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431693R/IND\*\*/1198

Dear Customer,

Congratulations on your purchase of our flow transmitter 8025/835 PROFIBUS-DP.

**BEFORE INSTALLING OR USING THIS PRODUCT, PLEASE TAKE OUR ADVICE AND READ THE ENTIRE MANUAL THOROUGHLY.**

This will enable you to benefit fully from all of the advantages which the product can offer.

## 1.1 Unpacking and Control

Please verify that the product is complete and free from any damage and that you have received the following as a standard delivery:

- 1 Transmitter 8025/8035 PROFIBUS-DP
- 1 Diskette for network commissioning
- 1 Manual 8025/35 PROFIBUS-DP
- 1 Instruction Manual 8025 or 8035
- 1 Instruction Manual fitting S020 or S030

To ensure that you have received the product required, please compare the Type specification (Bürkert identification number) on the label to the lists on the following pages. If there are any problems such as loss or damage, please contact your local Bürkert subsidiary

## 1.2 About this Manual

This manual complements the instruction manual type 8025/8035 flow transmitter, it does not contain any form of warranty or statement and full referral to our general terms of sale and delivery should be noted. This product should only be installed and/or repaired by properly trained staff. If any difficulties may occur with the product during installation, please do not hesitate to contact your nearest Bürkert sales office for assistance.

## 1.3 User's Responsibility for Safety

Bürkert manufactures a broad range of flow transmitters designed to operate in a wide variety of applications. It is the customer's responsibility to select an appropriate transmitter for the application, ensure the unit is installed properly, and maintain all components. Special attention must be made to the chemical resistance of the transmitter and the fluids/medium which may be in direct contact with the product.

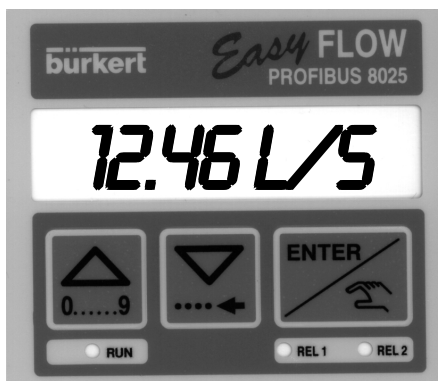


If this symbol appears, it indicates that special attention should be made to the instructions, as they may affect the safe installation, function or/and use of the product.

## 1.4 Electromagnetic compatibility

This device conforms to the EMC-Directive of the Council of European Communities 89/336/EEC.

In order to comply with the above directive, the wiring instructions must be followed as instructed.



**ZERTIFIKAT**

Die PROFIBUS Nutzerorganisation e.V. erteilt der

**Bürkert & Cie, Abt. R&D**  
**B.P.21 Triembach au Val, F-67220 Ville**  
das Zertifikat Nr.: **Z00343**  
für folgendes Produkt:

**Name:** 8025 PROFIBUS  
**Modell:** Durchfluß-Transmitter  
**Version:** 419619  
**Firmware:** 419787T V1

Das Zertifikat bestätigt, daß das oben genannte Produkt die Prüfungen auf Konformität für PROFIBUS-DP Slave-Geräte erfolgreich bestanden hat.

Die Prüfungen erfolgten in dem von der PNO autorisierten Prüflabor bei der Siemens AG in Fürth. Prüfungsfang und Prüfergebnis sind im Prüfbericht Nr. 104-1 protokolliert.

Dieses Zertifikat wird erteilt aufgrund der PNO-Richtlinie für Prüfen und Zertifizieren (PRZ) vom 1.1.1993 und ist gültig für einen Zeitraum von 3 Jahren bis zum 06.04.2001.

Karlsruhe, den 07.04.1998



(Bearbeiter)

Der Vorstand der PROFIBUS Nutzerorganisation:

(E. Küster)

(K.-P. Lüdner)

2.1 SPECIFICATIONS

The flow transmitter type 8025/8035 PROFIBUS-DP, is an addition to the conventional flow transmitter 8025/8035. The mechanical and fluidic characteristics remain unchanged. The mounting specifications apply as described in the instruction manual type 8025/8035 enclosed.

Electrical Data

|                |                                           |
|----------------|-------------------------------------------|
| Voltage supply | 12...30 VDC                               |
| Relay output   | 2 relays, 3 A, 220 V<br>freely adjustable |

PROFIBUS-DP Communication

|                          |                              |
|--------------------------|------------------------------|
| According to DIN 19245-3 |                              |
| Device Ident No          | '6522 hex                    |
| Files                    | BUER6522.GSD<br>BU6522ax.200 |
| Min. slave delay         | 2 ms                         |
| BAUD Rate available      |                              |
| 9.6 Kbauds               | 19.2 Kbauds                  |
| 93.75 Kbauds             | 187.5 Kbauds                 |
| 500 Kbauds               | 1500 Kbauds                  |

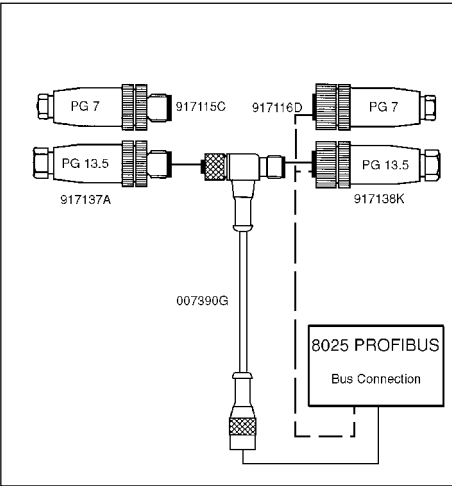
Order references

Flow transmitter 8025 PROFIBUS-DP

| Sensor type | Code ident |
|-------------|------------|
| Hall short  | 431696L    |
| Hall long   | 431697M    |
| Coil short  | 431698W    |
| Coil long   | 431699X    |

Flow transmitter 8035 PROFIBUS-DP

| Sensor type | Code ident |
|-------------|------------|
| Coil        | 431700C    |



Accessories for BUS Connection

| Connector type         | Code ident |
|------------------------|------------|
| Socket +PG7 (standard) | 917116D    |
| Socket +PG13.5         | 917138K    |
| Pin +PG7               | 917115C    |
| Pin +PG13.5            | 917137A    |
| T Cable 2 Pins +Socket | 007390G    |

