The following routines apply only to the 232-output module. Various parameters can be set through these routines.

## ROUTINES

No.: Description:

**Routine 5:** Option Setting
(Analog Output) DAC 670 – 204 or
RS232 / RTC 670 – 232 mounted
0 = DAC (670 – 204) or no extension
1 = RS232 / RTC (670 – 232) board

**Routine 25:** Activation und Time setting for RS232
000 = no measurement output (default)
001 = cycle time Minutes
002 = cycle time Seconds

**Routine 27:** Setting the Baud Rate of the serial interface
0 = 150
1 = 300
2 = 600
3 = 1200
4 = 2400
5 = 4800
6 = 9600 Baud

**Routine 28:** Real-Time-Clock Minutes
This value sets the actual time in minutes
Setting range: 0 – 59 minutes

**Routine 29:** Real-Time-Clock Hours
This value sets the actual time in hours
Setting range: 0 – 23 hours

**Routine 30:** Real-Time-Clock Day of date
This value sets the actual day of the date
Setting range: 1 – 31

**Routine 31:** Real-Time-Clock Day of week
This value sets the actual day of the week
0 = Sunday
1 = Monday
2 = Tuesday,
3 = Wednesday
4 = Tuesday
5 = Friday
6 = Saturday

**Routine 32:** Real-Time-Clock Month of date
This value sets the actual month of the date
Setting range: 1 – 12
i.e. 1 = January … 12 = December

**Routine 33:** Real-Time-Clock Year of date
This value is least significant part of the year number of the actual year of date. The most significant part is set to 20.
Setting range: 0 –99
0 = 2000,
99 = 2099

**Routine 34:** Setting the Transmission cycle rate for the serial interface Date and time are added to the measuring value at the time interval of the programmed transmission cycle and transmitted via the serial interface. The time distance of transmissions is measured in minutes or seconds according to the setup in Routine 25. Note that transmission must be activated first through Routine 25.

Setting range:
0 – 255
0 = Timer Stop ( no transmission)
1 = transmission occurs every minute
2 = every 2 minutes
|
255 = every 255 minutes ( 4h 15min )
The amount of transmission cycles also effects the transmission of the measuring values if Jumper 4 is closed. If the parameter is set to 0 transmission is stopped.

**Dimensioning measurements**
The dimension of a physical unit consists mainly of two parts, the size and the type of the unit. Dimensions are not displayed on the SPE 670 series but appear on the printout. The dimension size and type can be entered in ASCII-code as a decimal value. For the extended characterset refer to IBM-code page 437.

**Routine 35:** Size of dimension
Sets the size of the physical unit for the displayed measuring value: m = Milli, $\mu$ = Micro, p = Pico … ° = Grad.

**Examples:** ° = 248, $\mu$ = 230, m = 109, n = 110, p = 112, k = 107, M = 77, G = 71.

**Routine 36:** Type of dimension
Sets the type of the physical unit for the displayed measuring value: V = Volt, A = Ampere … C = Celsius

Examples: A = 65, C = 67, V = 86, Ω = 234 (Ohm).

**Routine 37:** Customizing signs for measurements
Covering a wider variety of naming measuring values a third sign can be entered.
Through this feature names like "Bar" or "mA " are possible. In this example enter
B = 66 in Routine 35
a = 97 in Routine 36
r = 114 in Routine 37

m = 199 in Routine 35
A = 65 in Routine 36
Space = 32 in Routine 37

For character translation see ASCII-code table or IBM code page 437.

## Jumper and Start display

**Jumper 4:**
If Jumper 4 is set measuring values are transmitted at programmed time intervals via the serial interface, even if the inter face is deactivated through Routine 25. The transmission cycle is set through Routine 34 respectively can be stopped.

Display:
At the end of the selftest routine the type of the loaded program is displayed.

SPE6xx.UI Program for voltage and current (U/I)
SPE6xx.PT Program for PT100/PT1000 sensors
SPE6xx.TH Program for thermo element

xx = device type = 70: SPE670, = 75: SPE675

Data transmission of SPE670 measuring values via the serial interface

**Routine 25** Transmission activated / deactivated
**Routine 27** Baud rate for the interface selected
**Routine 34** Transmission cycle set

If transmission is deactivated in Routine 25 , Jumper 4 must be set in order to transmit Data. Data will be transmitted by the setting of the transmission cycle of Routine 34 in minutes. The individual characters are transmitted in ASCII-code. The sign of the measuring value is transmitted for negative values as minus otherwise as space.

Data transmission commences with the first character of the day and finishes with LF (line feed – 10d, 0Ah) and CR (carriage return – 13d, 0Dh) in order to start a new line for a connected printer or monitor.
Day.Month.Year Hour:Minute
- Measuring value (incl. comma)
Dimension: size type custom-character

DD.MM.YYYY hh:mm –XXX,XSTC

Legend:
DD = day
MM = month
YYYY = year
hh = hour
mm = minute
- = minus sign or space
XXX.X = 0000 – 1999, comma properly placed
S = size of dimension: m=Milli, k=Kilo
T = type of dimension: A=Ampere, V=Volt
C = custom character:
. = dot (ASCII – 46d, 2Eh)
: = colon (ASCII – 58d, 3Ah)
= space (ASCII – 20h, 32d)
, = comma (ASCII – 44d, 2Ch)

**Example:**

Telegram = 21.05.2001 13:15 1.234Bar

| Character | ASCII (decimal) |
|---|---|
| 2 | 50 |
| 1 | 49 |
| . | 46 |
| 0 | 48 |
| 5 | 53 |
| . | 46 |
| 2 | 50 |
| 0 | 48 |
| 0 | 48 |
| 1 | 49 |
| space | 32 |
| 1 | 49 |
| 3 | 51 |
| : | 58 |
| 1 | 49 |
| 5 | 53 |
| space | 32 |
| space | 32 |
| 1 | 49 |
| . | 46 |
| 2 | 50 |
| 3 | 51 |
| 4 | 52 |
| B | 66 |
| a | 97 |
| r | 114 |
| LF | 10 |
| CR | 13 |

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