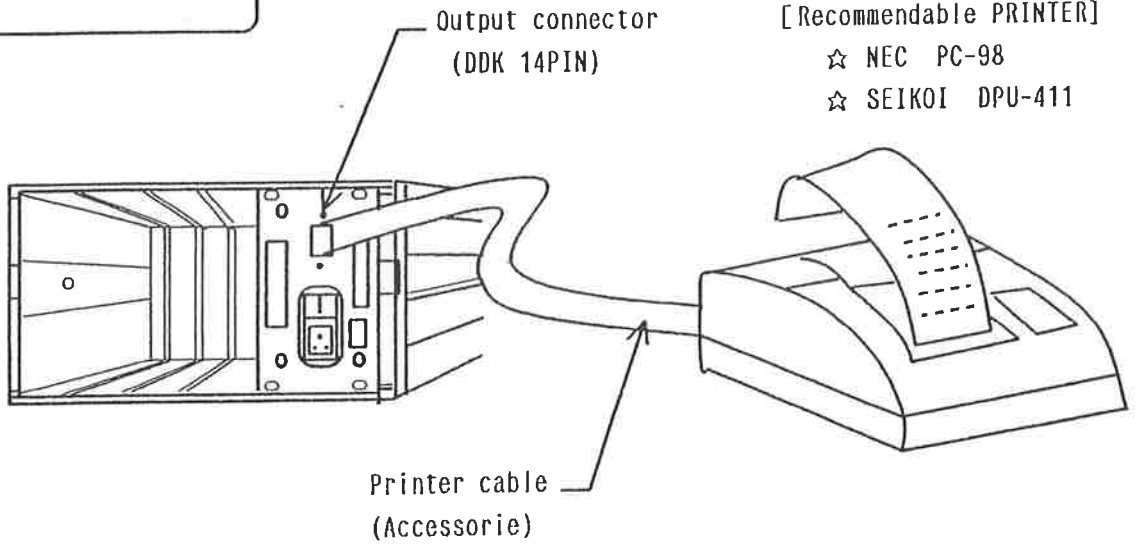
[Recommendable PRINTER]
☆ NEC PC-98
☆ SEIKOI DPU-411

Printer cable
(Accessorie)

Setting switch DIP-SW 1
for printer DPU-411

SW 1	ON	Parallel
SW 2	ON	Return
SW 3	OFF	Reduction(80)
SW 4	ON	Normal
SW 5	ON	O
SW 6	ON	
SW 7	ON	Japanese
SW 8	ON	

※SW-2: none

Connector pin allocation

Pin NO.	Signal name	
1	PSTB (STROBE)	
2	PDB_0	
3	PDB_1	
4	PDB_2	
5	PDB_3	
6	PDB_4	DATA
7	PDB_5	
8	PDB_6	
9	PDB_7	
10	NC	
11	BUSY	
12	NC	
13	NC	
14	GND	
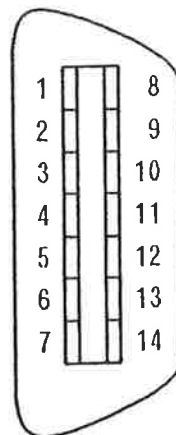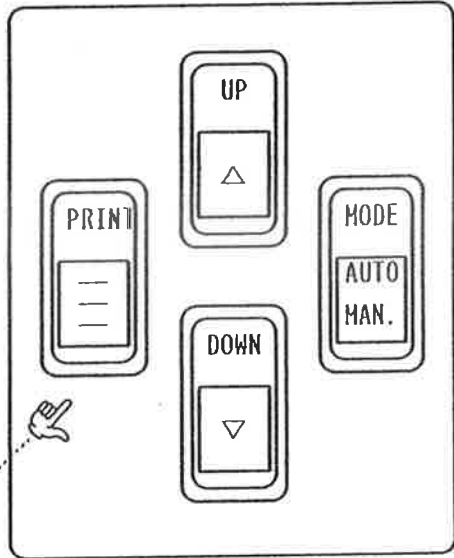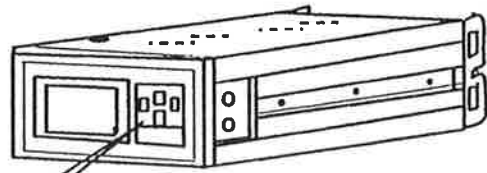
The data currently displayed
on the screen is printed.

(M－01)		[V]
V1	12.5	m/s
V2	13.6	m/s
V3	12.9	m/s
V4	14.7	m/s
[AUTO]		[PRINT]

Press the PRINT key.

[PRINT] is displayed
(whether or not the printer is connected.)
Data is output whether or not the printer
is connected.

◆ Data is printed every 2 seconds on a module basis. To be more specific, all data dis-
played on the screen is printed at a time, and is followed 2 seconds later by printing
the data of the next module screen. (Example : for Module V, data from the four channels
is printed at a time.)

(M－01)		[V]
V1	12.5	m/s
V2	13.6	m/s
V3	12.9	m/s
V4	14.7	m/s
[AUTO]		[PRINT]

2 seconds later

(M－02)		[V]
V1	12.1	m/s
V2	14.5	m/s
V3	13.7	m/s
V4	14.3	m/s
[AUTO]		[PRINT]

Print output
Printing data of 4 channels (v1,V2,V3 & V4) at a time.

Print output

◆ To stop printing, press the PRINT key again.

Examples of the printing data

[AUTO MODE]

Automatically changes
modules every 2 second
for printing data.

```
M-01    12.5 m/s    10.3m/s    11.5m/s    12.4m/s
M-02    13.4 m/s    12.1m/s    14.1m/s    13.5m/s
M-03    12.7 m/s    21.4℃      13.5m/s    22.6℃
M-04    12.9 m/s    23.5℃      43.7%RH
M-05    13.5 m/s    12.4m/s    12.8m/s    13.7m/s
        ⋮
        ⋮
        ⋮
```

[MANUAL MODE]

Automatically changes
modules every 2 second
for printing data.

Printing data for display by
operating the [UP] and [DOWN]
keys.

M-01	12.5 m/s	11.3m/s	12.5m/s	12.4m/s
M-01	13.4 m/s	12.1m/s	14.6m/s	13.5m/s
M-01	12.7 m/s	10.3m/s	13.2m/s	12.4m/s
M-01	13.8 m/s	13.5m/s	15.1m/s	13.4m/s
M-01	13.5 m/s	13.9m/s	13.3m/s	13.9m/s
M-02	12.7 m/s	21.4℃	13.5m/s	22.6℃
M-02	12.5 m/s	21.2℃	12.7m/s	21.8℃
M-02	11.9 m/s	20.9℃	13.2m/s	21.9℃
M-03	12.9 m/s	23.5℃	43.9%RH	
M-03	12.8 m/s	23.4℃	43.7%RH	
M-03	12.5 m/s	23.3℃	43.5%RH	
M-03	12.7 m/s	23.2℃	43.8%RH	
M-04	13.6 m/s	14.1m/s	13.8m/s	13.7m/s
M-05	13.2 m/s	22.5℃	13.6m/s	23.5℃

PRINTING PRECAUTIONS

> ### Data overflow

※ Data is output to the printer through the system buffer.
When you are using a slow printer, data is being gradually
stored in the buffer. So, when the buffer has become full,
a [PR ERR] message will be displayed on the screen. Although
this error takes place, data will be continuously output, but
with no guarantee of every 2 second output. In this case,
some data may not be printed (namely, omitted).


```
M - 0 1 )            [V]
  V 1      1 2 . 5   m/s
  V 2      1 3 . 6   m/s
  V 3      1 2 . 9   m/s
  V 4      1 4 . 7   m/s
[AUTO]            [PR  ERR ]
```

SYSTEM

Output data ➔ Buffer

This error message is displayed
when the system buffer becomes full.
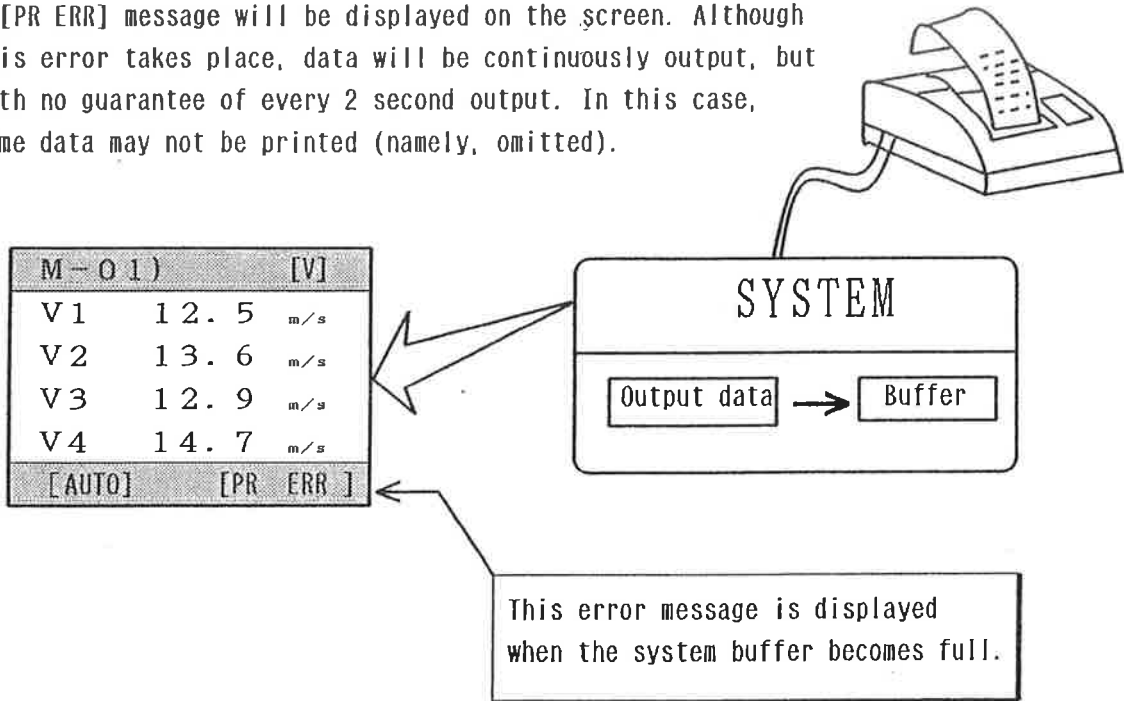
> ### Others

※ Data is output in a text format. This means that basically any printer which
supports CENTRONICS can output data. However, the symbol [℃] used as a temperature
unit may not be correctly output because the printer font differs depending on
printer types.

※ Data is output whether or not the printer is connected.
When the printer is connected in the outputtinz process, data will be printed from
that point. To print from the very beginning, temporarily press the PRINT key to
suspend the printing and then press the PRINT key again.

MEMO

TABLE OF CONTENTS-CHAPTER 4

RS-232C DATA TRANSFER

OVERVIEW OF DATA TRANSFER

◆ Setting an output format

☆Remote mode ;
   deta transfer status

☆Local mode ;
   displayed on LCD

REMOTE MODE ☞ P27,28
Baud rate (300~19200 baud rates)
Data length (8 bits)
Parity (none)
Stop bit (1 bit)
Delimiter (for selection of CR and CR/LF)
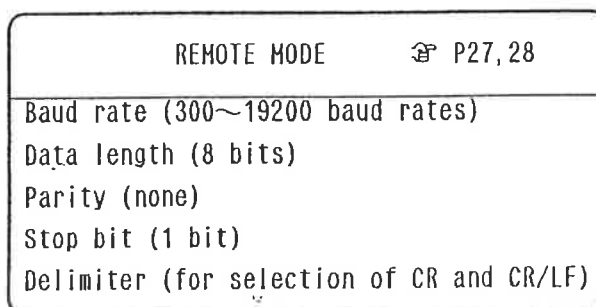
◆ Selecting measurement mode

BURST MODE ☞ P 29,31
Transfers data of all modules at a time.

CHANNEL MODE ☞ P 30,33
Transfers data of specified channel only.

◆ Selecting data

INSTANTANEOUS VALUE
Outputs instantaneous values every sampling interval.

INSTANTANEOUS VALUE
Outputs instantaneous values every sampling interval.