2.2 Electronic module 8035 PROFIBUS-DP External dimensions

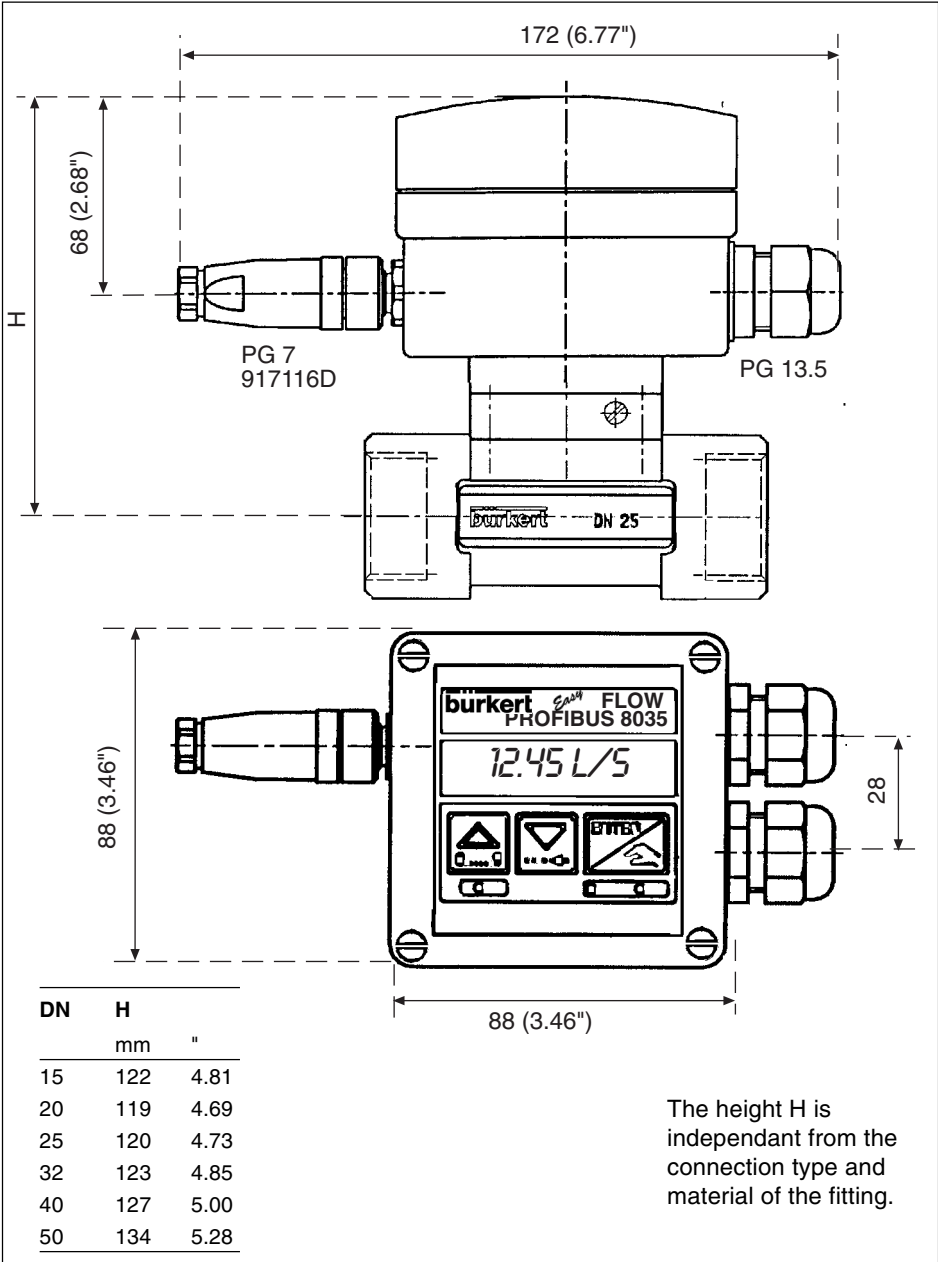


Fig. 2.1 Electronic enclosure 8035 PROFIBUS-DP external dimensions

2.3 Electronic module 8025 PROFIBUS-DP external dimensions

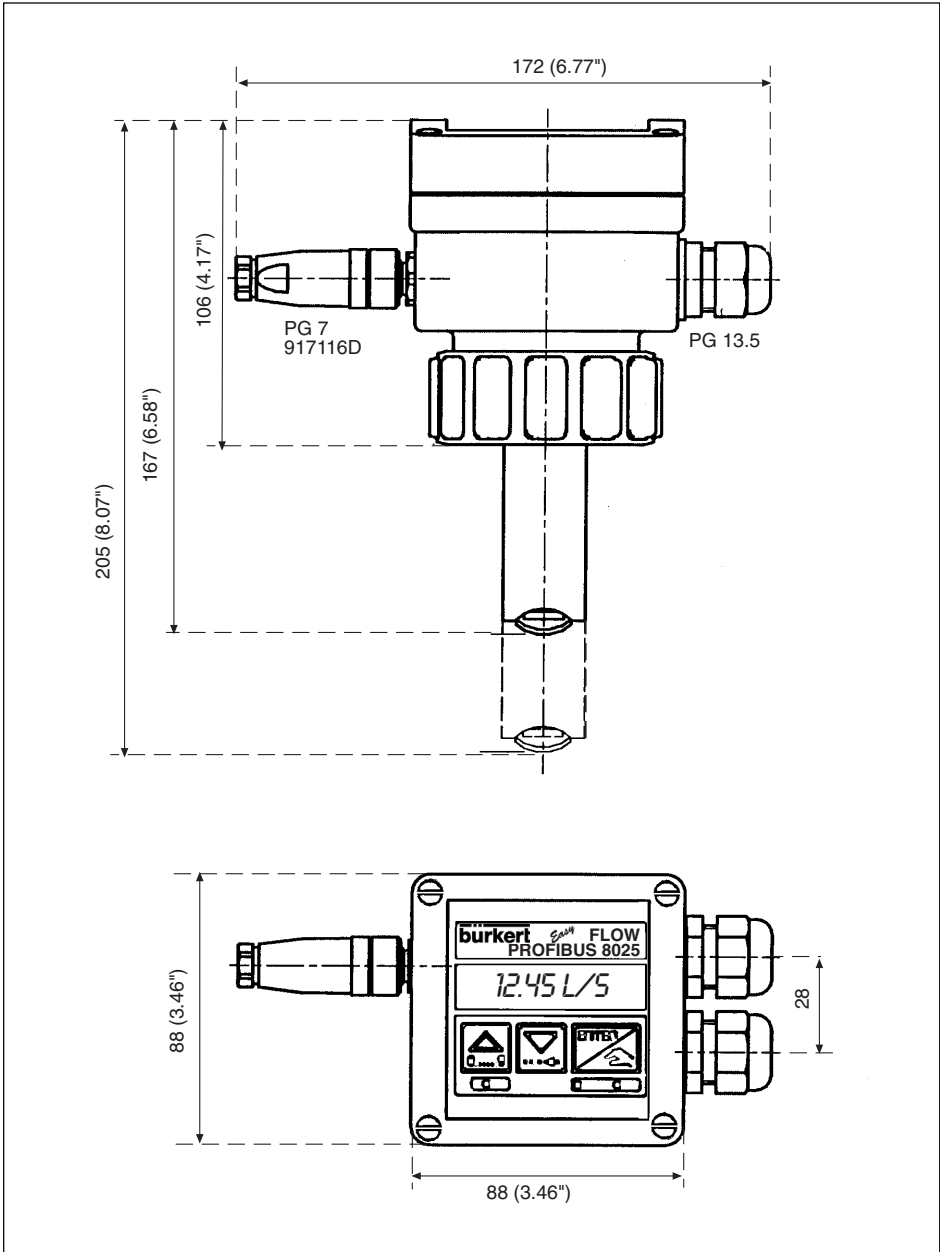
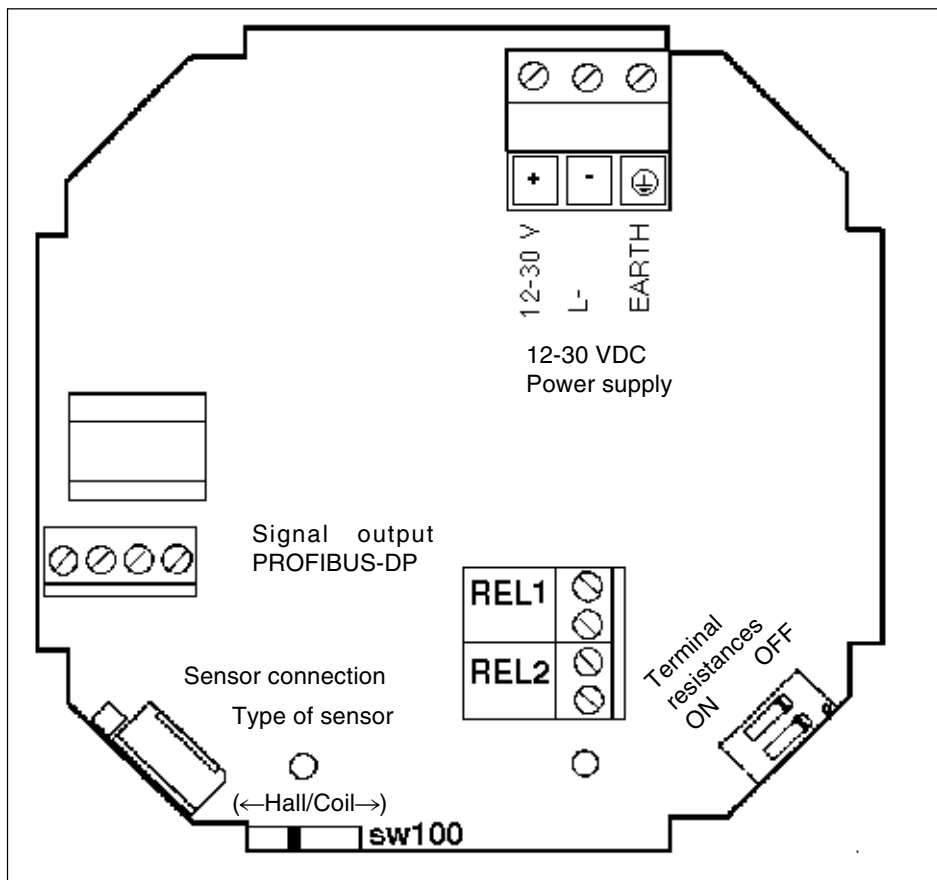


Fig. 2.2 Electronic enclosure 8025 PROFIBUS-DP external dimensions

## 3.1 Electrical connection type 8025/8035 PROFIBUS-DP 12/30 VDC



**Fig. 3.1 Flow transmitter 8025/8035 PROFIBUS-DP - Wiring and Switches**

Please refer to the Instruction manual flow transmitter type 8025/8035 for installation on the process, configuration and general specifications.

