

# **GDM704 INTERFACE<sup>\*</sup>**

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**WENS Precision Co.,Ltd.**

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## I. GENERAL.

### 1. Communication type. : RS232C.

START	b0	b1	b2	b3	b4	b5	b6	b7	STOP
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- Baud Rate. : 9600 bps.
- Data Bit. : 8 bit.
- Stop Bit. : 1 bit.
- Parity. : none.
- Communication Direction. : PC receiving only.
- Data Form.
  - BASIC mode. : ASCII code.
  - BIT MAP mode. : HEX code..

### 2. Equipment Requirement.

- PC. : IBM AT-Compatible PC.
- OS. : WINDOWS 95.
- Memory. : 640 Kbyte or higher.
- Printer. : English-Graphic support type.
- Mouse. : Serial Mouse.

### 3. Glossary.

#### • METER MODE.

TEXT ( = DATA ) is displayed on Meter ( multimeter ) LCD.

General Digital Multimeter mode.

RS232 Communication is always working on and transmit through BASIC MODE.

#### • GRAPH MODE.

GRAPH is displayed on Meter ( multimeter ) LCD.

General Oscilloscope mode.

RS232 Communication is working on when " **MIN/MAX** " Rubber switch is pressed.

#### • BASIC MODE.

MEASURING RANGE + MODE + MAIN DATA + SUB DATA ( = 24 byte ) is transmitting to **DISPLAYSPACE** ( MAIN DATA, SUB DATA ) of PC

#### • BIT MAP MODE.

DISPLAY DATA ( = 1024 byte ) on meter LCD is transmitting to **DISPLAYSPACE** of PC.

#### 4. Meter Operation Procedure.

- **METER MODE.**

does not need any action. Communication to PC is always working on.

- **STORAGE MODE.**

step 1 : Working on when " **STORAGE** " Rubber switch is pressed.

step 2 : Use software key **F1** ( = **▲▼** ) to select DATA BLOCK.

step 3 : Press **F3** ( = **CALL** ) key to start communication.

- **GRAPH MODE.**

step 1 : Working on when " **STORAGE** " Rubber switch is pressed.

step 2 : Use software key **F1** ( = **▲▼** ) to select DATA BLOCK.

step 3 : Press **F3** ( = **CALL** ) key to start communication.

#### 5. PC Operation Procedure.

- **BASIC MODE.**

PC receiving MEASURING RANGE + MODE + MAIN DATA + SUB DATA of Meter LCD and displayed on **DISPLAYSPACE**.

- **BIT MAP MODE.**

PC receiving display Data on Meter LCD.

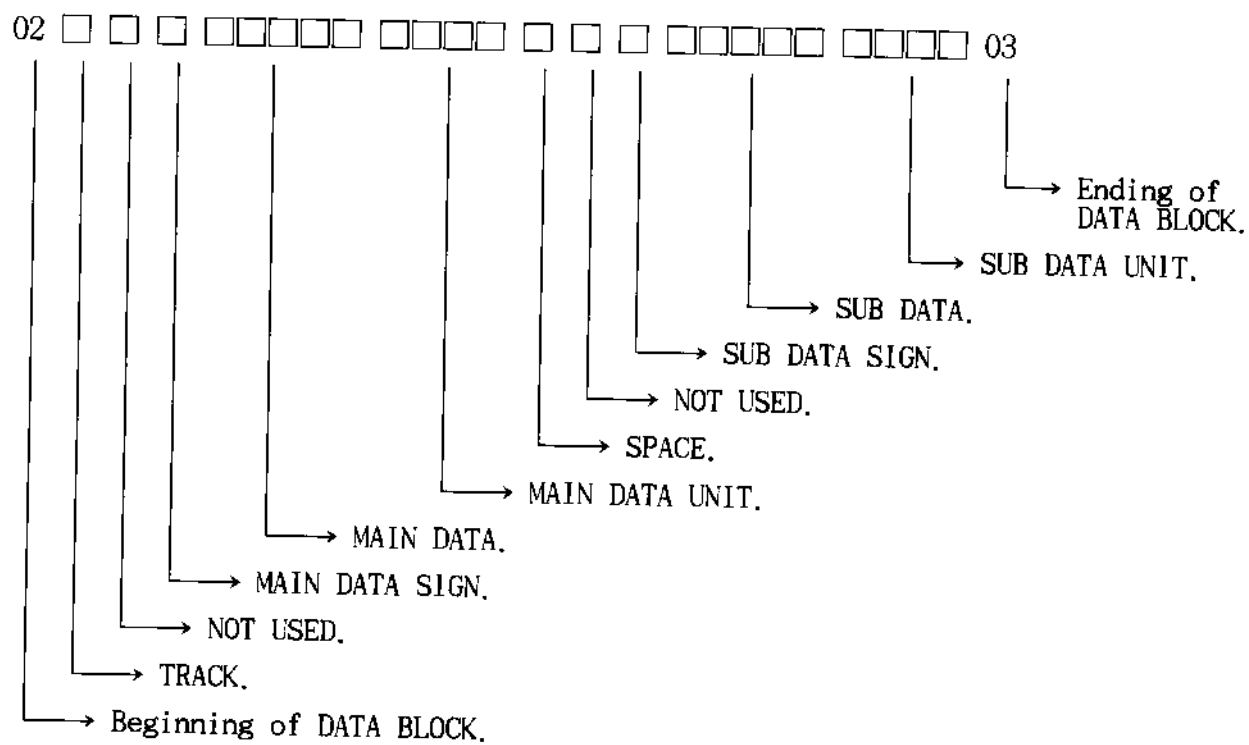
## II. PROTOCOL.