AVERAGE VALUE
Reads data every 0.1 second and outputs values averaged every sampling interval.
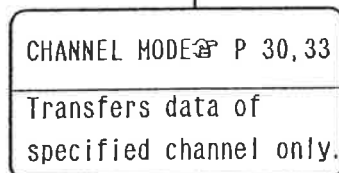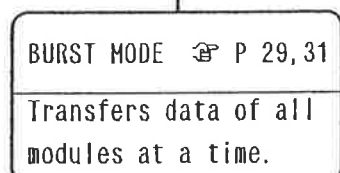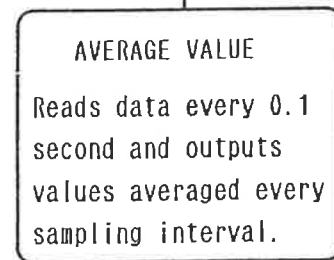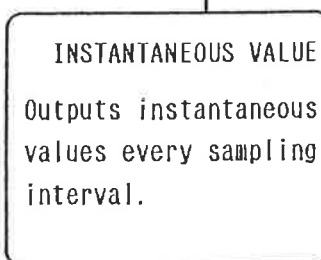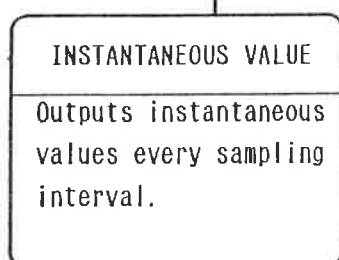
◆ Setting measurement conditions

☞ P 34 ~39

★ Interval of single sampling ···$T \times 0.1$ (second)
    where ;   T:can be set between 1 and 65,535
                     Min. sampling interval : 0.1 second

★ No of repetitions (N) : can be set between 1 and 65,535

◆ Starting measurement

Data transfer starts

OUTPUT CONNECTOR

Output connector
(D-SUB 25pins)

RS-232C(A)

RS-232C cable (accsessory)
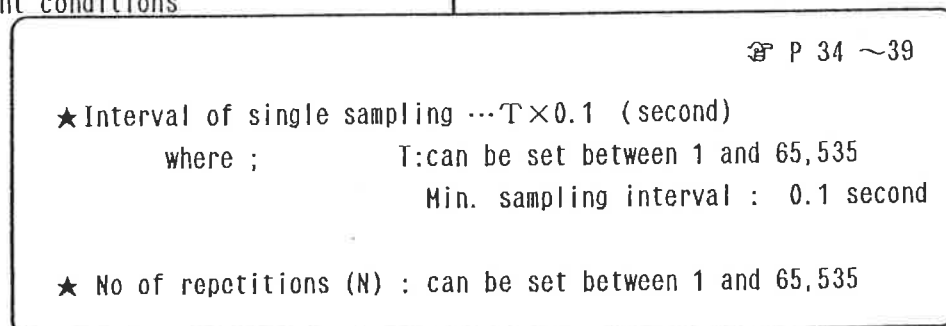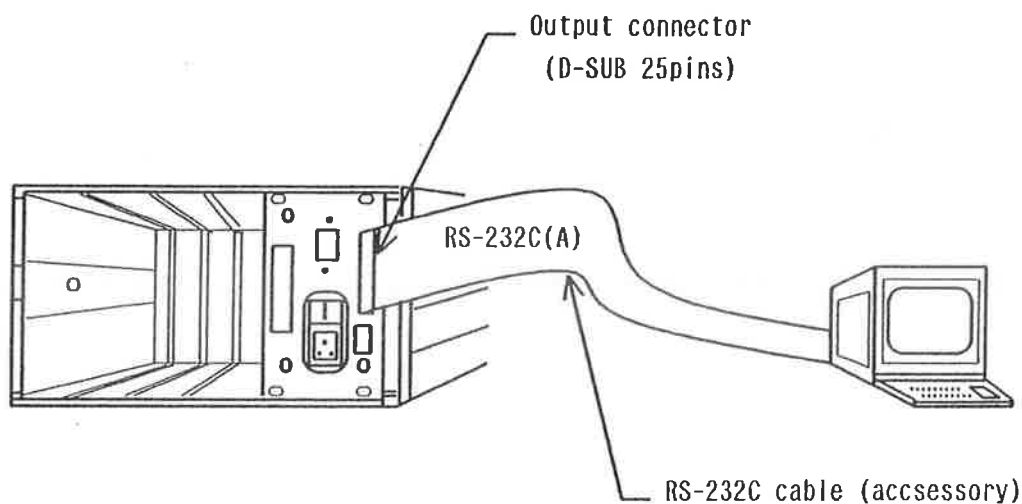
Connector Pin Allocation

[Example]···NEC PC-9800 Series
Cable : straight splicing type

Computer side		Wiring	System Side (SYSTEM 6242/6243)			
Signal name	Pin NO.	Wiring	PIN NO.	Signal	name	signal Description
	1		1			
TXD	2	··············	2	RXD		Received data Input
RXD	3	··············	3	TXD		Transferred data Output
RTS	4	··············	4	CTS		clear to send INPUT
CTS	5	··············	5	RTS		Request to send Output
DSR	6	··············	6			
GND	7	··············	7	GND		Signal ground
DCD	8		8			
	9		9			
	⌇		⌇			
	25		25			

CHECKING THE OUTPUT FORMAT

RS-232C(A) connector
(D-SUB 25pins)

Setting switch (SW1)   Standard accessory cable
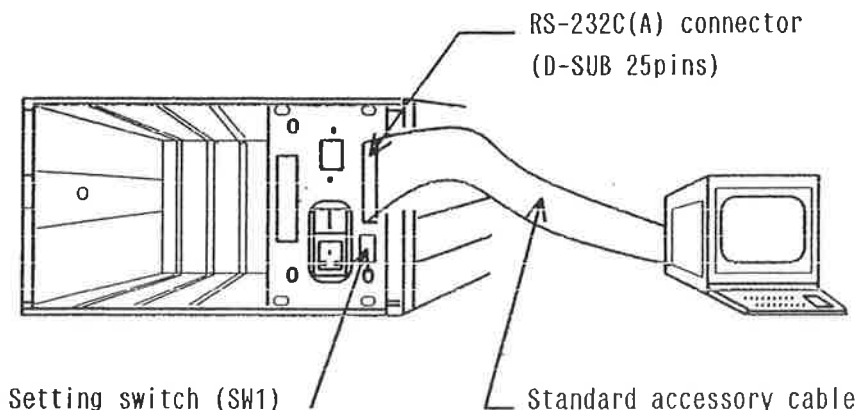
Baud Rate	SW 1		
	1	2	3
300 Baud	ON	ON	ON
600 Baud	OFF	ON	ON
1200 Baud	ON	OFF	ON
2400 Baud	OFF	OFF	ON
4800 Baud	ON	ON	OFF
9600 Baud	OFF	ON	OFF
19200 Baud	ON	OFF	OFF

For setting of analog output
range (See "Analog output".)

—For selection of CR and CRLF
(See at CR before delivery)

For baud rate setting
(See at 9,600 before delivery)
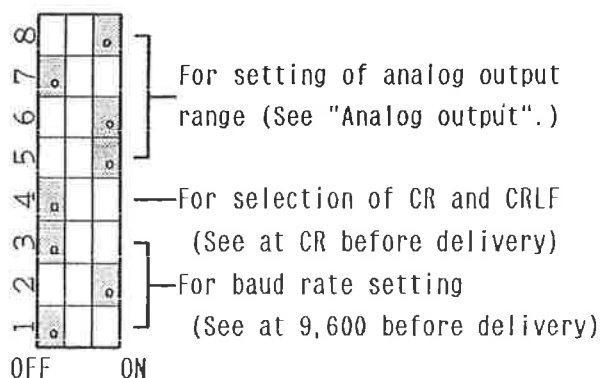
OFF   ON

⬛ ·· Switch

Data length	8 bit
Parity	none
Stop bit	1 bit

Delimiter	SW1
	4
CR/LF	ON
CR	OFF

※ Only CR is applicable to the compatibility
mode of system 6241 (old system).

[Check Items]

(1) Set the required baud rate as specified in tabele above using the SW 1 (1)〜(3).
Also, check the host computer for the correct baud rate setting. In order to ensure
data transmission between the system and the computer, their baud rate setting must
be the same. If not, an error code will be returned at data transmission.

(2) Check for data length, parity and stop bit.

(3)A delimiter (CR/LF) has an effect on the entire communication system. Check to see that
it is properly set.

BURST MODE

◆ Outputs data (instantaneous values) of all modules in the specified sampling interval. Data for a total of 16 modules multiplied by the number of systems is output as a single data output.

◆ Transfers data for 16 modules even if all modules are not mounted. Any data for modules that are not mounted is treated as dummy data.

Dummy Data

SYSTEM 6242

Transfers all data of 16 modules.

SYSTEM 6243

+ ···· 16

6 modules + 10 modules
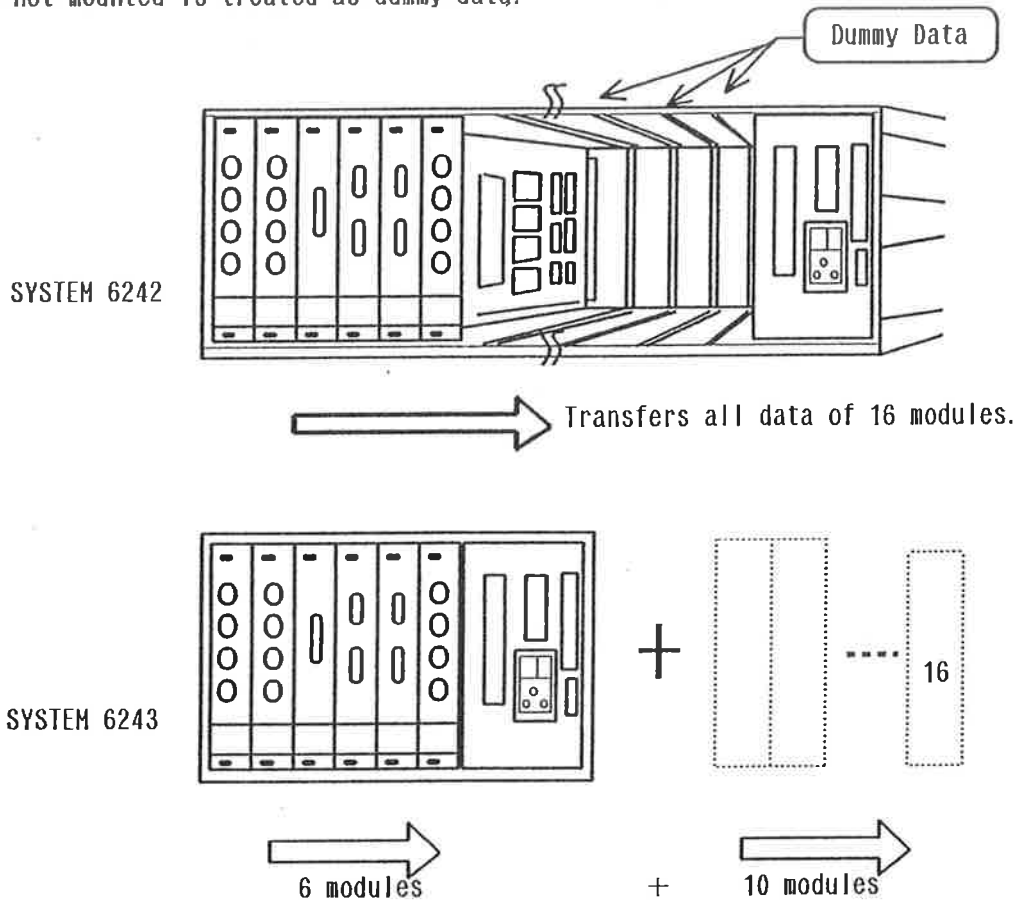
◆ System 6243 can accommodate only 6 modules, but transfers data as 16 modules, as with System 6242.

◆ The sampling interval to be set is constant irrespective of the number of systems (cascade-connected), the number of modules to be mounted, module types, and system models (Systems 6242/6243).

Sampling interval = $T \times 0.1$ (sec)　(T : can be set between 1 and 65,535)

Min. set sampling interval :0.1 sec(T=1)　Data is transferred every 0.1 sec.

```
                    (M-01)      [V]
            CH 1 →   V1   12.5   m/s        ☆For Module V, specify a
               2 →   V2   13.8   m/s          channel for each probe.
(Module V)     3 →   V3   12.9   m/s
               4 →   V4   11.4   m/s
```

```
                    (M-02)      [VT]
            CH 5 →   V1   12.6   m/s        ☆For Module VT, specify A
               6 →   T1   24.8   ℃           channel for a single probe
(Module VT)    7 →   V2   11.8   m/s          to measure both velocity and
               8 →   T1   25.3   ℃           temperature.
```

```
                    (M-03)      [VTH]
            CH 9 →   V    12.6   m/s        ☆For Module VTH, specify a
              10 →   T    25.3   ℃            separate channel for a single
(Module VTH)  11 →   H    43.7   %RH          probe to measure velocity,
              12 →                            temperature and humidity.
                                              Channel 4 will be a dummy CH.
```

◆ Delimits the output scope from which channel to which channel, and then outputs.
For example, Channels 5 to 16 can be specified for output.

◆ The sampling interval is constant irrespective of the number of channels to be specified, etc. as with the burst mode. (i.e, T × 0.1 second, T:1～65,535, see P.29.)