The 12/30 VDC power supply and relays connection are made via 2 cable glands. Remove the cover, pull cable through the PG 13.5 and wire according to the above figure.

The switch SW100 is set in the factory according to the type of sensor (Hall/Coil)

In the PROFIBUS-DP the 2-wires lines on the field bus must be terminated at both ends by resistances. If the flow transmitter is the last device on the line, slide both switches to the ON position in order to activate the terminal resistances.

3.2 Connection of Siemens PLC to the transmitter type 8025/8035 PROFIBUS

Please refer to chapter "Cable routing, screening and parasitic voltage damping" in the Siemens instruction manual.  
Siemens IM 308 C Interface module

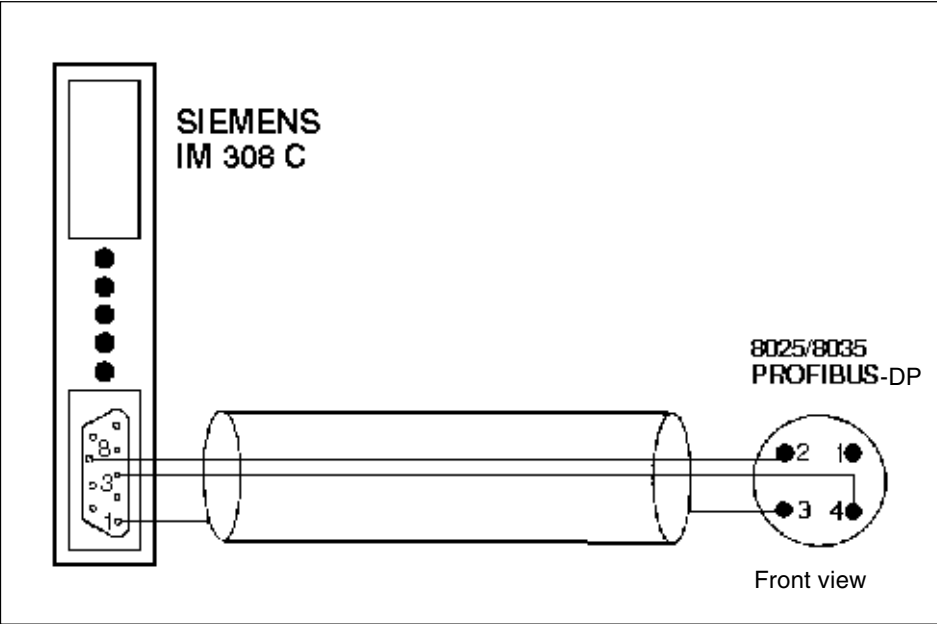


Fig. 3.2 Flow transmitter 8025/8035 PROFIBUS-DP - PLC connection

| Pin at IM 308 C | Signal name       | Pin at transmitter |
|-----------------|-------------------|--------------------|
| 1               | Protective ground | 3                  |
| 3               | R x D/TxD-P       | 4                  |
| 8               | RxD/TxD-N         | 2                  |

The PLC must include a Siemens IM 308 C interface card or equivalent. The bus line must be a twisted, two-wires screened cable (Refer to Siemens PLC manual for cable type). The LED of the transmitter will blink when the flow transmitter has found the baud rate of the net.

Pay attention to the cable length, and the set baud rate as specified by the PROFIBUS-DP.



The operation of the unit is divided into 3 main menus

### A) Display

This menu displays the flow rate, main totalizer and daily totalizer. The daily totalizer can also be reset within this menu.

### B) Parameter Definition

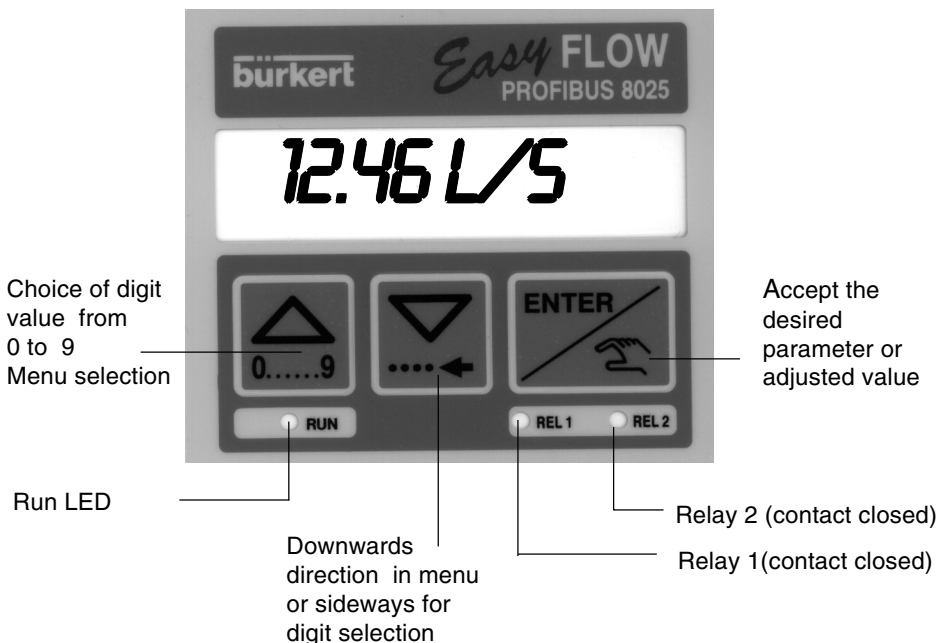
All the necessary settings, such as the language, engineering units, K-factor, relay, address of the device on the network and filter are carried through within this menu.

The main totalizer and the daily totalizer are simultaneously reset within this menu.

### C) Testing

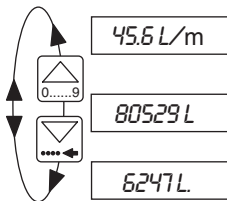
A flow rate can be simulated within this menu, which allows to test a process in the "dry-run condition". This menu also displays the sensor frequency.

## 4.1 Operating and Control Elements



## 4.2 Operation Mode Display

The following variables are displayed within the operation mode:



Flow rate in the required engineering unit (see calibration menu).

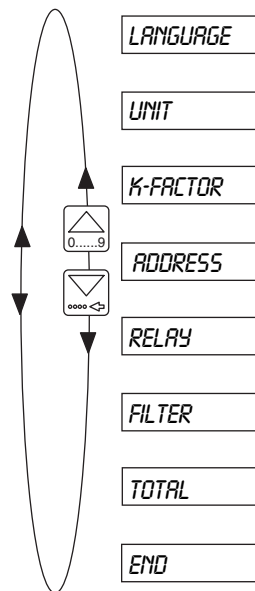
Main totalizer in the required engineering unit (see calibration menu). Reset within the calibration menu.

Daily totalizer in the same engineering unit as the main totalizer. A point behind the unit differentiates it from the main totalizer. Reset by simultaneously pressing the   keys for 2 seconds.

## 4.3 Calibration Mode

Press   simultaneously for 5 seconds

The following variables can be set within the parameter definition menu:



Language selection between English, German, French, Italian, Spanol,....

Selection of units for the flow rate and volume totalizer displays.

Input of K-factor according to the chart or Teach-in function in order to determine the specific K-factor.

**Address of the transmitter on the PROFIBUS-DP (0-126)**

Parameter definition of relays. This option appears only if the relay option has been installed.

Dampening selection. There are 10 different stages available.