### 1. SAMPLING TIME.

- BASIC MODE. : 250 msec, Adjust.
- BIT MAP MODE. : None.

### 2. BASIC MODE DATA.

- Total 26 byte.



(1) TRACK.

-. Track setting data of GDM704 changed to ASCII code .

DEC	HEX	BINARY	ASCII	REMARK
65	41	0100 0001	A	ACV Track
66	42	0100 0010	B	DCV Track
67	43	0100 0011	C	mV/HI-Z Track → ACV
68	44	0100 0100	D	mV/HI-Z Track → DCV
69	45	0100 0101	E	OHM/BUZZER Track
70	46	0100 0110	F	OHM/BUZZER Track → nS Function
71	47	0100 0111	G	DIODE/CAPACITANCE Track → DIODE Function
72	48	0100 1000	H	DIODE/CAPACITANCE Track → CAPACITANCE Function
73	49	0100 1001	I	mA/μA Track → ACV
74	4A	0100 1010	J	mA/μA Track → DCV
75	4B	0100 1011	K	20A Track → ACV
76	4C	0100 1100	L	20A Track → DCV
77	4D	0100 1101	M	LOGIC Track
78	4E	0100 1110	N	SIG-OUT Track
79	4F	0100 1111	O	AUX Track → Temperature Function
80	50	0101 0000	P	AUX Track → Humidity Function
81	51	0101 0001	Q	AUX Track → Pressure Function
82	52	0101 0010	R	AUX Track → Current Function
83	53	0101 0011	S	INSTALL Track → SETUP Function
84	54	0101 0100	T	INSTALL Track → SELF TEST Function
90	5A	0101 1010	Z	BIT MAP MODE

(2) MAIN DATA SIGN.

DEC	HEX	BINARY	ASCII	REMARK
32	20	0010 0000	SPACE	"+" SIGN
45	2D	0010 1101	-	"-" SIGN

(3) MAIN DATA.

- . MAIN DATA. Expressed as ASCII code.
- . "." ( = 2Eh ) and " " ( = 20h ) both expressed.

(4) MAIN DATA UNIT.

- . MAIN DATA UNIT. Expressed as ASCII code.

DEC	HEX	ASCII	UNIT
79 72 78 32	4F 48 4E 20	OHM	$\Omega$
75 79 72 78	4B 4F 48 4E	KOHM	K $\Omega$
78 79 72 78	4E 4F 48 4E	MOHM	M $\Omega$
64 67 32 32	40 43 20 20	@C	$^{\circ}$ C
64 70 32 32	40 46 20 20	@F	$^{\circ}$ F
117 65 65 67	75 41 41 43	$\mu$ AAC	$\mu$ AAC
117 65 68 67	75 41 44 43	$\mu$ ADC	$\mu$ ADC
117 115 101 99	75 73 65 63	$\mu$ sec	$\mu$ sec
117 70 32 32	75 46 20 20	$\mu$ F	$\mu$ F
37 82 72 32	25 52 48 20	%RH	%RH
Other are Expressed as ASCII code.			

(5) SPACE.

- Distinguish MAIN DATA and SUB DATA.

(6) SUB DATA SIGN.

- Same as MAIN DATA.

(7) SUB DATA.

- SUB DATA. Expressed as ASCII code.