◆ For data transfer, the instantaneous value mode and the average value mode are available. (See Pages 34 & 35)

◆ The module Nos. correspond to the channel Nos. and they are fixed. To specify the channels for data output, see the tabel below. When two or more systems are to be connected, specify the channels as 1 to 64 channels of System N.(See Page 37)

MODULE	CH				MODULE	CH			
M-01	1	2	3	4	M-09	33	34	35	36
M-02	5	6	7	8	M-10	37	38	39	40
M-03	9	10	11	12	M-11	41	42	43	44
M-04	13	14	15	16	M-12	45	46	47	48
M-05	17	18	19	20	M-13	49	50	51	52
M-06	21	22	23	24	M-14	53	54	55	56
M-07	25	26	27	28	M-15	57	58	59	60
M-08	29	30	31	32	M-16	61	62	63	64

※ Module VT : V1‥CH1, T1‥CH2, V2‥CH3, T2‥CH4 (V and T are counted as separate channels.)
※ Module VTH : V‥CH1, T‥CH2, H‥CH3, *‥CH4 (Counted as 4 channels)
※ Even if a certain module is not mounted, its corresponding channel NO. remains unchanged.

OUTPUT FORMAT (1) BURST MODE

◆ One data set of each channel has 4 digits.

◆ One record (a separation of a series of data) consists of 32 data sets (for 32 channels), and CR OR CR/LF is transferred every 32 data sets, namely every eight modules.

◆ A signale module consists of 4 data sets (for 4 channels). Therefore, for the module VTH (air velocity, temperature and humidity), the forth data set will be a dummy data set .

(4 digits)

####$$$$&&&&****####$$$$&&&&**** ················· ####$$

CH 1   CH 2   CH 3   CH 4   CH 5   CH 6   CH 7   CH 8   CH N

Module 1   Module 2
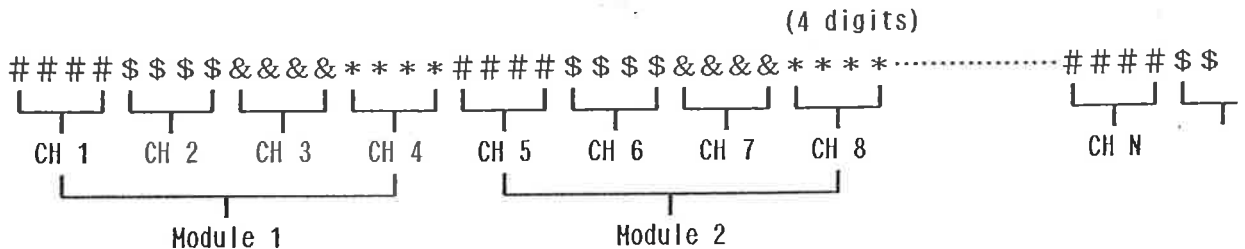
★★★ Both the systems 6242/6243 have the same output format. ★★★

(1)System 6242

| Module 1 | Module 2 | ···················· | Module 8 | CR LF |

| Module 2 | Module 2 | ···················· | Module 16 | CR LF |

| ／ CR LF | ← Data transfer ends (3 characters)
(※ Indicates end of 1st transfer of all data.)

3 characters

(2)System 6243

| Module 1 | Module 2 |····· | Module 6 |····· | Module 8 | CRLF | ··· | Module 16 | CR LF | ／ CR LF |

Dummy data (0000)   2 characters
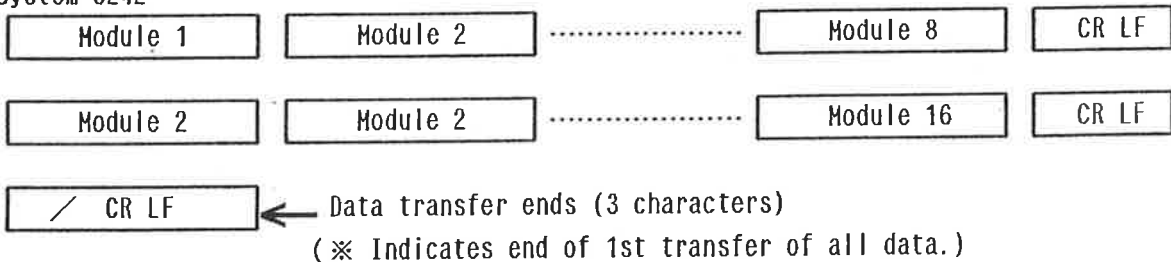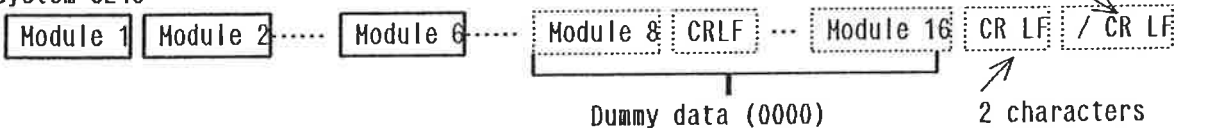
※ Even if all the modules are not mounted, data for up to 16 modules will be output. If any module NO. or channel is missing, dummy data (0000 or ****) for the missing portion will be transferred.

※ The system 6243 can accommodate 6 modules, and data for Modules 7 to 16 will be handled as dummy data.

※ When more than two system are used, the data [/ CR LF] is transferred after the data of the last system is transferred.

◆ Module V (Air velocity : 4 channels)

Module··· M－O1 M－O2 M－8

Channel ···CH 1   CH 2   CH 3   ·CH 4   CH 5   CH 6   CH32

output···1 2 5 0 0 2 3 5 2 0 6 0 0 5 8 2 1 4 6 0 1 7 5 0   3 4 1 0 CR LF

(m/s) (m/s) (m/s) (m/s)

└─ decimal poit

| 12.5m/s | 2.35m/s | 20.6m/s | 5.82m/s | 14.6m/s | 17.5m/s |
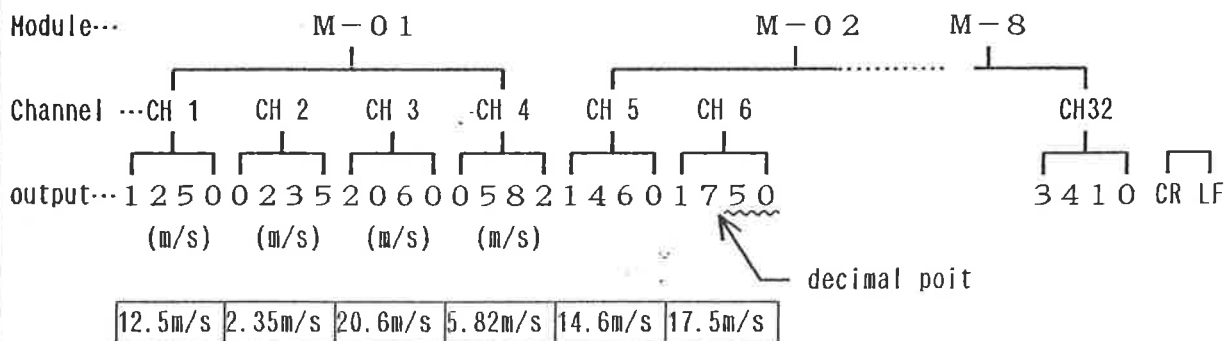
◆ Module VT (Air velocity and temperature : 2 channels each)

Module··· M－O3

Channel ···CH 9   CH10   CH11   CH12

output···1 7 5 0 0 2 7 5 0 5 6 5 0 0 9 8

(m/s) (℃) (m/s) (℃)

└─decimal poit

| 17.5m/s | 27.5 ℃ | 5.65m/s | 9.8 ℃ |
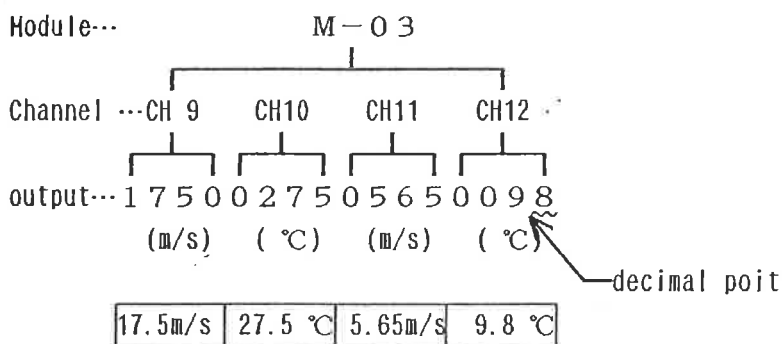
◆ Module VTH (Air velocity, temperature
and humidity : 1 channel each)

Module··· M－O4

Channel ···CH13   CH14   CH15   CH16

output···1 7 5 0 0 2 7 5 0 4 6 5 0 0 0 0

(m/s) (℃) (%RH)

└─ decimal poit

| 17.5m/s | 27.5 ℃ | 46.5%RH | 0000 |
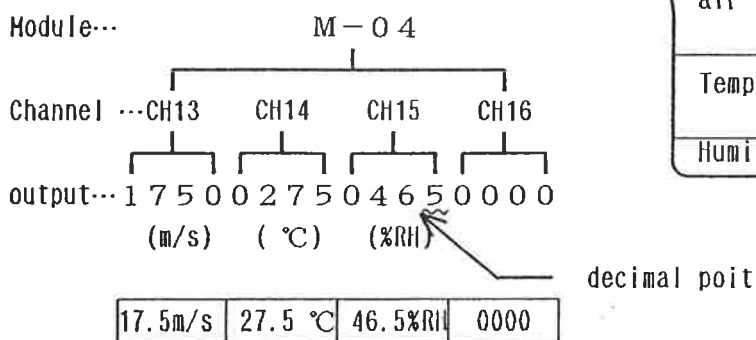
	Resolution	
air Velocity	0 ～9.99m/s	0.01m/s
	10.0～50.0m/s	0.1 m/s
Temperature	0.0～99.9℃	0.1 ℃
	100℃～	1.0 ℃
Humidity	0 ～99.9%RH	0.1 %RH

Check of [CRLF]								END
M-01	M-02	··········	M-08	CRLF	··········	M-16	CR LF	/ CR LF
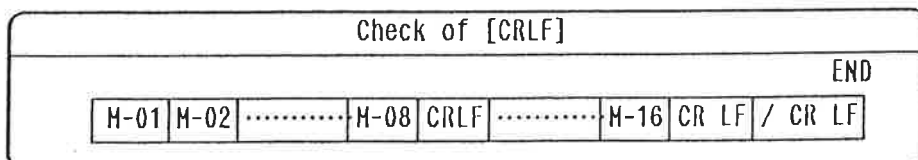
OUTPUT FORMAT (2) CHANNEL NODE

◆ Outputs measured values for the specified channel. For channel numbers, see "Description of Measurement Mode " (P.30). (Check these channel numbers using the table which shows the relationship between the modules in the channel mode and the channel numbers.)

◆ Outputs data in the following format.

```
System NO.(1 ~5 )                     Is transferred on a channel basis.

             U   XX  ####   CR LF

    Channel NO.              Data ( in 4 digits )
```

```
         (N) CH              (N+1) CH                    (N+n) CH          END
   U X X # # # # CR LF   U X X $ $ $ $ CR LF ············ U X X $ $ $ $ CR LF   / CR LF
```
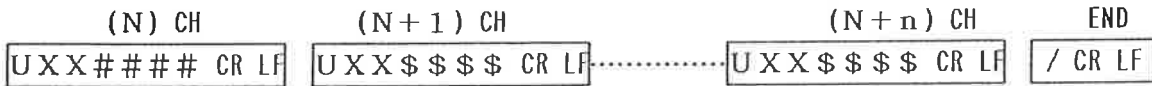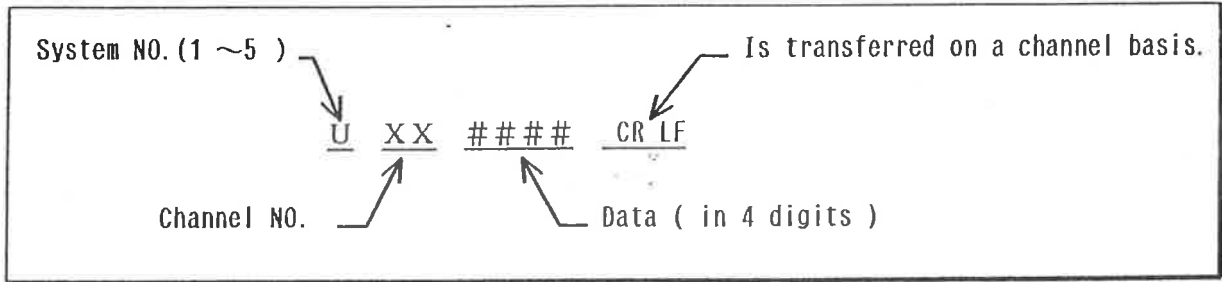
[Example]··· 1 system, Module V, and 5 to 16 output channels

```
    (CH 5)              (CH 6)                       (CH 16 )
  1 0 5 1 2 9 0 CR LF  1 0 6 1 1 7 0 CR LF ············ 1 1 6 0 9 8 5 CR LF   / CR LF

            12.9m/s            11.7m/s              9.85m/s
       Channel NO.
     System NO.(1)
```
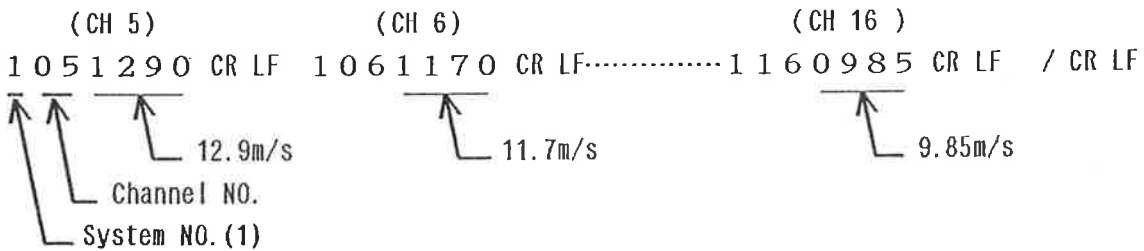
Screen display during data transmission

※ The screen shown in the figure on the right is displayed during data transmission (the screen being the same for both the burst and channel modes.)