Simultaneously resetting of both totalizers.

Return to the operation mode and save the new parameters set.

## 4.3.1 Address of the flow transmitter on the PROFIBUS-DP Net

Enter the decimal value of the transmitter address then press ENTER.



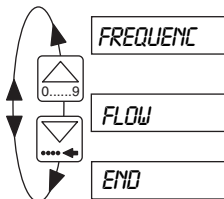
Enter the address of the transmitter on the PROFIBUS-DP network (0-126).



The transmitter automatically resets after change of the address.

## 4.4 Test Menu: Press simultaneously for 5 seconds

The frequency display and flow tests are carried through within this test menu:



Sensor frequency readout.

Enter the flow rate to be simulated. The outputs will react according to this input.

Return to the main menu.

## 8025-PROFIBUS-DP

### (resp 8035)

The flow transmitter type 8025-PROFIBUS-DP (or 8035) is based on a flow transmitter type 8025 (or 8035), the current and pulse outputs have been suppressed. These values are available in the exchange frames between the 8025/8035 PROFIBUS-DP (slave) and the master (PLC).

The flow transmitter type 8025-PROFIBUS-DP includes a SIEMENS PLC3 ASIC to communicate with the PROFIBUS-DP protocol.

### PROFIBUS-DP protocol information:

#### -SAP55 Set Slave Address:

The SAP is not enabled. It is not possible to change the slave address by the master.

#### -SAP60 Slave Diagnosis:

The 8025-PROFIBUS-DP uses customer specific diagnostics.

The table (see slave diagnosis frame values) shows what are the different data types and values.

#### -SAP61 Set Param:

The data for the user parameter is sent by a PROFIBUS-DP master to initialize the transmitter.

The table (Master Frame for Calibration Values) shows the different data types and values.

#### -SAP52 (optional)

This SAP is not used, although all the other SAPs of the PROFIBUS-DP protocol are used.

### Flow transmitter type 8025/8035 PROFIBUS-DP information

A 12..30 VDC power supply is required.

After configuration, the flow transmitter will send the following data to the master:

- Instant flow value
- Totalizer values (daily and general)
- Paddle-wheel frequency
- Relays status

**The master can operate the calibration of the transmitter 8025/8035 PROFIBUS-DP and can reset the daily totalizer .**

**When the address is changed, the transmitter automatically resets.**

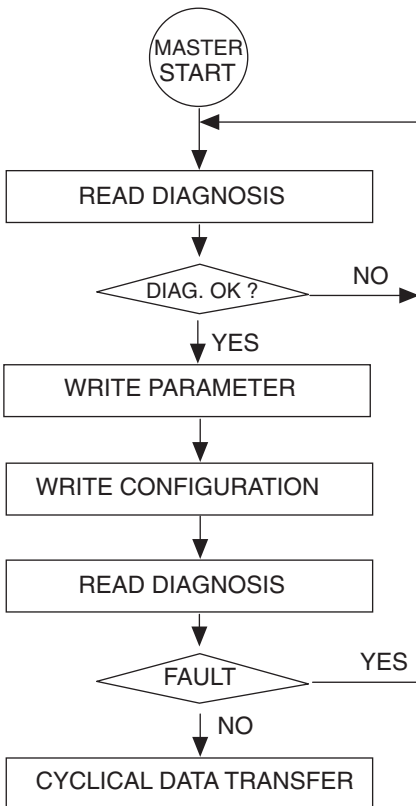
#### **Default diagnosis:**

In case of malfunction (transmitter flow value = 0 l/s) make sure that you have a K-factor value different from 0, otherwise change the position of the switch SW100 (Hall/coil sensor).

While the transmitter is not in communication with the master, the " Run " led is off in order to indicate a failure.

The "RUN LED" will blink when the flow transmitter has founded the baud rate of the network.

The "RUN" led is on during communication between the transmitter and the master.

**5.1 PROFIBUS-DP master communication procedure**

Read diagnosis. The diagnosis is requested until the user logs on, and is not seized by another master. (§ 4.4)

Master sends parametrising. (§ 4.5)  
 - BUS-specific data (e.g., response monitoring)  
 - User specific parameter data (Ex. Stage 2)

Master sends desired configuration.  
 (Ex. stage 3-4)

Desired configuration is compared with the actual configuration in the slave (transmitter)  
 ==> Fault indicated in diagnosis.

Master reads diagnosis.

If there is a configuration fault, the communication will restart from the beginning.

If the slave is in the data transfer mode, a cyclical data transfer will take place.

**FRAMES DECRPTION**

|                                              |      |
|----------------------------------------------|------|
| 4.2 Slave to master data transmission values | E-13 |
| 4.3 Master to slave data transmission values | E-14 |
| 4.4 Slave diagnosis frames values            | E-15 |
| 4.5 Master parameter frames for calibration  | E-19 |

5.2 Slave to master data transmission values

| Data type                     | Length  | Specific data format (hexa) |           |
|-------------------------------|---------|-----------------------------|-----------|
| instant flow value            | 1 word  | XX XX                       |           |
| actual decimal position       | 1 word  | 00 XX                       |           |
| actual flow unit              | 1 word  | 00 XX                       |           |
| instant main totalizer value  | 2 words | High 00 XX                  | Low XX XX |
| instant daily totalizer value | 2 words | High 00 XX                  | Low XX XX |
| actual totalizer unit         | 1 word  | 00 XX                       |           |
| paddle frequency              | 2 words | High 00 XX                  | Low XX XX |
| relay status                  | 1 word  | 00 XX                       |           |

The values of decimal position, flow unit and totalizer units are used in the same order as within the calibration menu. For more information refer to the following tables.

| Data type      | Calibration menu Value  | PROFIBUS-DP hexa Value |
|----------------|-------------------------|------------------------|
| Decimal point  | 0                       | '0000                  |
|                | 1                       | '0001                  |
|                | 2                       | '0002                  |
|                | 3                       | '0003                  |
| Flow unit      | L/S                     | '0000                  |
|                | L/MIN                   | '0001                  |
|                | L/H                     | '0002                  |
|                | M3/MIN                  | '0003                  |
|                | M3/H                    | '0004                  |
|                | US GAL/S                | '0005                  |
|                | US GAL/MIN              | '0006                  |
|                | US GAL/H                | '0007                  |
|                | IMP GA/S                | '0008                  |
|                | IMP GA/MIN              | '0009                  |
|                | IMP GA/H                | '000A                  |
| Totalizer unit | L                       | '0000                  |
|                | M3                      | '0001                  |
|                | US GAL                  | '0002                  |
|                | IMP GAL                 | '0003                  |
| Relay status   | no relay detected       | '0000                  |
|                | relay 1 off relay 2 off | '0004                  |
|                | relay 1 on relay 2 off  | '0005                  |
|                | relay 1 off relay 2 on  | '0006                  |
|                | relay 1 on relay 2 on   | '0007                  |

5.3 Master to slave data transmission values

Configuration of slave

If the master wants to reset the daily totalizer, the following value must be sent to the flow transmitter.

Reset of the daily totalizer                      word = `5555 hex

If the master wants to modify the configuration of the transmitter, the following value is send to the sensor.