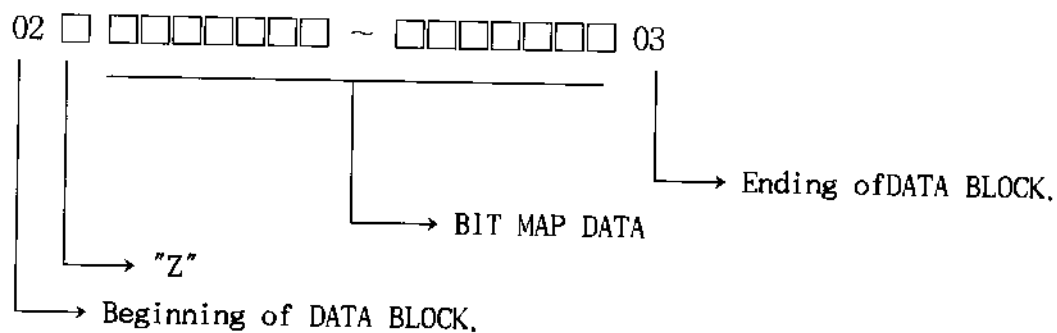
- "." ( = 2Eh ) and " " ( = 20h ) both expressed.

(8) SUB DATA UNIT.

- SUB DATA UNIT. Expressed as ASCII code.

### 3. BIT MAP MODE DATA.

- Total 1,027 byte.



(1) "Z".

- "Z" ( = 5Ah ) is placed at top beginning to show BIT MAP MODE.

(2) BIT MAP MODE DATA.

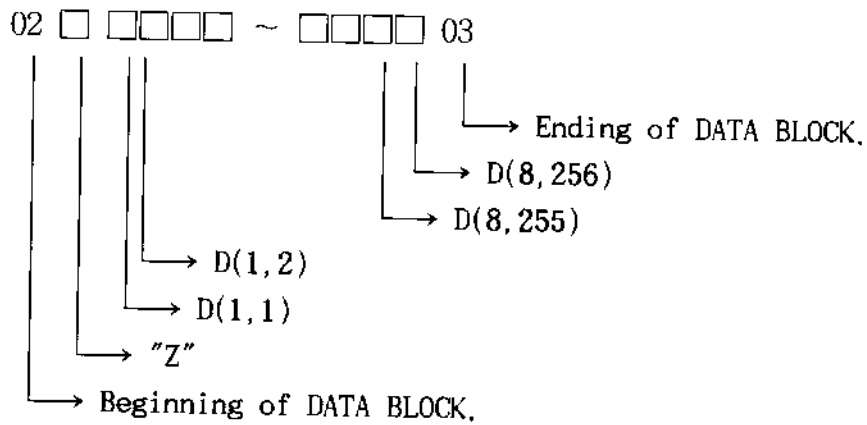
- Displayed data on 128 × 64 DOT LCD MODULE of METER is sending to BIT MAP.

- Not ASCII CODE but HEX DATA.



4. Relation between BIT MAP DATA and GDM704 LCD display area. ( Refer attached # 1 )

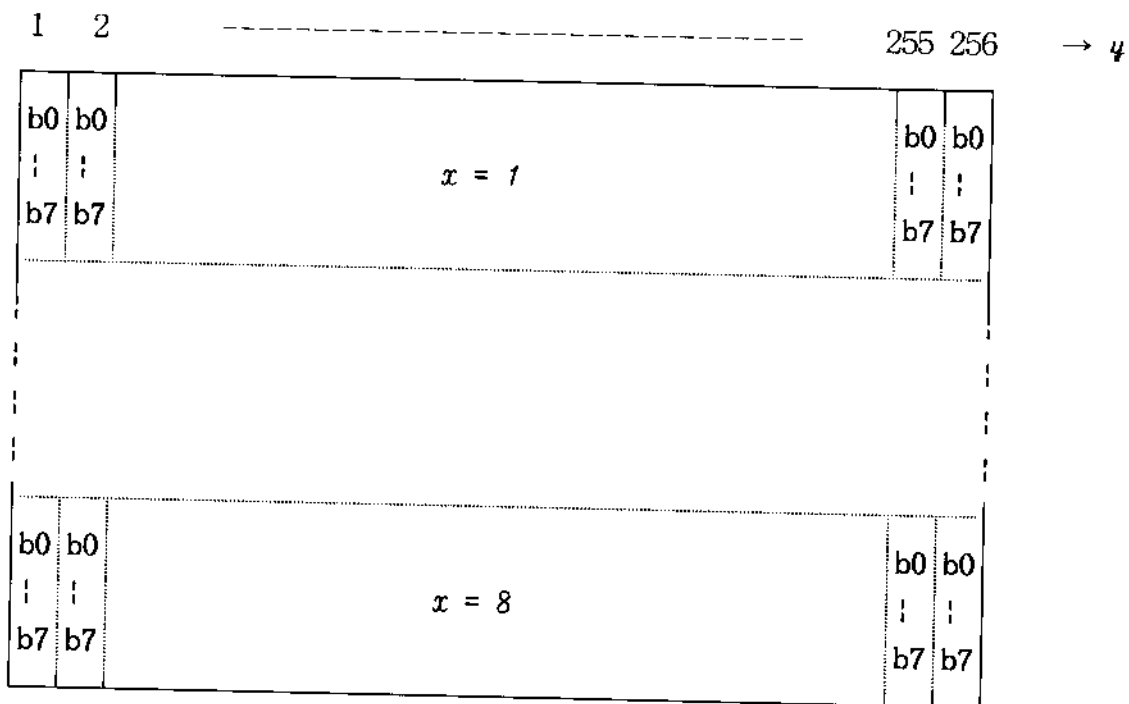
- BIT MAP DATA is sending as follows.