※ Completing the data transmission returns to the original screen.

※ No operation keys function during transmission.

Selected measurement mode is displayed.

```
         REMOTE

    A l l   U n i t − 1
    T h i s   U n i t − 1
    [BURST  MODE]

    ·········TRANSMIT·········
```
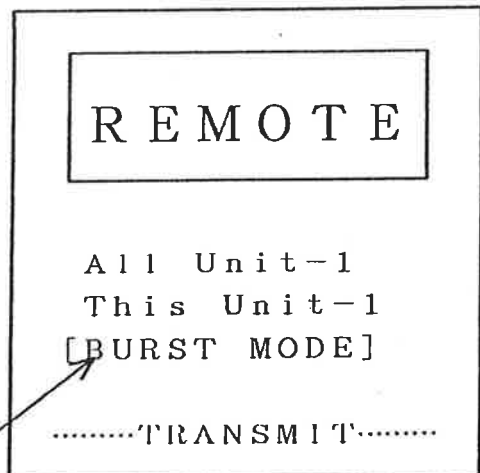
TIMING CHART FOR DATA READING

Instantaneous Value Mode
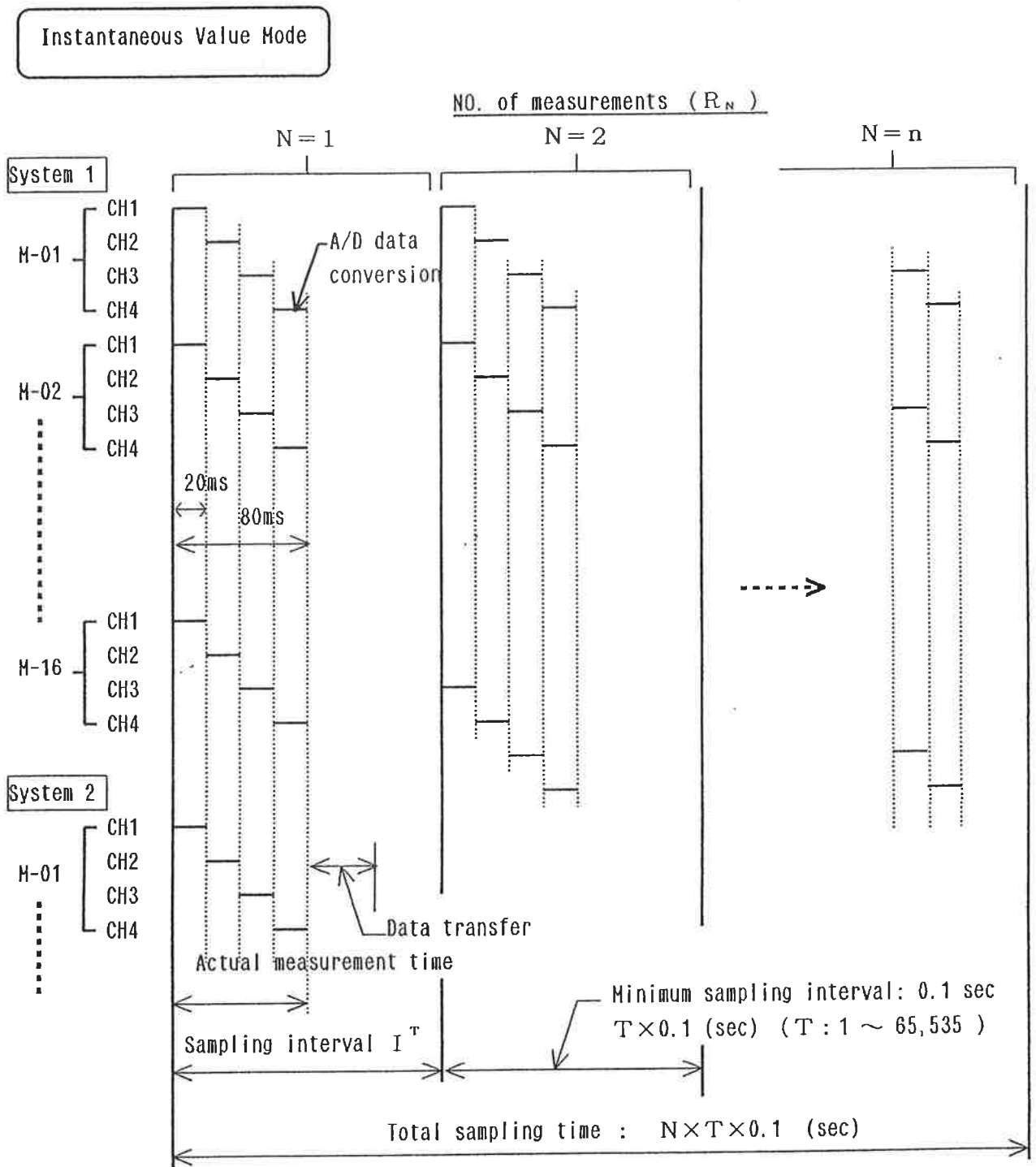
◆ Data of Channel 1 for each module is simultaneously A/D converted, and completing A/D data conversion for Channel 4 starts data transmission. The minimum sampling interval is 0.1 second. When a longer sampling interval is set, the system performs data transmission and waits until subsequent measurement is initiated.

◆ The data transfer time depends on the set baud rate, the number of systems, etc.

| Average Value Mode | ···Active only in the channel mode. (not available in the burst mode) |

NO. of measurements (R N)

N=1   2   N

1

NO. of data read- 2
ing of all channel .

0.1sec.
fixed

Data of all channels
— CH1 CH2
— — CH3 CH4

T

Sampling interval I T
(MIN. sampling interval: o.1 second

Total sampling time N×T×0.1 (sec)   (T : 1 〜 65,535)

Output data   ······ (A V E 1)   (A V E 2)   (A V E N)
(average value)
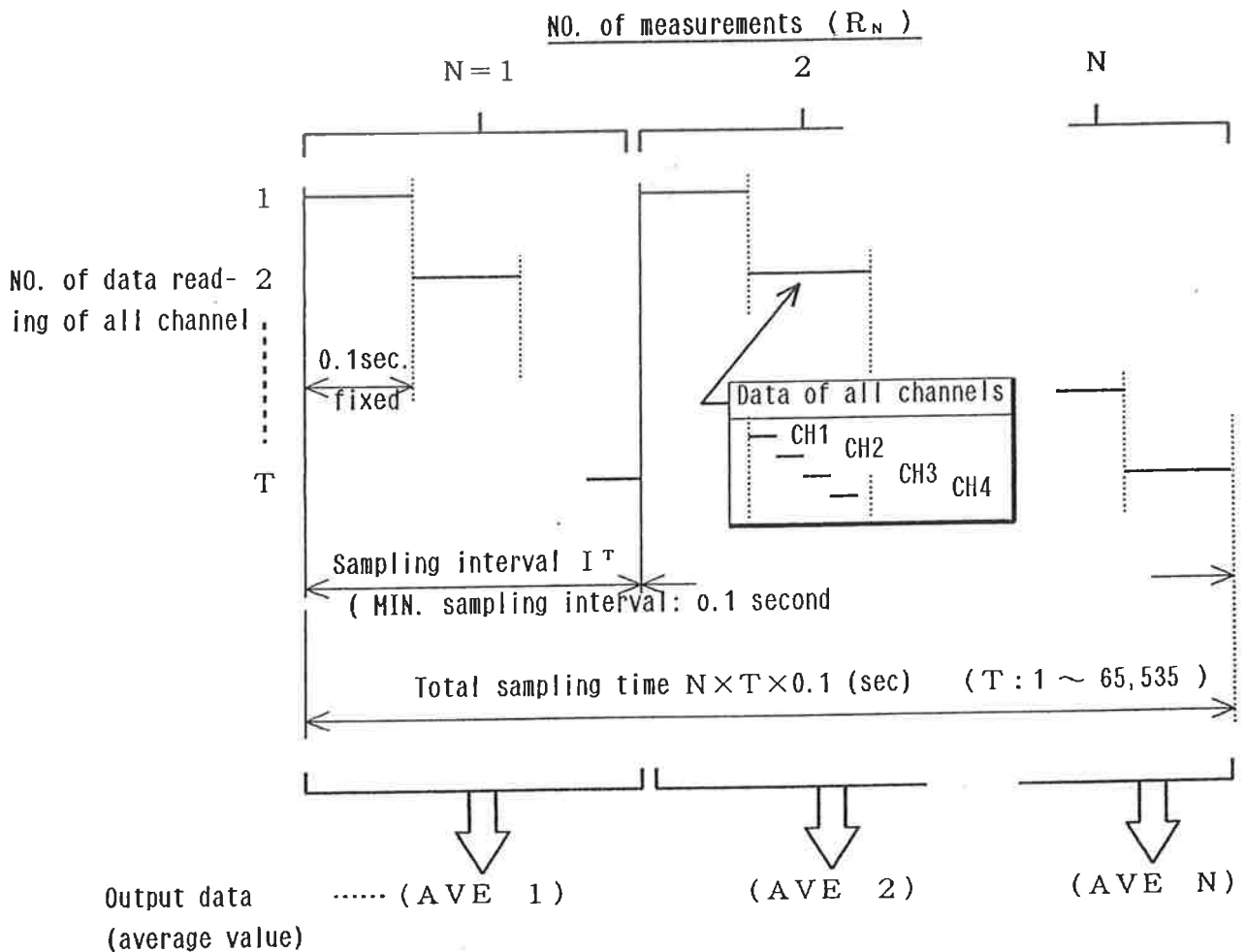
◆ Duaring the set sampling interval, the channel mode allows reading all
  data for the specified channel every 0.1 second to output the average
  value.
  [Example] For 10 seconds of sampling interval, data is read every 0.1
            second a total of 100 times, and its average value is output
            every 10 seconds.

◆ The minimum sampling interval is 0.1 second, and when it is set at 0.1
  sec., data is read only one time, thus giving the value that is equiva-
  lent to the instantaneous value.

DESCRIPTION ON COMMANDS
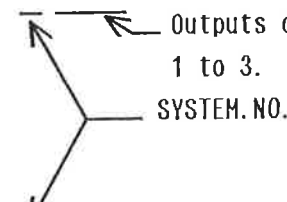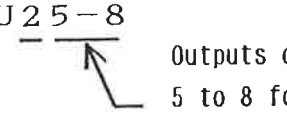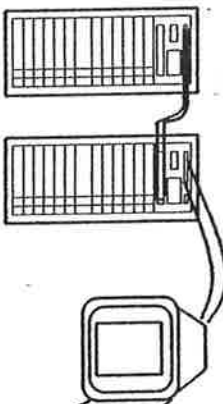
Remote Mode

Function	Comand	Description
Remote Execute (OPEN)	@ (CR/LF)	Selects the remote mode. ※[REMOTE] is displayed on the screen, disabling the key operation. After data transmission the following two comands are returned. @1(CR/LF) @X(CR/LF) X; 1～5 (NO. of systems) └─OK ! └─NO. of systems connected When abnormal data transmission takes place, the signal E(CR/LF) is returned.
Remote Cancel (CLOSE)	L (CR/LF)	Returns to the original measurement screen (local mode). Ends receive of communication command, disabling key operation. ※ The set values are still stored even after the local mode is restored unless the main switch is turned off. Turning off power returns to the initialization state.

Starting Measurement

Function	Comand	Description
Measurement start	S (CR/LF)	Starts measurement and outputs measured values. Before starting measurement, be sure to set the output mode, number of measurements and sampling interval. If they are not yet set, measurement is started with the following settings being as defaults. Initial setting: <table><tr><td>Output mode</td><td>Burst mode</td></tr><tr><td>NO. of measurements</td><td>one</td></tr><tr><td>Sampling interval</td><td>0.1 second</td></tr></table>

Measure Mode Selection

	Function	Comand	Description
B U R S T	Burst mode selection	B (CR/LF)	Outputs all channel data at time.
	End setting	Hxx (CR/LF)	Can specify an end channel when in the burst mode. [EX.] H 1 2 : Indicates that measurement ends at channel 12.
C H A N N E L	Channel mode selection	C (CR/LF)	Outputs data of a specific channel only.
	Scope of selection	Unxx-xx (CR/LF)	Delimits channels of which data is to be output. [EX.1] U 1 1－3 Outputs data of channels 1 to 3. SYSTEM.NO. 1 for system 1 / 2 for system 2 and likewise [EX.2] U 2 5－8 Outputs data of channels 5 to 8 for system NO.2. (System NO.2)··· (System no.1)··· For cascade connection which allows connection of more than two systems, see Chapter 5.
	Clear	X (CR/LF)	Initializes the channels (U11-1). ※ To delimit the scope, be sure to transfer this CLEAR command first. [EX.] X (CR/LF) U 1 1－3 (CR/LF) ※ Performing no CLEAR command overlaps the newly selected scope with previous ones.