Master request to calibrate slave              word 'AAAA hex



In order to set the transmitter 8025/8035 into the parameter mode, the master must send a configuration frame with **byte 8 different from 0**.  
When the new parameters have been taken into account by the transmitter, the master must send frames without values '5555 or 'AAAA in the first byte so that the transmitter remains in the data exchange mode.

| Data type                         | Length | Specific data format (hexa) |
|-----------------------------------|--------|-----------------------------|
| Reset of the daily totalizer      | word   | '5555                       |
| Master request to calibrate slave | word   | 'AAAA                       |

5.4 Slave diagnosis frame values ( byte 0-10)

Diagnosis of slave

When the system is over running, or in cases of wrong configuration, the diagnosis of the Slave will be read by the Master. The following data is stored in the unit relating to the diagnosis of the flow transmitter (Ext\_Diag\_Data).

|      | Bit 7                                                                                                                 | Bit 6     | Bit 5                                                                     | Bit 4                                 | Bit 3                                              | Bit 2    | Bit 1              | Bit 0    |
|------|-----------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------|---------------------------------------|----------------------------------------------------|----------|--------------------|----------|
| Byte | Bus parameters (System parameters) 7 Bytes                                                                            |           |                                                                           |                                       |                                                    |          |                    |          |
| 0    | Lock_Rep                                                                                                              | Unlock_Re | Sync_Req                                                                  | Freeze_Req                            | WD_On                                              | reserved | reserved           | reserved |
|      | 00 min TSDR & Slave data<br>01 for other Master enabled<br>10 for other Master blocked<br>01 for other Master enabled |           | Slave will be operated in Sync-Mode                                       | Slave will be operated in Freeze-Mode | Response monitor<br>0: de-activate<br>1: activated |          |                    |          |
| 1    | WD_Fact_1                                                                                                             |           | (Range 1 - 255 response monitoring in [s] = 10ms * WD_Fact_1 * WD_Fact_2) |                                       |                                                    |          |                    |          |
| 2    | WD_Fact_2                                                                                                             |           | (Range 1 - 255 response monitoring in [s] = 10ms * WD_Fact_1 * WD_Fact_2) |                                       |                                                    |          |                    |          |
| 3    | TSDR                                                                                                                  |           | (Time in Tbit if slave can answer. At least 11 Tbit, 0 all value remains) |                                       |                                                    |          |                    |          |
| 4    | Ident_Number                                                                                                          | high Byte | (Manufacturer identifier 65 hex)                                          |                                       |                                                    |          | BÜRKERT DEVICE     |          |
| 5    | Ident_Number                                                                                                          | low Byte  | (Manufacturer identifier 22 hex)                                          |                                       |                                                    |          | 8025/8035 PROFIBUS |          |
| 6    | Group_Ident                                                                                                           |           | (for group-formation, each bit represents a group; length of diagnosis)   |                                       |                                                    |          |                    |          |

| BYTE | Bit 7               | Bit 6        | Bit 5        | Bit 4         | Bit 3           | Bit 2              | Bit 1          | Bit 0         | Error [0] |
|------|---------------------|--------------|--------------|---------------|-----------------|--------------------|----------------|---------------|-----------|
| 7    | Err. reverse relays | Err. relay 2 | Err. relay 1 | Err. K factor | Err. total unit | Err. decimal point | Err. flow unit | Err language. |           |

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3       | Bit 2           | Bit 1            | Bit 0              | Error [1]            |
|------|-------|-------|-------|-------|-------------|-----------------|------------------|--------------------|----------------------|
| 8    | 0     | 0     | 0     | 0     | Err. EEPROM | Err. calib menu | Ind. reset total | Err. filter choice |                      |
| 9    | 0     | 0     | 0     | 0     | 0           | 0               | 0                | 0                  | Error [2] (not used) |

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Language |
|------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 10   |       |       |       |       |       | 0     | 0     | 0     | English  |
|      |       |       |       |       |       | 0     | 0     | 1     | Deutsch  |
|      |       |       |       |       |       | 0     | 1     | 0     | Français |
|      |       |       |       |       |       | 0     | 1     | 1     | Italiano |
|      |       |       |       |       |       | 1     | 0     | 0     | Spanol   |



## 5.4 Slave diagnosis frame values ( byte 11-17)

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Flow unit  |
|------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
| 11   |       |       |       |       | 0     | 0     | 0     | 0     | L/s        |
|      |       |       |       |       | 0     | 0     | 0     | 1     | L/min      |
|      |       |       |       |       | 0     | 0     | 1     | 0     | L/h        |
|      |       |       |       |       | 0     | 0     | 1     | 1     | m³/min     |
|      |       |       |       |       | 0     | 1     | 0     | 0     | m³/h       |
|      |       |       |       |       | 0     | 1     | 0     | 1     | Gal/s      |
|      |       |       |       |       | 0     | 1     | 1     | 0     | Gal/min    |
|      |       |       |       |       | 0     | 1     | 1     | 1     | Gal/h      |
|      |       |       |       |       | 1     | 0     | 0     | 0     | ImpGal/s   |
|      |       |       |       |       | 1     | 0     | 0     | 1     | ImpGal/min |
|      |       |       |       |       | 1     | 0     | 1     | 0     | ImpGal/h   |

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Decimal position |
|------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|
| 12   |       |       |       |       |       |       | 0     | 0     | 0                |
|      |       |       |       |       |       |       | 0     | 1     | 1                |
|      |       |       |       |       |       |       | 1     | 0     | 2                |
|      |       |       |       |       |       |       | 1     | 1     | 3                |

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Totalizers Units |
|------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|
| 13   |       |       |       |       |       |       | 0     | 0     | l                |
|      |       |       |       |       |       |       | 0     | 1     | m³               |
|      |       |       |       |       |       |       | 1     | 0     | Gal              |
|      |       |       |       |       |       |       | 1     | 1     | Imp Gal          |

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | K-factor  |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|
| 14   | X     | X     | X     | X     | X     | X     | X     | X     | K factor0 |
| 15   | X     | X     | X     | X     | X     | X     | X     | X     | K factor1 |
| 16   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | X     | K factor2 |

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Slave address |
|------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|
| 17   | X     | X     | X     | X     | X     | X     | X     | X     | Slave address |

## 5.4 Slave diagnosis frame values ( byte 18-27)

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Relay 1                |
|------|-------|-------|-------|-------|-------|-------|-------|-------|------------------------|
| 18   | X     | X     | X     | X     | X     | X     | X     | X     | Relay 1 low level LSB  |
| 19   | X     | X     | X     | X     | X     | X     | X     | X     | Relay 1 low level MSB  |
| 20   | X     | X     | X     | X     | X     | X     | X     | X     | Relay 1 high level LSB |
| 21   | X     | X     | X     | X     | X     | X     | X     | X     | Relay 1 high level MSB |

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Relay 2                |
|------|-------|-------|-------|-------|-------|-------|-------|-------|------------------------|
| 22   | X     | X     | X     | X     | X     | X     | X     | X     | Relay 2 low level LSB  |
| 23   | X     | X     | X     | X     | X     | X     | X     | X     | Relay 2 low level MSB  |
| 24   | X     | X     | X     | X     | X     | X     | X     | X     | Relay 2 high level LSB |
| 25   | X     | X     | X     | X     | X     | X     | X     | X     | Relay 2 high level MSB |

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Inversion             |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------|
| 26   |       |       |       |       |       |       | 0     | 0     | not REL 1 / not REL 2 |
|      |       |       |       |       |       |       | 0     | 1     | REL 1 / not REL 2     |
|      |       |       |       |       |       |       | 1     | 0     | not REL 1 / REL 2     |
|      |       |       |       |       |       |       | 1     | 1     | REL 1 / REL 2         |

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Filter |
|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 27   | X     | X     | X     | X     | 0     | 0     | 0     | 0     | 0      |
|      | X     | X     | X     | X     | 0     | 0     | 0     | 1     | 1      |
|      | X     | X     | X     | X     | 0     | 0     | 1     | 0     | 2      |
|      | X     | X     | X     | X     | 0     | 0     | 1     | 1     | 3      |
|      | X     | X     | X     | X     | 0     | 1     | 0     | 0     | 4      |
|      | X     | X     | X     | X     | 0     | 1     | 0     | 1     | 5      |
|      | X     | X     | X     | X     | 0     | 1     | 1     | 0     | 6      |
|      | X     | X     | X     | X     | 0     | 1     | 1     | 1     | 7      |
|      | X     | X     | X     | X     | 1     | 0     | 0     | 0     | 8      |
|      | X     | X     | X     | X     | 1     | 0     | 0     | 1     | 9      |

**5.5 Master parameter frame for calibration ( byte 1-9)****Configuration of Slave**

The transmitter can be reconfigured by the master after reception of the 'AAAA hex value sent by the master (§ 2).

If a parameter has a wrong value, then the transmitter rejects the parameter message and initializes the user error flags in the diagnosis frame (§3; byte 7,8,9).