Each DATA BLOCK [  $D(x, y)$  ] is expressed.

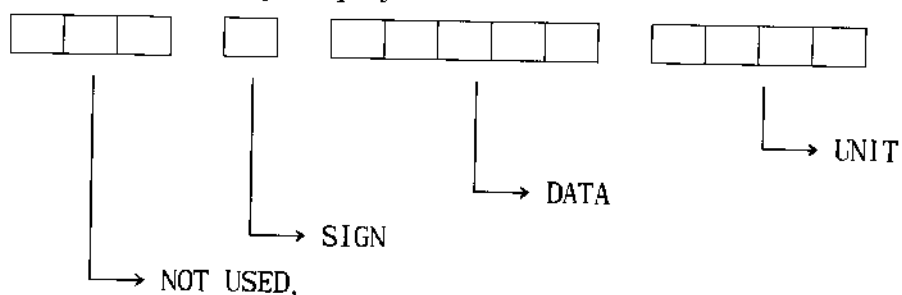
START	b0	b1	b2	b3	b4	b5	b6	b7	STOP
-------	----	----	----	----	----	----	----	----	------

- GDM704 LCD display area is as follows.



5. Relation between SUB DATA and GDM704 LCD display area.

-. Receiving DATA is directly displayed.



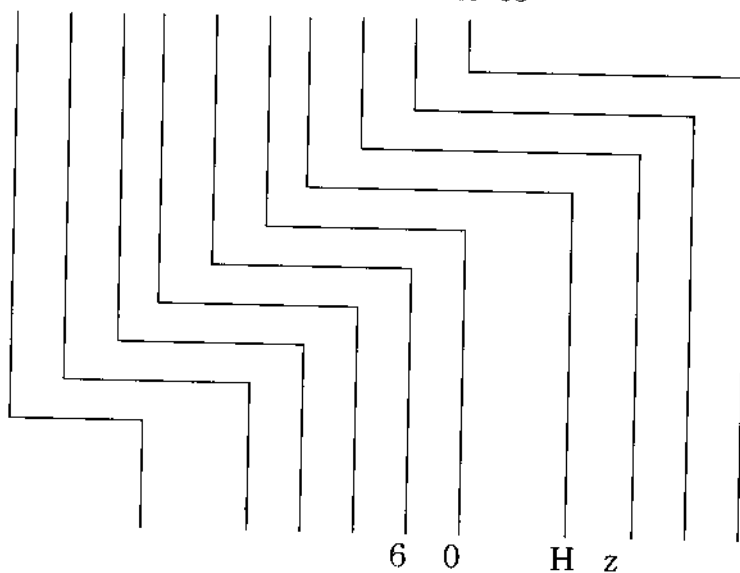
-. example )

Receiving DATA ;