Function	Comand	Description
Average value mode	M (CR/LF)	Active only in the channel mode. ◆Reads data every 0.1 second and averagesdata every set sampling interval for subsequent output. ☞ P35
Instantaneous Value Mode	N (CR/LF)	Active in both the burst and channel modes. ◆Outputs data of instantaneous values every set sampling interval. ☞ P34

Setting the Measurement Conditions

Function	Comand	Description
NO. of measurements	R_N (CR/LF)	Repeats measurements 12 times if set at R12. (1 ~64CH) ×N Where, N:number of repetitions. The setting range (N): 1~ 65,535
Setting a sampling interval	I_T (CR/LF)	Sets what time interval at which measurement is conducted for all channels. ※The sampling interval is constant irrespective of the number of modules, modules models and the number of system. Settable sampling interval: $T*0.1$ sec. (T ; Can be set between 1 and 65,535.) [EX.] Setting at I10 allows data to be output every 1 second. 10×0.1 sec. ↗ The total sampling time is determined to be (N*T*0.1) seconds.

Function	Comand	Description

Module transmission	K (CR/LF)	Displays modules mounted.
		
		Transmitting the command "K" returns a 32-byte character string.
		The number consisting of each two bytes from the beginning of a 32-byte character string shows the corresponding module model.
		    Module 1 ; 2 bytes
		    Module 2 ; 32 bytes
		
		※Both the systems (6242/6243) have a 32-byte character string returned.
		
		O··· NO module mounted
		1···Module V (MODEL 1504)
		3···Module VT (MODEL 1511)
		4···Module VTH(MODEL 1512)

[Example]

Module 1   Module 16

0 1 0 1 0 2 0 3 0 4 0 1 0 0 0 1 0 3 0 4 ·········· O 1 CRLF

Module VTH
Module VT
Module V

SETTING THE DELIMITER(CR, CR/LF)

Delimiter	SW1 4
CR/LF	ON
CR	OFF

Set at ON before
delivery (CR)

[shaded box] ---Switch
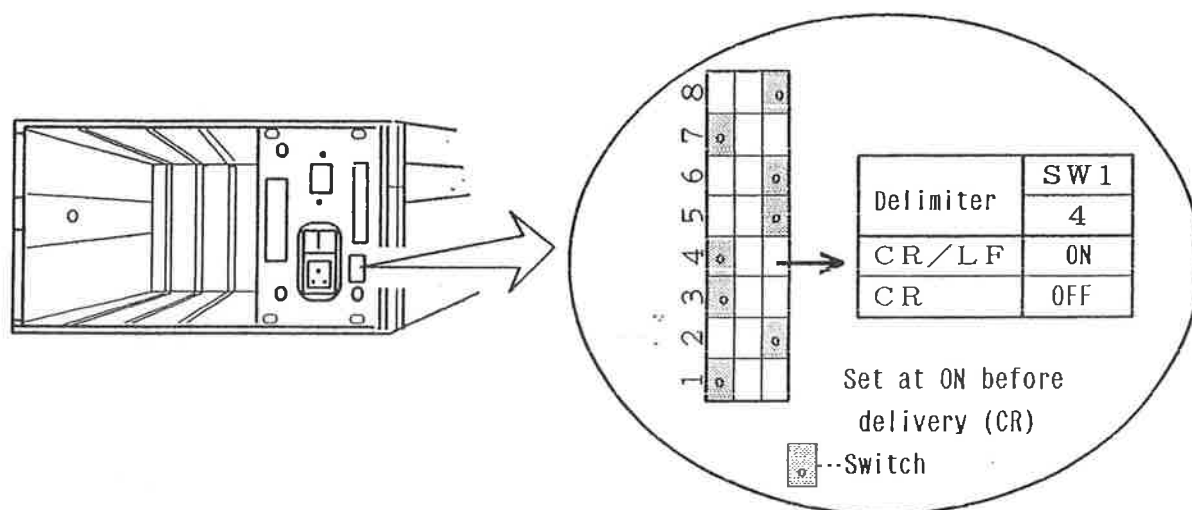
◆ In data communication between the system(s) and a host computer, the following types of delimiters are used to indicate the end of a record (of every 32 channels).

(1) The delimiter used to send a command to the system(S) from the host computer is CR(ODH) or CR(ODH)/LF(OAH).

    [Example] ···@ (C R)　C (C R)　　I 3 0 0 (C R／L F)

(2) To input two or more commands in succession, use ";".

    [Example] ···C ; I 5 0 ; R 1 0 0 ; U 1 1 － 6 4 (C R／L F)

    ※ 20 characters is the maximum number that can be input in succession at this occasion, but use only the remote command (@) independently.
    ※ Do not input other commands continuously after the measurement start command (S) or the remote cancel command (L).
    ※ If other characters than CR and CR/LF exist after either S or L, an error flag is output, followed by measurement start or by returning to the local mode (normal sampling screen), neglecting the subsequent commands.

(3) An error flag or a measurement data delimiter transferred to the host computer from the system (S) can be set by either CR or CR/LF. Set the SW1-4 in accordance with the above table.

ERROR FLAG(RETURN CODE)

(1)	@1 (CR/LF)	This flag is output only when the remote command is executed, indicating that normal communication has been done.
(2)	@X (CR/LF)	This is a flag which is output subsequent to the above "@1" (CR/LF)", indicating that how many systems are connected to a host computer. [Example]··· @1 (CR/LF) @4 (CR/LF) This example shows that 4 systems are connected to a host computer.
(3)	E (CR/LF)	This is output when an input command is wrong, executing no command. When the remote command (@) is wrong (as in the cases where @ is followed by other characters than CR or CR/LF), the system is reset to the local mode, and if there is an error taking place in that process, the commands up to the delimiter just before the error are normally received.
(4)	A (CR/LF)	Indicates that input of commands other than (@) has been normally received.
(5)	/ (CR/LF)	This is a send end flag of measurement data. Using this flag a measurement end signal and a data send end signal are sent to a host computer.
(6)	F/ (CR/LF)	A memory-full flag. When a sampling interval is shorter than the data send time, the system stops measurement when the memory buffer has become full (i.e. with 100 data sets), sends data of the buffer, then outputs this flag.

※ These flags are returned on a command basis, and should be read by a host computer for identification of each error flag.

※ If they are not read by a host computer, the host computer may be put in a standby state depending on the type of host computer used. As a result the computer may be locked.

COMMAND INPUT PROCEDURE

```
                          ╭─────────────╮
                          │ Remote Mode │
                          ╰──────┬──────╯
                                 │
          ┌──────────────┐   ╱─────────────────╱
          │   Looping    │  ╱  Outputs @ CR/LF ╱
          │ for abt. 2 sec.│ ╱─────────────────╱
          └──────────────┘       │
                              ╱─────────────────╱
                             ╱  Inputs error flag ╱
                    "E"     ╱─────────────────╱
                              ◇ Judges flag ◇
                                    │ "@1"
                             ╱─────────────────────╱
                            ╱ Reads least significant ╱
                           ╱   flag of system        ╱
                                    │
                             ╱─────────────────╱
                            ╱  Outputs command ╱
                                    │
                             ╱─────────────────╱
                            ╱  Inputs error flag ╱
                    "E"           │
                              ◇ Judges flag ◇
                                    │ "A"
                             ╱─────────────────╱
                            ╱ Outputs start command ╱
                                    │
                             ╱─────────────────╱
                            ╱  Inputs error flag ╱
                                    │
                             ╱─────────────────╱
                            ╱   Inputs data    ╱
                                    │
                              ◇ Ends flag ◇
                                    │ "/" or "F/"
                          ┌───────────────────┐
                          │  Data processing  │
                          └───────────────────┘
```

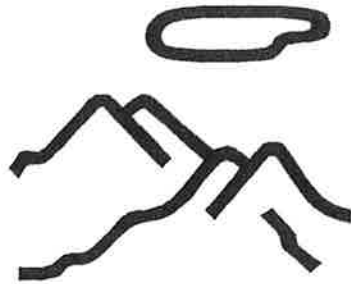| Program	Description
`100  OPEN "COM1:N81" AS #1`	Open command

`110  A$=" @" : GOxUB  230`
`120  GOSUB  280`
`130  A$=" B" : GOSUB  230`
`140  A$=" S" : GOSUB  230`
	Selects the remote mode
	
	Selects the burst mode
	Starting measurement

`150  GOSUB  280 : C$=AA$ ⌐`
`160  GOSUB  280 : D$=AA$  ├─ Data sampling`
`170  GOSUB  280 : E$=AA$ ⌐`
	Data (1 to 32 Channels)
	DAta (33 to 64 channels)
	╱

`180  PRINT  "C$=" ; C$ ⌐`
`190  PRINT  "D$=" ; D$  ├─ Data indication`
`200  PRINT  "E$=" ; E$ ⌐`
	Data (1 to 32 Channels)
	DAta (33 to 64 channels)
	╱

`210  CLOSE  #1` `220  END`	Close command

`230     ** SUBROUTINE COMMAD TRANSMISSION *`
`240  PRINT #1, A$`
`250  GOSUB  280`
`260  IF  AA$=" E"  THEN  GOTO  220`
`270  RETURN`	

`280     ** SUBROUTIN INPUT A LINE **`
`290  AA$=" "`
`300  B$=INPUT$(1,1)`
`310  IF  B$=" " THEN  GOTO  220`
`320  IF  B$=CHR$(13)  THEN  GOTO  360`
`330  IF  B$=CHR$(10)  THEN  GOTO  300`
`340  AA$=AA$+B$`
`350  GOTO  300`
`360  RETURN`	

MEMO

TABLE OF CONTENTS-CHAPTER 5

```
┌─────────────────────────────────────┐
│              OPTIONS                 │
└─────────────────────────────────────┘
```

※ Setting to the old type (System 6241), please remove this jumper pin.

10, 9

2, 1

DAI

Use the same address setting as that of the corresponding module
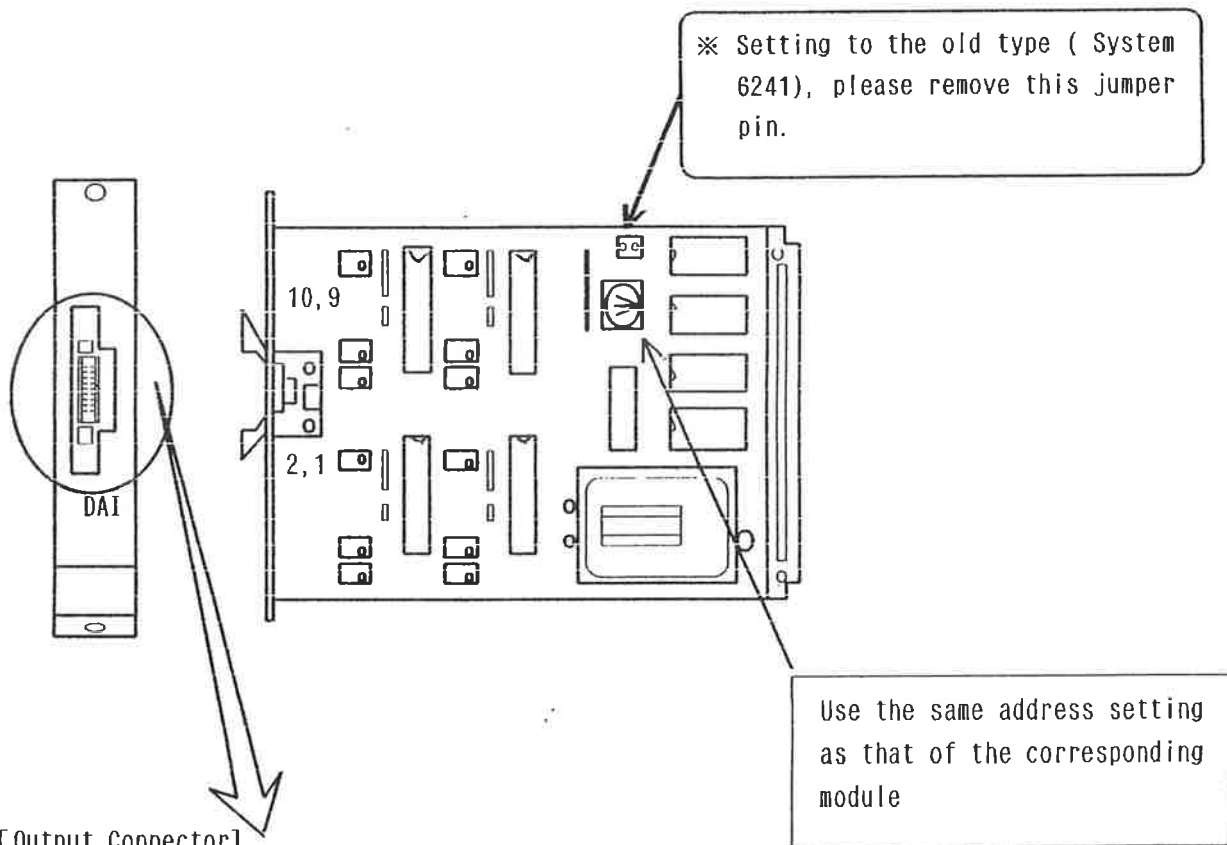
[Output Connector]

PIN NO	SIGNAL		PIN NO	SIGNAL	
1	CH 1		2	CH 1	
3	CH 2	OUTPUT	4	CH 2	GND
5	CH 3		6	CH 3	
7	CH 4		8	CH 4	
9	NC		1 0	NC	

[Output Cable]

PIN NO		Cable color	SIGNAL	
1	Upper	Red	CH 1	OUTPUT
	Lower	Black		GND
2	Upper	White	CH 2	OUTPUT
	Lower	Green		GND
3	Upper	Red	CH 3	OUTPUT
	Lower	Black		GND
4	Upper	White	CH 4	OUTPUT
	Lower	Green		GND

1 2 3 4 5

10-pin connector cable side

4-core cable*2
(1.5 m long)

10-pin connector

Clip-type terminals

New type D/A module (MODEL 1510)

Same address?