If the transmitter is in the main menu, then the message will be ERRORS[1].2=1

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | CONTENT              |
|------|-------|-------|-------|-------|-------|-------|-------|-------|----------------------|
| 0    |       |       |       |       |       |       |       |       | Station status       |
| 1    |       |       |       |       |       |       |       |       | WD fact 1            |
| 2    |       |       |       |       |       |       |       |       | WD fact 2            |
| 3    |       |       |       |       |       |       |       |       | Min TSDR             |
| 4    | 0     | 1     | 1     | 0     | 0     | 1     | 0     | 1     | Ident Nr High 65h    |
| 5    | 0     | 0     | 1     | 0     | 0     | 0     | 1     | 0     | Ident Nr Low 22h     |
| 6    |       |       |       |       |       |       |       |       | Group Ident          |
| 7    |       |       |       |       |       |       |       |       | Spec. User Prm. byte |

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Using master Prm       |
|------|-------|-------|-------|-------|-------|-------|-------|-------|------------------------|
| 8    |       |       |       |       |       |       |       |       | 0=NO 0>YES message Y/N |

If the byte 8 is equal to 0, all the changes transmitted in bytes (9-26) will be ignored by the transmitter.

If the byte 8 is different from 0, then the requested changes transmitted in bytes (9-26) are validated.

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Language |
|------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
|      |       |       |       |       |       | 0     | 0     | 0     | English  |
|      |       |       |       |       |       | 0     | 0     | 1     | Deutsch  |
|      |       |       |       |       |       | 0     | 1     | 0     | Français |
|      |       |       |       |       |       | 0     | 1     | 1     | Italiano |
|      |       |       |       |       |       | 1     | 0     | 0     | Spanol   |

|        |                                          |  |  |  |  |  |  |               |
|--------|------------------------------------------|--|--|--|--|--|--|---------------|
| Errors | If Other Values Diagnostic's error flags |  |  |  |  |  |  | Errors[0].0=1 |
|--------|------------------------------------------|--|--|--|--|--|--|---------------|

5.5 Master parameter frame for calibration ( byte 10-12)

When the system is over running, each slave receives parameter values from the master. The first 7 bytes are defined by the DIN 19245 T3 standard (bus parameters). The following bytes are used as customer parameters (User\_Prm\_Data). The input of the parameters data takes place in different ways in the various configuration programs (e.g., COM ET200). In many cases, the bytes defined by the standard are read from the .GSD or .200 file.

Some configuration programs read the user-specific parameters separately. The count for the user parameters often begins with 0 or 1.

| BYTE   | Bit 7                                    | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Flow unit     |
|--------|------------------------------------------|-------|-------|-------|-------|-------|-------|-------|---------------|
| 10     |                                          |       |       |       | 0     | 0     | 0     | 0     | L/s           |
|        |                                          |       |       |       | 0     | 0     | 0     | 1     | L/min         |
|        |                                          |       |       |       | 0     | 0     | 1     | 0     | L/h           |
|        |                                          |       |       |       | 0     | 0     | 1     | 1     | m³/min        |
|        |                                          |       |       |       | 0     | 1     | 0     | 0     | m³/h          |
|        |                                          |       |       |       | 0     | 1     | 0     | 1     | Gal/s         |
|        |                                          |       |       |       | 0     | 1     | 1     | 0     | Gal/min       |
|        |                                          |       |       |       | 0     | 1     | 1     | 1     | Gal/h         |
|        |                                          |       |       |       | 1     | 0     | 0     | 0     | ImpGal/s      |
|        |                                          |       |       |       | 1     | 0     | 0     | 1     | ImpGal/min    |
|        |                                          |       |       |       | 1     | 0     | 1     | 0     | ImpGal/h      |
| Errors | If Other Values Diagnostic's error flags |       |       |       |       |       |       |       | Errors[0].1=1 |

| BYTE   | Bit 7                          | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Decimal position |
|--------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|------------------|
| 11     |                                |       |       |       |       |       | 0     | 0     | 0                |
|        |                                |       |       |       |       |       | 0     | 1     | 1                |
|        |                                |       |       |       |       |       | 1     | 0     | 2                |
|        |                                |       |       |       |       |       | 1     | 1     | 3                |
| Errors | If >3 Diagnostic's error flags |       |       |       |       |       |       |       | Errors[0].2=1    |

| BYTE   | Bit 7                          | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Totalizer unit |
|--------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|----------------|
| 12     |                                |       |       |       |       | 0     | 0     | 0     | l<br>m³        |
|        |                                |       |       |       |       | 0     | 0     | 1     |                |
| Errors | If >1 Diagnostic's error flags |       |       |       |       |       |       |       | Errors[0].3=1  |

**5.5 Master parameter frame for calibration ( byte 13-26)**

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | K-factor   |
|------|-------|-------|-------|-------|-------|-------|-------|-------|------------|
| 13   | X     | X     | X     | X     | X     | X     | X     | X     | K factor 0 |
| 14   | X     | X     | X     | X     | X     | X     | X     | X     | K factor 1 |
| 15   | 0     | 0     | 0     | 0     | 0     | 0     | 0     | X     | K factor 2 |

**Errors** If Other Values Diagnostic's error flags Errors[0].4=1

**Note :** K-factor is in standard with 2 digits after the point.

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Relay 1              |
|------|-------|-------|-------|-------|-------|-------|-------|-------|----------------------|
| 16   | X     | X     | X     | X     | X     | X     | X     | X     | rel 1 Low level LSB  |
| 17   | X     | X     | X     | X     | X     | X     | X     | X     | rel 1 Low level MSB  |
| 18   | X     | X     | X     | X     | X     | X     | X     | X     | rel 1 High level LSB |
| 19   | X     | X     | X     | X     | X     | X     | X     | X     | rel 1 High level MSB |

**Errors** If High level < Low level Diagnostic's error flags Errors[0].5=1

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Relay 2              |
|------|-------|-------|-------|-------|-------|-------|-------|-------|----------------------|
| 20   | X     | X     | X     | X     | X     | X     | X     | X     | rel 2 Low level LSB  |
| 21   | X     | X     | X     | X     | X     | X     | X     | X     | rel 2 Low level MSB  |
| 22   | X     | X     | X     | X     | X     | X     | X     | X     | rel 2 High level LSB |
| 23   | X     | X     | X     | X     | X     | X     | X     | X     | rel 2 High level MSB |

**Errors** If High level < Low level Diagnostic's error flags Errors[0].6=1

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Inversion         |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------------------|
| 24   |       |       |       |       |       |       | 0     | 0     | not REL1/not REL2 |
|      |       |       |       |       |       |       | 0     | 1     | REL 1/not RE 2    |
|      |       |       |       |       |       |       | 1     | 0     | not REL 1/REL 2   |
|      |       |       |       |       |       |       | 1     | 1     | REL 1/REL 2       |

**Errors** If >3 Diagnostic's error flags Errors[0].7=1

**25** 0 to 9 **Filter**

**Errors** If >9 Diagnostic's error flags Errors[1].0=1

| BYTE | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Reset 2 totalizers |
|------|-------|-------|-------|-------|-------|-------|-------|-------|--------------------|
| 26   |       |       |       |       |       |       |       | 0     | Not reset          |
|      |       |       |       |       |       |       |       | 1     | Reset              |

**Errors** If >1 Diagnostic's error flags Errors[1].1=1

5.6-Examples of a message sent by the transmitter

Data transmitted to the master and the order the of transmission

For the following flow rate measurement:

Flow = 11.56 l/s

Main totalizer = 11524 m³

Daily totalizer = 860 m³

Paddle-wheel frequency = 115.635 Hz (K-factor 10)

No relay alarm detected

At: Address: 10

Input memory address: 24-45;

Output memory address: 4-5

| VALUE HEX | DATA                   | BYTES | LENGTH        |
|-----------|------------------------|-------|---------------|
| '0484     | Flow rate              | 24-25 | 2 bytes (1 w) |
| '0002     | Decimal point position | 26-27 | 2 bytes (1 w) |
| '0000     | Flow unit              | 28-29 | 2 bytes (1 w) |
| '2D04     | Main totalizer Low     | 30-31 | 2 bytes (1 w) |
| '0000     | Main totalizer high    | 32-33 | 2 bytes (1 w) |
| '035C     | Daily totalizer high   | 34-35 | 2 bytes (1 w) |
| '0000     | Daily totalizer high   | 36-37 | 2 bytes (1 w) |
| '0001     | Totalizer unit         | 38-39 | 2 bytes (1 w) |
| 'C3B3     | Paddle frequency low   | 40-41 | 2 bytes (1 w) |
| '0001     | Paddle frequency high  | 42-43 | 2 bytes (1 w) |
| '0000     | Relays status          | 44-45 | 2 bytes (1 w) |

Reset of the daily totalizer

In order to reset the daily totalizer, the master mut send the value '5555 in bytes 4-5.

