PM2519

AUTOMATIC MULTIMETER
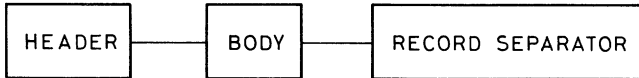
9499 470 19411   830915

1. PROGRAMMING

1.1 Interface programming

Coding syntax


```
┌──────────┐   ┌──────┐   ┌─────────────────┐
│  HEADER  │───│ BODY │───│ RECORD SEPARATOR │
└──────────┘   └──────┘   └─────────────────┘
```
ST4090

NOTE: When programming the interface, before every header-body combination, the listen address must be sent.

FUNCTION	ISO 7-BIT CODE	DESCRIPTION
SERVICE REQUEST	MSR n[n][n]	Setting of the service request mask. n[n][n] is the decimal equivalent of the mask bit pattern.
SEPERATORS input/output	SPR nn[,nn]	Setting of the seperators. nn is the decimal equivalement of a character of the ISO code table. (decimal equivalent 27 (ESC) is not allowed).
IDENTITY	ID?	In receipt of this command the identify is output (PM2519C:S1).
INTERFACE TEST	TSI U TSI <dec.170>	On receipt of these commands a self test is performed. (U = with service request) (<dec.170> means without service). 170 is the decimal value and can be programmed on most controllers with CHR$(170).

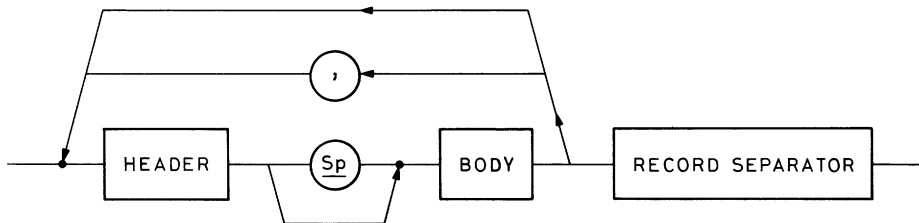NOTE: [ ] means optional

PHILIPS

PROGRAMMING cont.

Service request mask

| BIT	DECIMAL VALUE	REASONS FOR SERVICE REQUEST
8	256	The PM2519/51 has done a measurement and sent it via the interface and may be triggered.
7	128	If an illegal header in a command is received.
6	64	An illegal body in a command is received.
5	32	When the main function switch is changed.
4,3, 2,1		Not implemented
0	1	Valid data is available

1.2 Device programming

Coding syntax

ST4095

FUNCTION	ISO 7-BIT CODE	DESCRIPTION
Speed	V0	Low speed
	V1	High speed; all outputs are even
Range (see table)	R0	Autoranging
	R1	Lowest range
	.	
	.	
	R5	Highest range (function switch dependent)
Trigger mode	T1	Measurement started via bus (initial state)
	T2	Measurement started via bus or DATA HOLD probe (PM9267).
Execute	X1	Start measurement command
Zero reference programming	Z1 ± nnnnn	Lowest range ± nnnnn = 5 digit value (a point may be used for better readability but is ignored). The value for ± nnnnn may not exceed the maximum display value. Programming 00000 in the place of nnnnn will clear the zero reference programming.
	.	
	.	
	.	
	Z5 ± nnnnn	Highest range

| Range code Function	R0	R1	R2	R3	R4	R5
V⎓, ◁ >preset		1V	10V	100V	1000V	
V⎓	AUTO	1V	10V	100V	1000V	
mV⎓	100mV	100mV				
V∼rms	AUTO	1V	10V	100V	1000V	
Ω	AUTO	1k	10k	100k	1000k	10M
mA⎓	AUTO	20mA	200mA			
A⎓	AUTO	2A	20A			
mA∼rms	AUTO	20mA	200mA			
A∼rms	AUTO	2A	20A			
°C	200°C	200°C				
➔, ◁<10Ω	1V	1V				
Hz	AUTO	1kHz	10kHz	100kHz	1000kHz	

2. SETTINGS
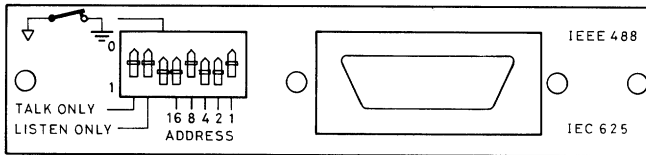
ST 4089

Device address	By means of 5 switches the device address is set. When address 31 is selected, which is normally not allowed, the PM2519/51 converts it to address 22.
Talk-only mode	With switch TON in position "1" (LON in position "0")
Listen-only mode	With switch LON in position "1" (TON in position "0")
Addressable mode	With switch TON and LON in position "0"
mode	To prevent unwanted currents in the shielding the logic 0 can be disconnected from the shield by placing switch to position "I".

3. OUTPUT DATA

3.1 Measuring data

a) Format
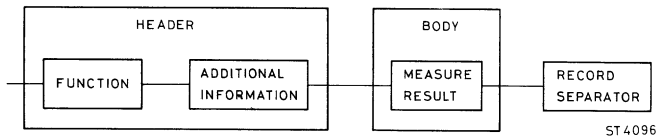
ST 4096

Char.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Data	V	D	C	Sp	Z	Sp	Sp	+	1	2	3	.	4	5	E	–	3	SR3
	H	Z	Sp	Sp	Sp	O	Sp	Sp	9	9	.	9	9	9	E	+	3	SR3
	A	A	C	Sp	Sp	C	Sp	Sp	Sp	1	2	3	.	4	E	–	3	SR3

FUNCTION	CHARACTERS 1 2 3	FUNCTION	CHARACTERS 1 2 3
V⎓, ◁ >preset	V B P	mA⎓	A D C
V⎓	V D C	mA∼rms	A A C
mV⎓	V D C	Ω	O H M
V∼rms	V A C	�→⊢, ◁ <10Ω	D I O
Hz	H Z	°C	T M P

3.2 Identity

Char.	1	2	3	4	5	6	7	8	9	10
Data	P	M	2	5	1	9	C	:	S	1

3.3 Interface test

Programming	Output data	Remark
TSI U	[CHR$(170)]	with service request
TSI [CHR$(170)]	U	without service request

3.4 Device status data

DIO bits	7 (128)	6 (64)	5 (32)	4 (16)	3 (8)	2 (4)	1 (2)	0 (1)
	EX	RQS	AB	BSY	EF3	EF2	EF1	EF0

AB Abnormal

    AB = 0 The PM2519/51 is not in any error condition
    AB = 1 The instrument is in an error condition. The condition is specified in the bits EF3 to EF1

BSY Busy

    BSY = 0 PM2519/51 is not measuring and the data of any previous measurement has been output.
    BSY = 1 PM2519/51 is measuring and/or data has not been output

If AB = 1 then the bits EF3 to EF1 indicate the error status

AB	EF3	EF2	EF1	EF0	Description
1	1	×	×	×	Illegal header in program string
1	×	1	×	×	Illegal body in program string
1	×	×	1	×	Function switch has been changed, POWER ON or device clear

NOTE: EF3-EF1 are only cleared after a serial poll

If AB = 0 then the bit EF0 indicate the availability of data

AB	BSY	EF3	EF2	EF1	EF0	Description
0	0	0	0	0	1	Data has been output by the PM2519/51 but remains available. A new trigger command may be given
0	1	0	0	0	0 ·	The PM2519/51 is measuring. Data is not yet available.
0	1	0	0	0	1	The PM2519/51 has valid data but has not yet been output.

NOTE: EF0 is cleared at a trigger input.
      BSY is cleared after data has been output.