Measurement Module
(V, VT, or VTII)

Old type D/A module (DAI-1A)
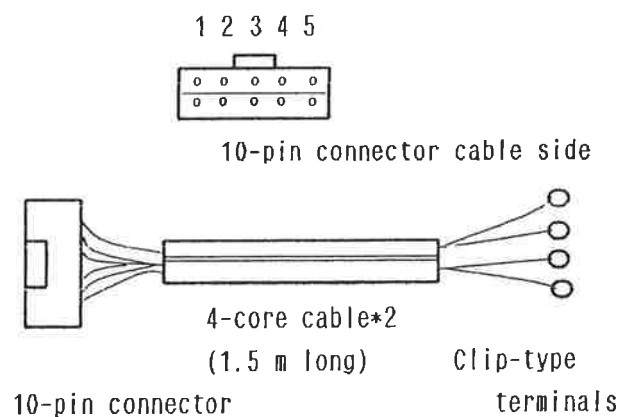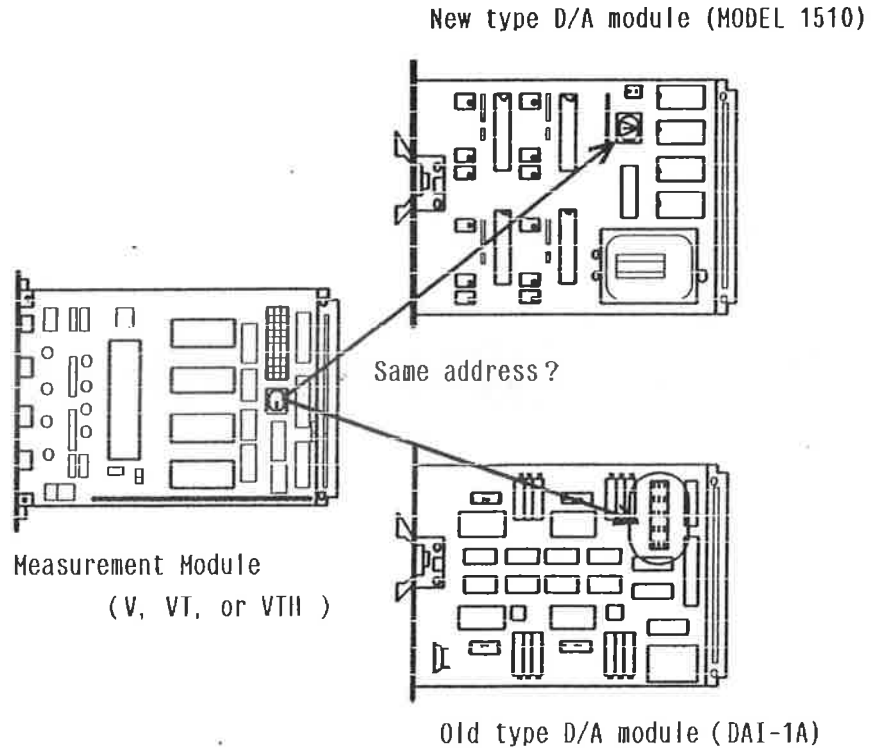
[Using the old type analog module (Model DAI-1A)]

◆Prior to mounting the analog modules, be sure to address them. Never operate other jumper pins than those for addressing.

◆The addressing jumper pins(A7 ～A15) are fixed. So never operate them.

Jumper pins

		Addressing (Use the same addresses as those of the measuring module to be output.)																Jumper pins 1 0
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	A15 ∖ o
A 1 5																		A14 o
⟨		Fixed (A15 ～A12, A10 ··· 1 A11, A9 ～A7···0)																A13 o
																		A12 o
A 7																		A11 o
A 6		0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	A10 o
A 5		0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1	A9 o
A 4		0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	A8 o
A 3		0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	A7 o
																		A6 o
																		A5 o
																		A4 o
																		A3 o

Jumper pin

[Ex.] Analog module···M-03
(Address ···02)

[S W 1]

Setting of the analog
output range

[image: switch icon] : Switch
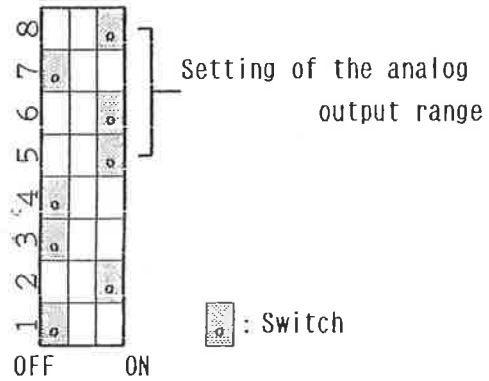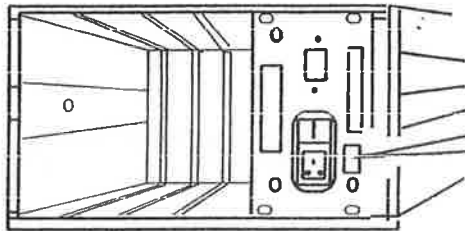
OFF   ON

Air velocity	S W 1	
range	5	6
0 ~ 2 m/s	OFF	OFF
0 ~10 m/s	ON	OFF
0 ~25 m/s	OFF	ON
0 ~50 m/s	ON	ON

temperature	S W 1	
range	7	8
0 ~500 ℃	OFF	OFF
0 ~200 ℃	ON	OFF
0 ~100 ℃	OFF	ON
-50~50 ℃	ON	ON

◆Set at the range of 0 ~50 m/s
　　　before delivery

◆Set at the range of 0 ~100 ℃
　　　before delivery

◆Output voltage···Outputs 0 ~ 5V linearly for each set range as can be seen from the
　　　　　following example.
　　　　　[EX.] ··· For the air velocity range of 0~10 m/s, 0V forexample is
　　　　　　　　output for 0 m/s and 5V for 10 m/s on a linear basis.

◆Resolution········Is indicated with respect to full scale in voltage per m/s.

　　　　　[EX.] ···Range 0 ~ 2 m/s : 5V / 200 = 25mv ／ cm/s
　　　　　　　　Range 0 ~10 m/s : 5V / 1000 = 5mv ／ cm/s
　　　　　　　　Range 0 ~50 m/s : 5v / 5000 = 1mv ／ cm/s
　　　　(However, in order to accommodate display resolution, the resolution
　　　　　for air velocities of more than 10 m/s will be indicated on the basis
　　　　　of 10mV / 10cm/s.
◆Conversion rate ···Constantly outputs data for each channel every 0.1 second.

Analog Module

※The measurement modules and analog modules
 are the same in quantity.

※Max. number of modules that can be mounted
 in a single.

> System 6242: 8 modules
> System 6243:16 modules

To be same in quantity
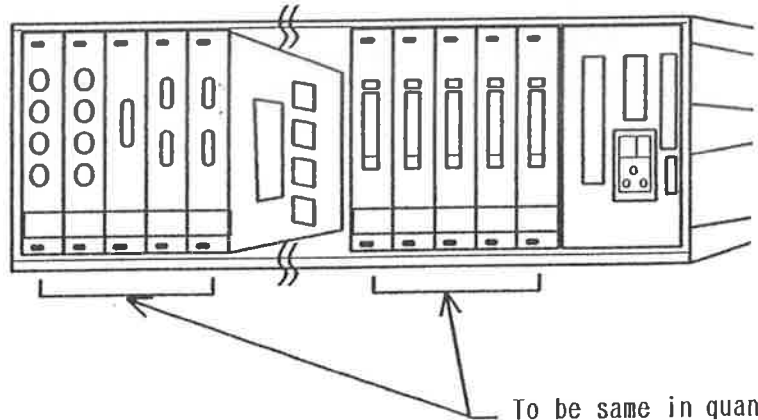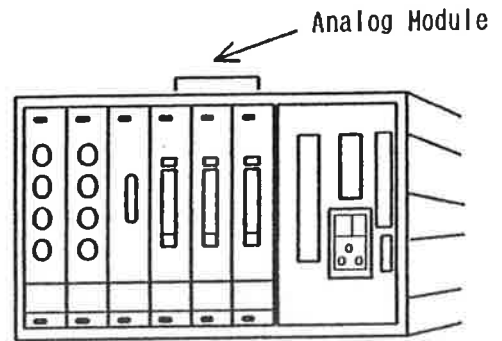
[Output of Each Channel]

	V	V T	V T H
C H 1	V1	V1	V
2	V2	T1	T
3	V3	V2	H
4	V4	T2	*

For the module VTH, Channel 4 has
an output of 0V.

MEMO

CASCADE CONNECTION (Extended RS-232C)

Extended RS-232C (B) (D-SUB 9 pin)	
Pin NO.	Signal name
1	F G
2	R X D
3	T X D
4	C T S
5	R T S
6	
7	G N D
8 〳 14	N C

(5)

Connectable up to
5 systems

(2)

(1)

CRT

ホストコンピュータ

Extended RS-232C(B)
(optional)

Standard RS-232C (A)

Host computer	→	Standard RS-232C (A)	Standard RS-232C (A)	.....	Standard RS-232C (A)
		Extended RS-232C(B)	Extended RS-232C(B)		
		System 1	System 2		System 5
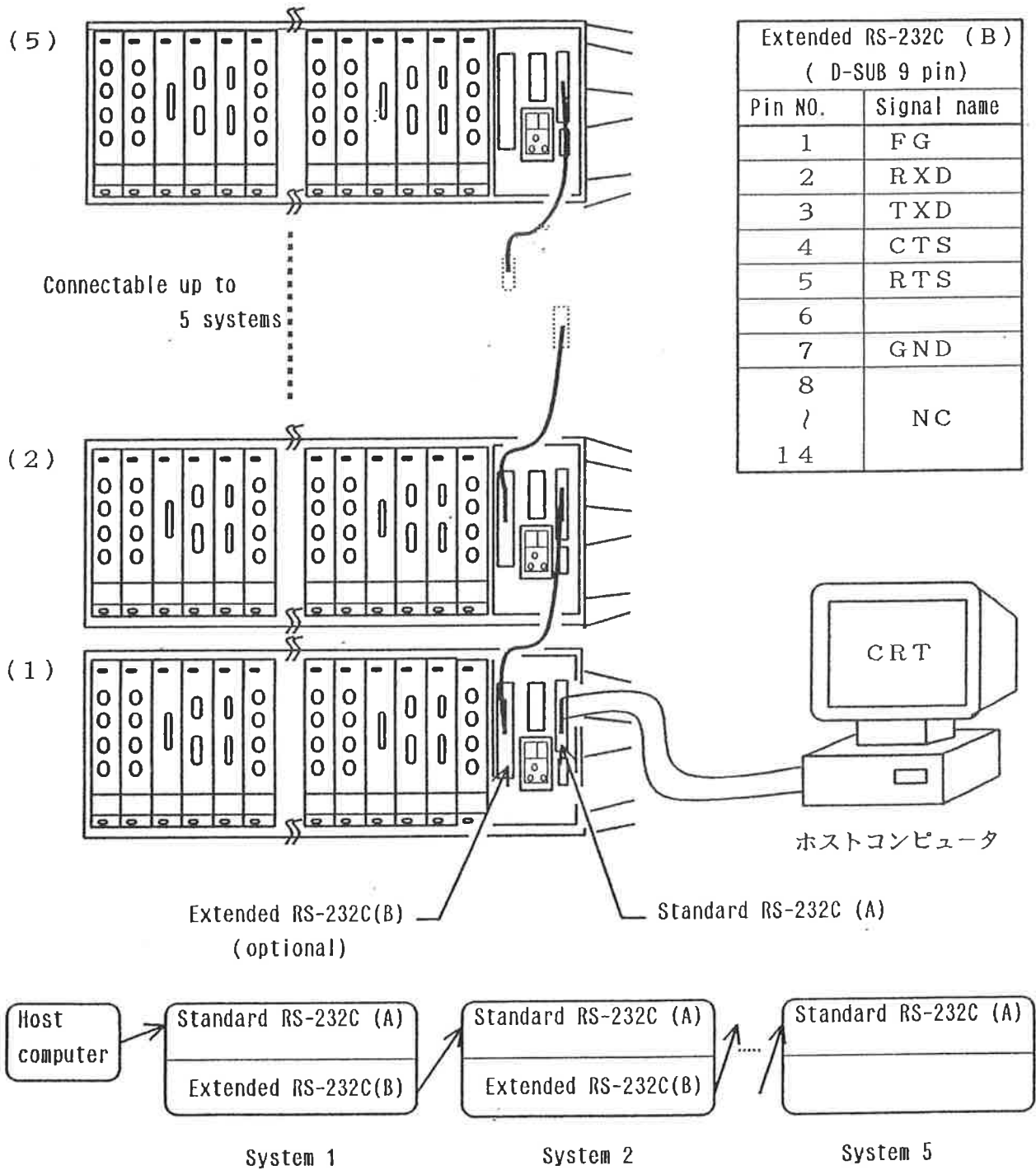
※ Sampling conditions (such as sampling interval) applicable during data transmission are the same irrespective of the number of systems connected.