Note:

The totalizer unit is always identical for the main and daily totalizers.

The paddle wheel frequency value is always transmitted with an accuracy of 10<sup>-3</sup>.

(The measured value is displayed with an accuracy of 10<sup>-2</sup>)

Insert the diskette delivered with the flow transmitter in the programming console.  
Activate the INSTALL menu, then select the configuration file of the device according to the communication level of the PLC.

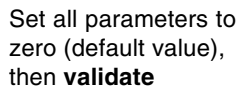
Step 7 → BUER6522.GSD (Example 2).

Enter the communication data of the flow transmitter according to the following display.

### Example 1: Configuration for PROFIBUS-DP network; PLC: IM 308 C Step 5



### Stage 1 Addition of the 8025/8035 device to the PROFIBUS-DP network



## Stage 2

Example 1: Configuration for PROFIBUS-DP network; PLC: IM 308 C Step 5

| Konfigurieren: 8025 PROFIBUS DP #6 <> |         |           |        |        |
|---------------------------------------|---------|-----------|--------|--------|
|                                       | Kennung | Kommentar | E-Adr. | A-Adr. |
| 0                                     | 11AE    |           | P000   |        |
| 1                                     | 1AA     |           |        | P000   |
| 2                                     |         |           |        |        |
| 3                                     |         |           |        |        |
| 4                                     |         |           |        |        |
| 5                                     |         |           |        |        |
| 6                                     |         |           |        |        |
| 7                                     |         |           |        |        |
| 8                                     |         |           |        |        |
| 9                                     |         |           |        |        |
| 10                                    |         |           |        |        |
| 11                                    |         |           |        |        |
| 12                                    |         |           |        |        |
| 13                                    |         |           |        |        |

OK

Abbrechen

Bestellnr. ...

Kennung...

Daten...

Reservieren

Autoadr.

Löschen...

Adr.-Raum...

Param. ...

Hilfe

Validate

11 Inputs  
1 Output

Stage 3 Table of the input/output memory for the 8025/8035 PROFIBUS-DP network

Typ : Eingänge

Länge : 11

Format : Wort

☐ Baugruppenkonsistenz

Zugehörige Kennung: 90

OK

Abbrechen

Hilfe

Hex : 5A  
Dec : 90

Stage 4 Control the length and address of the input memory of the transmitter 8025/8035

Typ : Ausgänge

Länge : 1

Format : Wort

☐ Baugruppenkonsistenz

Zugehörige Kennung: 96

OK

Abbrechen

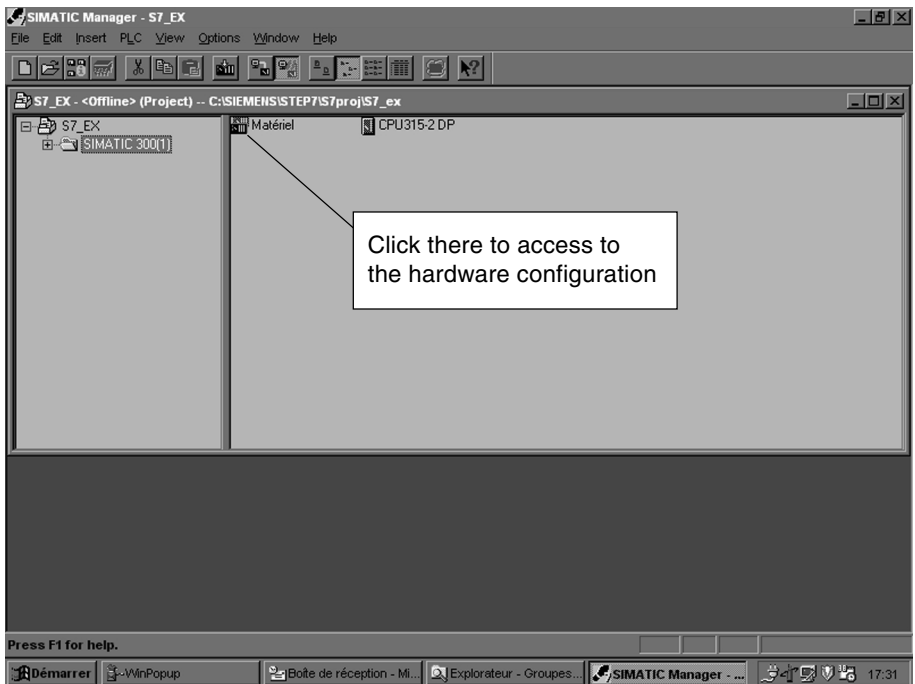
Hilfe

Hex : 60  
Dec : 96

Stage 5 Control the length and address of the output memory of the transmitter 8025/8035

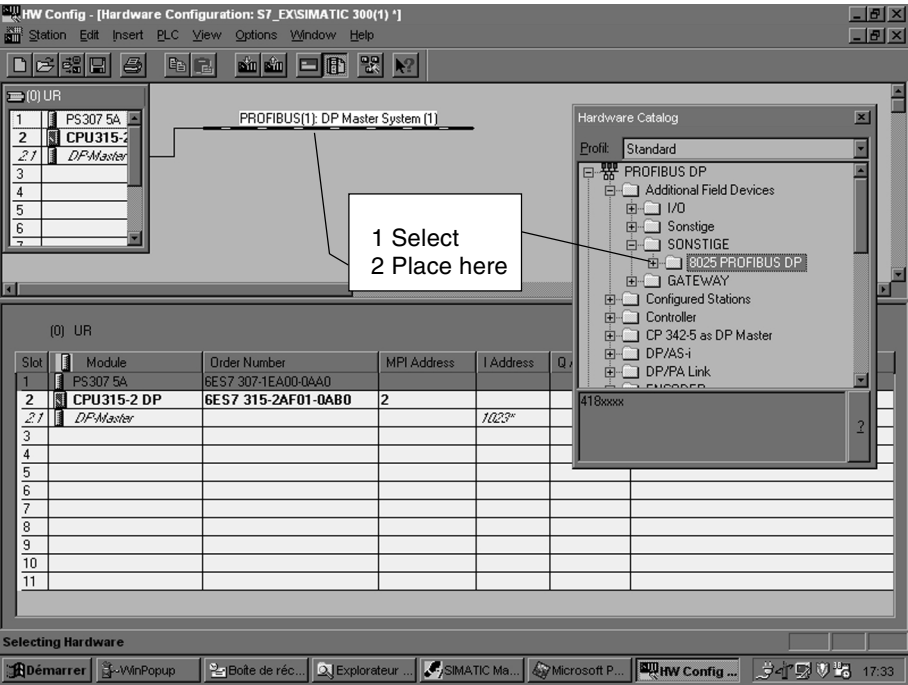
Then, the master is ready to initiate the communication with the transmitter.  
The communication frames used, described in this manual, conform to DIN 19245-3 requirements.



**Example 2:** Configuration for PROFIBUS-DP network; PLC: S7315-2DP Step 7

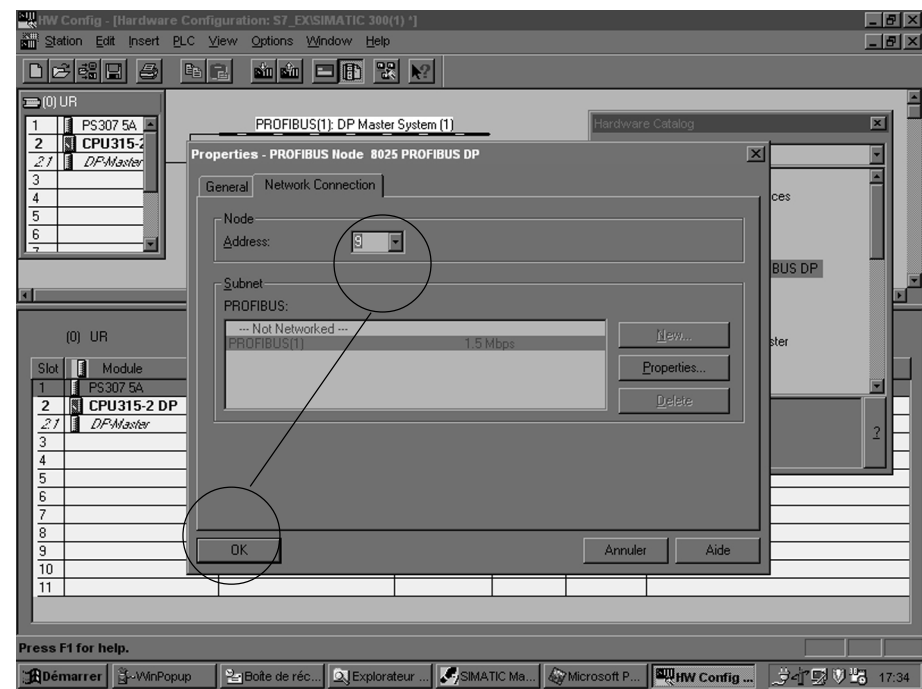
**Stage 1** Allows access to the hardware configuration procedure.