0243412D31322E33346D5641432042202020203630487A202003

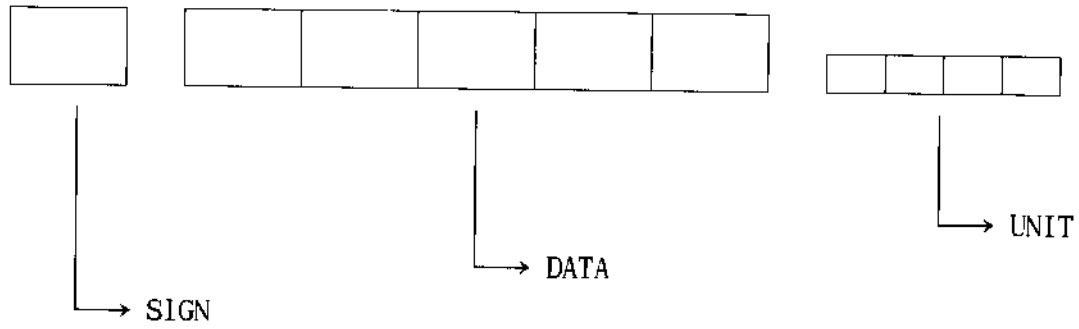
→ Represents mV/HI-Z TRACK / MAIN DATA : -12.34 mVC /  
SUB DATA : 60 Hz.

~ 42 20 20 20 20 36 30 48 7A 20 20 03



6. Relation between MAIN DATA and GDM704 LCD display area.

- Receiving DATA is displayed  $\times 2$  bigger size than SUB DATA.



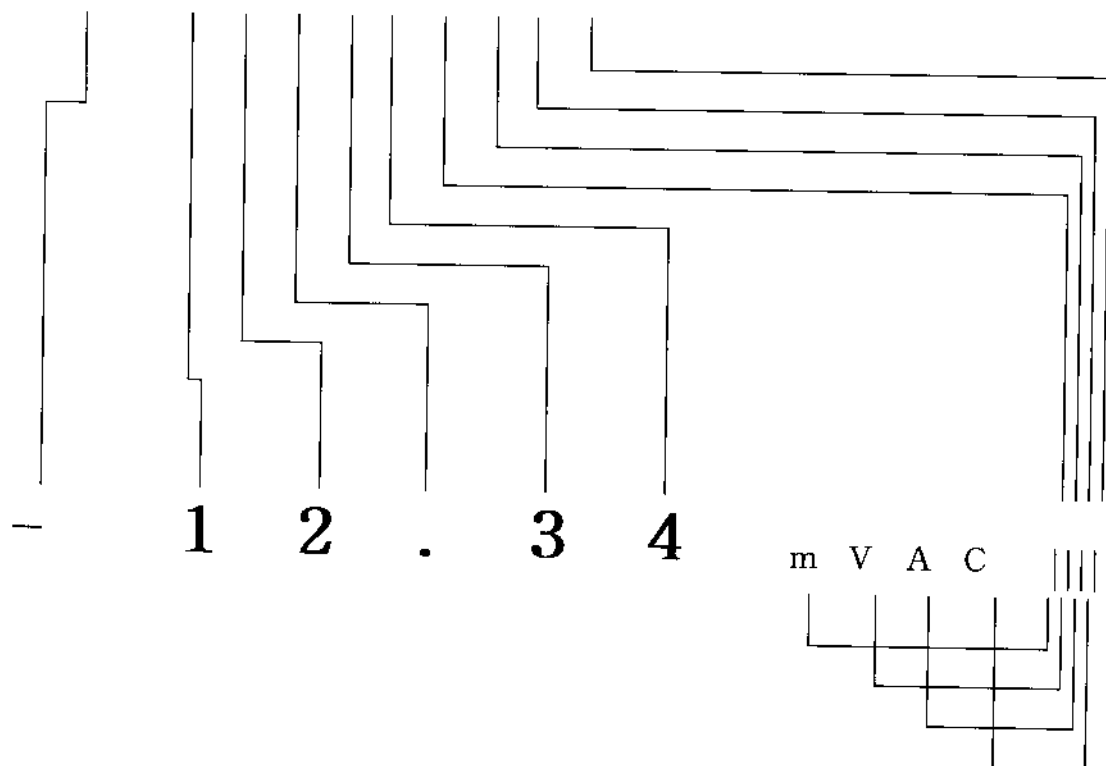
- example )

Receiving DATA ;

0243412D31322E33346D56414320422020203630487A202003

→ Represents mV/Hz TRACK / MAIN DATA : -12.34 mVC /  
SUB DATA : 60 Hz .

02 43 41 2D 31 32 2E 33 34 6D 56 41 43 20 ~



※ Attach # 1 : Relation between BIT MAP DATA and GDM704 LCD display area.

- example ;

BIT MAP DATA

02Z7E1111117E007F4949493600 ~ 42220428103010180406030403