※ In place of an extended RS-232C, GP-IB(optional) can also be mounted. So, either of them should be selected. For information about the GP-IB, see the following.

GP-IB INTERFACE (Either GP-IB or extended RS-232C should be selected.)

(N)

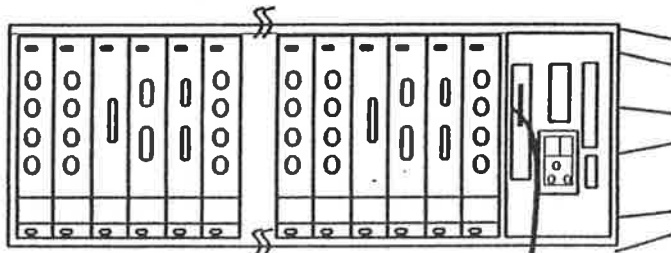◆ When connecting two or more systems together, connect them as shown in the figure below.

To System 3

System 2

(2)

System 1

(1)

CRT

Host Computer

Host Computer

System 1   SySTEM 2   ···········   System N

Address   [0]   [1]   [2]   [N]
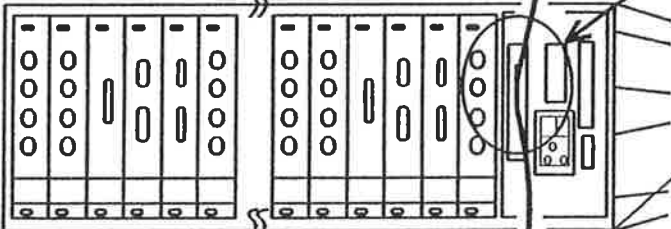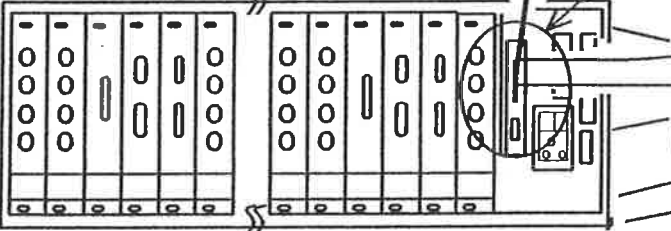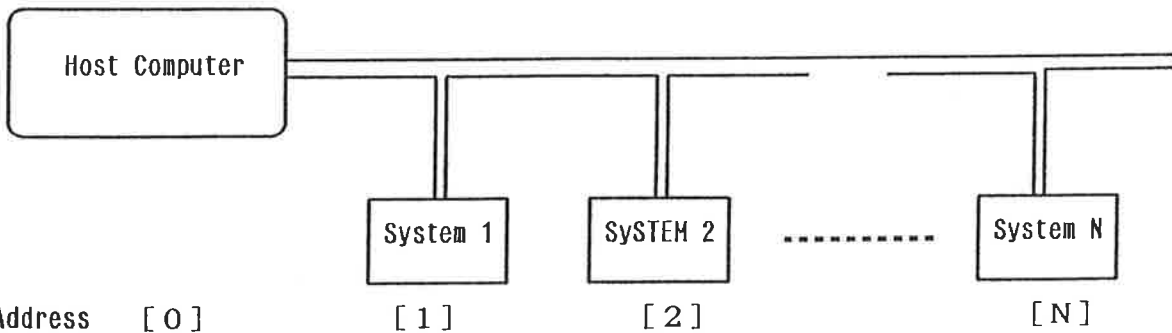
※It is necessary to address each connected system. Calling a specific system NO. transfers its data to the host computer.

G P — I B
(S W 2)

D_0	1	13	D_4
D_1	2	14	D_5
D_2	3	15	D_6
D_3	4	16	D_7
EOI	5	17	REN
DAV	6	18	GND
NRFD	7	19	GND
NDAC	8	20	GND
IFC	9	21	GND
SRQ	10	22	GND
ATN	11	23	GND
FG	12	24	GND

[SW 2] ⋯ Addressing Switch

Not used

▓ : Switch

OFF   ON   (addressed at 1 before delivery)
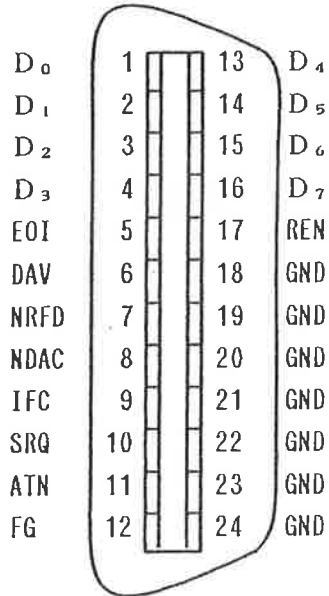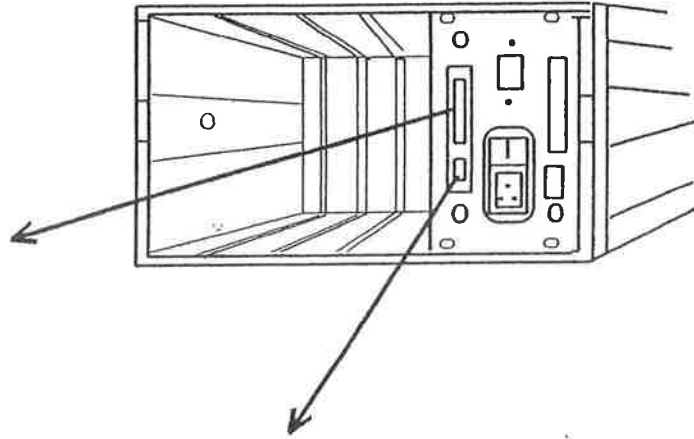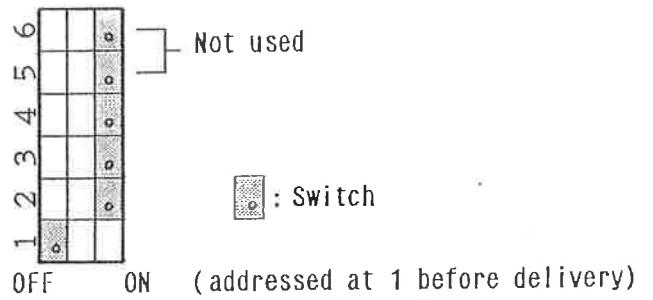
Addressing

Address	SW 2			
	1	2	3	4
* 0	ON	ON	ON	ON
1	OFF	ON	ON	ON
2	ON	OFF	ON	ON
3	OFF	OFF	ON	ON
4	ON	ON	OFF	ON
5	OFF	ON	OFF	ON
6	ON	OFF	OFF	ON
7	OFF	OFF	OFF	ON

Address	SW 2			
	1	2	3	4
8	ON	ON	ON	OFF
9	OFF	ON	ON	OFF
10	ON	OFF	ON	OFF
11	OFF	OFF	ON	OFF
12	ON	ON	OFF	OFF
13	OFF	ON	OFF	OFF
14	ON	OFF	OFF	OFF
15	OFF	OFF	OFF	OFF

Note: As the address " 0 " is often already set at a host computer, do not use it in the
systems (6242/6243) .

◆ Basically these commands are the same as those of output format and the commands for RS-232C. In addition to them these are also the following commands peculiar to the GP-IB.

Added Commands	
P (CR/LF)	Returns an SQR command upon completion of measurement after the command "S" (measurement start) is received.
G (CR/LF)	Putting the system in the G mode returns no SRQ command even after the measurement is completed.

※ In general the G mode and the P mode are respectively used for short and long sampling intervals. Each time a single measurement is completed, an SRQ command is received to allow the system to waite for the next measurement process.

※ When power is turned on, the system is put in the P mode.

Y (CR/LF)	Channel Mode : Clears the command TAD (talker address) each time data for one channel is sent. Burst Mode : Clears TAD every 32 channels.
T (CR/LF)	Does not clear TAD irrespective of communication mode (channel mode or burst mode), but retains this TAD command until IFC, UNT or MLA is received.

※ A TAD command must be sent each time the system reads data for one channel when in the channel mode, or data for 32 channels when in the burst mode.

※ After power is turned on, the system is in the Y mode.

Change of Error Frag(Return Code)

On GP-IB interface, error codes "@1 ", "@X", "E", "A" of RS-232C interface are not returned. Instead of that, SQR is sent out and it transmits an occurrence of an error to contoroller. "/"(completing transmission of data measured) and "F"(Memory-Full) are returned to data line as a reture code.

Occurrence of SRQ

In case of the following 3 conditions, this system send out SRQ.

(1) When this unit receives a command "@", and becomes remote controlled.
(2) When a command received has a grammitical error.
(3) When measurement is started with an effective command "P", and data measured is possible to be sent out.

After received SRQ, contoroller carry out serial poll, and receive status byte from this system. The following table is the content of status byte.

[Status byte]