Example 2: Configuration for PROFIBUS-DP network; PLC: S7315-2DP Step 7



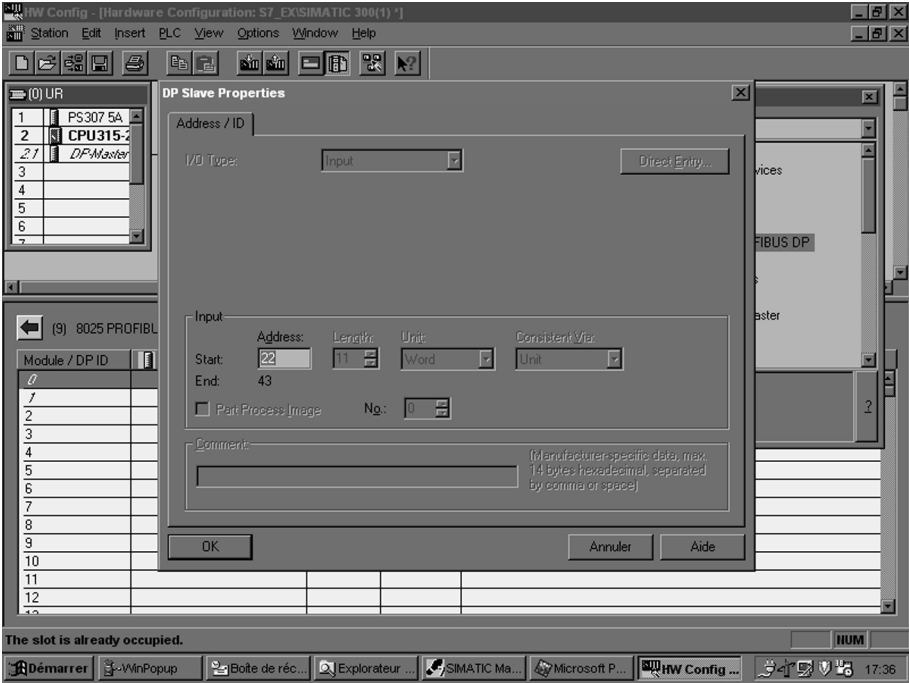
**Stage 2** Add a slave on the PROFIBUS-DP network, after the configuration of the PLC and of the PROFIBUS-DP network.  
Select the 8025/8035 PROFIBUS-DP, and move it in the central window.

Example 2: Configuration for PROFIBUS-DP network; PLC: S7315-2DP Step 7



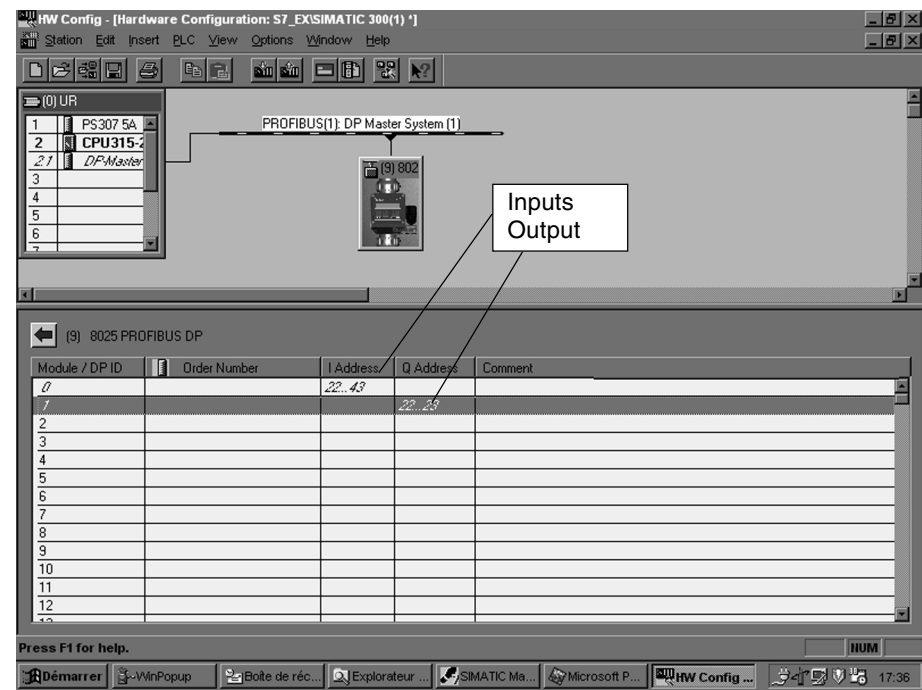
Stage 3 Enter the address of the transmitter 8025/8035 PROFIBUS-DP.

**Example 2:** Configuration for PROFIBUS-DP network; PLC: **S7315-2DP** Step 7



**Stage 4** Enter the length and address of the input memory of the transmitter 8025/8035. Internal check. These values will further be used for the programming of the PLC.

Example 2: Configuration for PROFIBUS-DP network; PLC: S7315-2DP Step 7



**Stage 5** Check the length and address of the input/output memory of the transmitter 8025/8035 PROFIBUS-DP.

Quit: STATION (Enter)  
SAVE (Enter)

End of the hardware configuration of using **Step 7** ; If any changes are required, repeat the procedure, starting at stage 1.  
Then, the master is ready to initiate the communication with the transmitter.  
The communication frames used, are described in this manual, according to DIN 19245-3 requirements.

Notes:

7.1 Factory settings of the transmitter electronic 8025/SE35 at delivery

|                     |         |         |         |          |
|---------------------|---------|---------|---------|----------|
| Language:           | English | Relay:  | 1-:     | 00.10    |
| Unit of flow:       | L/s     |         | 1+:     | 00.50    |
| Unit of totalizers: | L       |         | Invert: | YES      |
| Decimal points:     | 2       |         | 2-:     | 00.10    |
| K-factor:           | 46.60   |         | 2+:     | 02.00    |
| Address:            | 6       |         | Invert: | YES      |
|                     |         | Filter: |         | Filter 2 |

User settings of the transmitter 8025/SE35 Identification N°:

|                     |          |
|---------------------|----------|
| Language:           | Address: |
| Unit of flow:       |          |
| Unit of totalizers: | Relay:   |
| Decimal points:     | 1-:      |
| K-factor:           | 1+:      |
|                     | Invert:  |
|                     | 2-:      |
|                     | 2+:      |
| Fitting used:       | Invert:  |
|                     | Filter:  |
|                     | Filter   |

7.2 Error messages and maintenance

If the device has been installed properly the transmitter is maintenance-free. If contamination or clogging should occur during operation, the transmitter (paddle-wheel, bearing) can be cleaned with water or another appropriate cleaning agent.

The message "ERROR" on the display indicates that the calibration data has been lost. By pressing ENTER, the user can access the operation menu, the device will work with the settings from the factory(see § 5.1). If this message appears, the transmitter must be re-calibrated. If this message persistantly appears, please return the product to the factory.

If the RUN LED is blinking, connection is in progress, the baud rate has been detected. If the RUN LED is OFF, there is no signal on the communication line; check that the wiring of the network is correct

If the RUN LED is ON, trasnmitter connected to the network, communication in progress.

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