7	6	5	4	3	2	1	0
---	SRQ	---	---	---	Grammatical Error	REMOTE	DATA measured available

```
10      !    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
20      !
30      !    *                                                        *
40      !    *    MULTI-ANEMOMASTER SAMPLING TEST PROGRAM ( BURST MODE )   *
50      !    *                                                        *
60      !    *    LANGUAGE : BASIC Ver 5.1                            *
70      !    *    MACHINE  : HP9000-300 ( 98581AJ )                   *
80      !    *             : KANOMAX SYSTEM 6242/6243 (GP-IB INTERFACE )   *
90      !    *                                                        *
100     !
110     !    * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
120     !
```

```
130     !  / INITIALIZE /
140     OPTION BASE 0
150     DIM Dat(1,64),Bdat1$[128],Bdat2$[128],Bdat$[256],Dm$[2]
160     ASSIGN @Anemo TO 702                 ; SETTING ADDRESS
170     Total_no=1                           ; TOTAL UNIT NUMBER
180     Unit_no=0                            ; ACTIVE UNIT NUMBER
190     Sens_no=0                            ; ACTIVE CH NUMBER
200     !
```

```
210     !  / REMOTE /
220     OUTPUT @Anemo;"@",END                ; SETTING REMOTE MODE
230     WAIT 1
240     OUTPUT @Anemo;"G",END                ; <SRQ> NO REQUEST
250     WAIT 1
260     OUTPUT @Anemo;"B",END                ; SETTING BURST MODE
270     WAIT 1
280     OUTPUT @Anemo;"S",END                ; SAMPLING START
290     WAIT 1
300     !
```

```
310     !  / SAMPLING /
320     FOR Unit_no=1 to Total_no
330        PRINT "UNIT No.=";Unit_no         ; DISPLAY OF ACT.UNIT.NO.
340        Bdat1$=" "                        ; BUFFER 1 IS EMPTY
350        Bdat2$=" "                        ; BUFFER 2 IS EMPTY
360        ENTER @Anemo;Bdat1$               ; CH 1-32 DATA
370        WAIT 1                                    (DDDD*32)CR
380        PRINT Bdat1$
390        ENTER @Anemo;Bdat2$               ; CH 33-64 DATA
400        WAIT 1                                    (DDDD*32)CR
410        PRINT Bdat2$
420        Bdat$=Bdat1$&Bdat2$               ; CH DATA 1 ~64CH
430        FOR Sens_no=1 To 64
440           Cdat$=Bdat$[(Sens_no-1)*4+1,Sens_no*4]   ; PICK UP DATA OF A CH
450           Dat(Unit_no,sense_no)=VAL(Cdat$)/100      ; STORE DATA
460           PRINT USING "#,DD.DD";Dat(Unit_no,Sens_no)  ; DISPLAY OF DATA
470           PRINT "    ";
480           IF (Sens_no MOD 8 )=0 THEN PRINT " "
490        Next Sens_no
500        PRINT " "
510     NEXT Unit_no
520     ENTER @Anemo;Dm$                     ; RECEIVE DATA END CODE
530     WAIT 1
540     !
```

```
550     !  / LOCAL /
560     OUTPUT @Anemo;"L",END
570     WAIT 3
580     END
590     !
```

```
10      !  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
20      !
30      !  *                                                          *
40      !  *    MULTI-ANEMOMASTER SAMPLING TEST PROGRAM ( BURST MODE )  *
50      !  *                                                          *
60      !  *    LANGUAGE : BASIC Ver 5.1                              *
70      !  *    MACHINE  : HP9000-300 ( 98581AJ )                     *
80      !  *            : KANOMAX SYSTEM 6242/6243 (GP-IB INTERFACE )  *
90      !  *                                                          *
100     !
110     !  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
120     !
```

```
130     ! / INITIALIZE /
140     OPTION BASE 0
150     ON INTR 7 GOSUB Sspol              ; SRQ ROUTIN
160     Mask=2                             ; Bit 1 enabeles SRQ interrupts
170     ENABLE INTR 7;Mask
180     DIM Bdat$[200]
190     ASSIGN @Anemo TO 702               ; SETTING OF ADDRES
```

```
200     ! / Loop /
210     OUTPUT @Anemo;"@",END              ; SETTING OF REMOTE MODE
220     WAIT 1
230     Loop;   !
240     DISP "**  "                        ; USER PROGRAM
250     DISP "  **"
260     GOTO Loop
270         !
```

```
280         !
290     Sspol;  !
300     S=SPOLL(@Anemo)
310     BEEP
320     IF BIT(S,0)=1 THEN
330         ENTER @Anemo;Bdat$             ; DATA READ FROM 6240
340         PRINT Bdat$
350         IF Bdat$[1,1]="/" THEN Sampend ; CHECK SAMPLING END
360     ELSE
370         IF BIT(S,1)=1 THEN
380             PRINT "REMOTE ON"
390             OUTPUT @Anemo;"R10;I40",END ; SETTING MEASURING MODE
400             WAIT 1                                      10times 4sec
410             OUTPUT @Anemo;"S",END       ; SAMPLING START
420         ELSE
430             PRINT "ERROR"
440         END IF
450     END IF
460     ENABLE INTR 7
470     RETURN
```

```
480     Sampend;    !
490     PRINT "SAMPLING END"
500     OUTPUT @Anemo;"L",END
510     END
520         !
```

TABLE OF CONTENTS-CHAPTER 6

OTHERS

SYSTEM SPECIFICATIONS

Product Name	Multichannel Anemomaster(SYSTEM 6242/6243)
Model	MODEL 1550 (1/1 case) MODEL 1560 (1/2 case) Measurement Modules

Module Name	NO. of channels	Model
Module V	4 channels (in total)	1 5 0 4
Module VT	2 channels (2 channels each)	1 5 1 1
Module VTH	1 channel (1 channel each)	1 5 1 2

Object to be measured	Clean air flow at atmospheric pressure and normal humidity

air velocity	air temperature	relative humidity
0~9.99 m/s······0.01m/s	0.1℃	0.1%RH
10.0m/s 以上······0.1 m/s		

Display	LCD(with backlight) Displays on a module basis 　　Module V simultaneously displays an air velocity for each channel. 　　Module VT simultaneously displays an air velocity on Channels 1 and 3, 　　and an air temperature on Channeles 2 and 4 respectively. 　　Module VTH simultaneously displays an air velocity on Channel 1, an air 　　temperature on Channel 2 and a humidity on channel 3.
Function	◆Display: 　　MAN: Is used to select modules by operating the UP/DOWN switches and to display 　　　　data on a module basis. 　　AUTO: Automatically selects modules every 2 seconds to display data. ◆Measurement Mode: 　　Burst Mode: Transfers data of all channels at high speed. 　　Channel Mode:Transfers data of the specified channel only.

Interface	◆Data Selection: Instantaneous value mode: Outputs instantaneousvalues every specified sampling time, and outputs the average value. ※ "REMOTE" is displayed during data transmission, with no data displayed. ※ NO. of repetitions : 1 to 65,535 ※ Sampling interval : 0.1*T(sec) (T: 1 ~ 65,535) ◆Printing: In the display mode, the system prints data that is displayed every 2 seconds. In the AUTO mode, the system automatically prints data subsequently on a module basis. In the MAN mode, the system prints data only of the module displayed, every 2 seconds. ◆Data transfer : RS-232C (standard), extended RS-232C (optional) and GP-IB (optional) (to be cascade-connected) ◆Boud Rate : 300,600,1200,2400,4800,9600,19200 bps (selectable) ◆Printer output : Centronics
Operating tem- perature range	5~40℃
Outside dimensions	MODEL 1550 : 430(W)×140(h)×500(d)mm MODEL 1560 : 226(W)×140(h)×325(d)mm
Weight	MODEL 1550 : approx. 10 Kg MODEL 1560 : approx. 5 Kg
Power supply	AC 100 V 50/60 Hz (4A)

Standard accessories		
	RS-232C cable (1.5 m long)	1 pc.
	Printer cable (1.5 m long)	1 pc.
	Power cable (1.5 m long)	1 pc.
	Instruction manual	1 copy
	Fuse	2 pcs.

Options	
	Blank panel
	Analog output module
	Probe cable
	Rack mounting angle
	RS-232C interface for cascade connection (with 1.5 m long cable)
	GP-IB interface (with 1.5 m long cable)

PRPBE SPECIFICATIONS

Measurement Range and Accuracy	**[Air Velocity Probe]**

MODEL 0962-00
     0963-00

0.1 ~4.99 m/s :	±0.1 m/s
5.00~9.99 m/s :	±0.2 m/s
10.0 ~24.9 m/s :	±0.5 m/s
25.0 ~50.0 m/s :	±1.0 m/s

MODEL 0964-01
        -02

0.1 ~4.99 m/s :	±0.15 m/s
5.00~9.99 m/s :	±0.3 m/s
10.0~24.9 m/s :	±0.75m/s
25.0~50.0 m/s :	±1.5 m/s

Horizontal characteristics;
        ±5%F.S.

MODEL 0965-00
        -03
        -04

0.1 ~4.99 m/s :	±0.15 m/s
5.00~9.99 m/s :	±0.3 m/s
10.0~25.0 m/s :	±0.60m/s

        -07   Horizontal characteristics; ±3%F.S.
        -08   Vertical characteristics; ±3%F.S. (elevation angle 0~±40°)
                      ···only for Model 0965-00
        Vertical characteristics;±3%F.S. (elevation angle 0~±20°
                      ···only for Model 0965-03,-04,-07,-08

[Air velocity / temperature probe]

	Air Velocity	Air Temperature
MODEL 0965-21	Compatible with type 0965-03	Range: 0 ~100 ℃
MODEL 0962-21	Compatible with type 0962	
MODEL 0963-21	Compatible with type 0963	Accuracy:±1℃

[Air Velocity,temperature & humidity probe]

	Air velocity	Air Temperature	Relative Humidity
MODEL 0963-31	Compatible with type 0963	Range: 0~60℃	Range: 5~95%RH
MODEL 0965-31	Compatible with type 0965-03	Accuracy: ±1℃	Accuracy : 5 ~80%RH ···±3%RH 80 ~95%RH ···±5%RH

Response	「90% at air velocity of 1 m/s」
	    Type 0962/0963······approx. 1 second
	    Type 0964 ·········approx. 3 second
	    Type 0965 ·········approx. 7 second

Temperature compensation accuracy	5 ~ 40 ℃······±5 % F.S. 40~ 80 ℃······±7 % F.S.

TROUBLESHOOTING

(1) The system cannot be powered on.······☞ Check the fuses.

Insert a flat-bladed screwdriver here
and pry it up toward yourself.

Fuses
(4A * 2 pcs.)

Check the fuses
for mounting orientation.
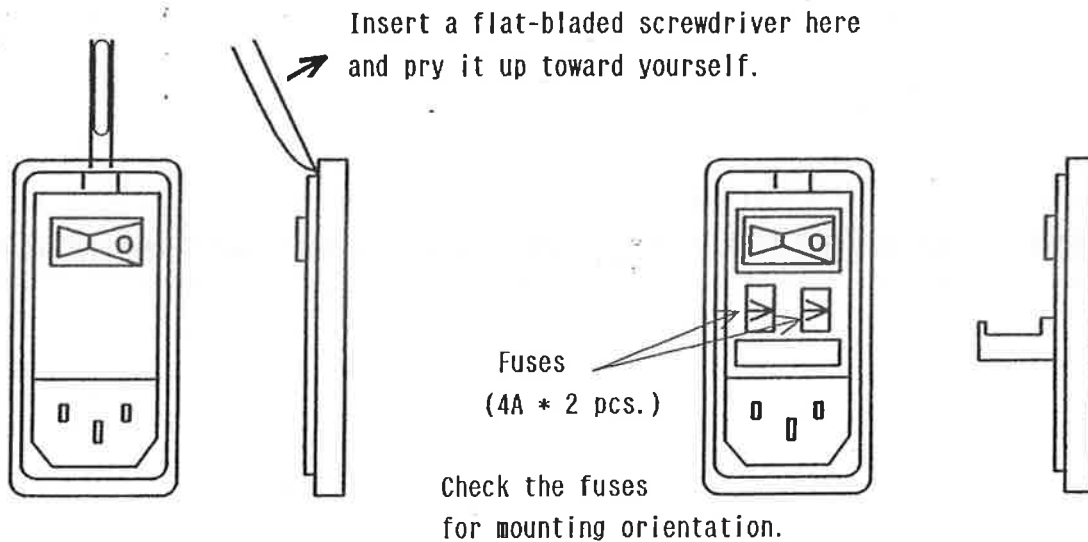
*Pull out both fuses to check for wire breakage.
When mounting them again, pay attention to orientation.

(2) The display screen remains to show "000" or "***".
◆ Probe is not connected.·········connect probe. ☞ Page 11
◆ Characteristic ROM is not mounted. ······Check modules ☞ Page 8
◆ Probe wire is broken.········· Replace with a new one.

(3) Data of a certain module is not displayed.
◆ Modules have the same address.
☞ Page 9

(4) Dispersion of mesured values is significant.
◆ Is the characteristic ROM NO. in agreement
with the probe NO.?   ☞ Page 11
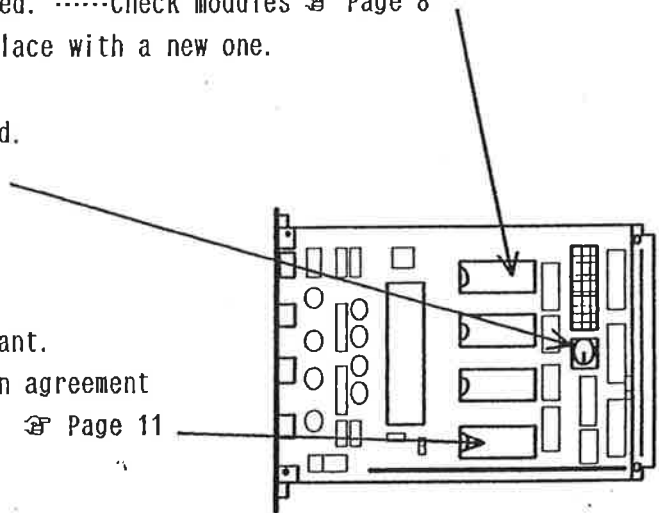
(5) No communication can be attained.
◆Check the system for output format,
data format and commands again.

WARRANTY AND AFTER-SALE SERVICE OF THE PRODUCT

Product Warranty

◆ We issue no product warranty card.

◆ The product comes with a registration card. Please be sure to receive it when you purchase the Product, and fill it out as required therein and send it back to us for our warranty control. Failure to do so may result in loss of warranty for the product.

◆ The guarantee period shall in principle be 12 months after the data of purchase, but shall not cover accessories and consumable items including cables.

After-sale Service

◆ Whenever the product is malfunctioning, first check it in accordance with "Troubleshooting" to locate the causes.

◆ Repairs applicable in the guarantee period
If the functions and/or measuring accurancy of the product can be restored by repairs, we make necessary repairs on request on a customer's account.

◆ Storage period of repair apares
Repair parts are retained for a minimum period of five years after production cessation. This storage period of repair parts is handled as the period during which we can provide repair services. For consultation about details, please contact our service center and at the same time, furnish us with the following information.

Product name	: Multichannel Anemomaster
Model NO.	: 6242/6243/1504, etc.
Serial NO.	:
Faulty item(s)	: System (proper), modules, probes
Symptom	: to be detailed as much as possible.
Data of purchase:	