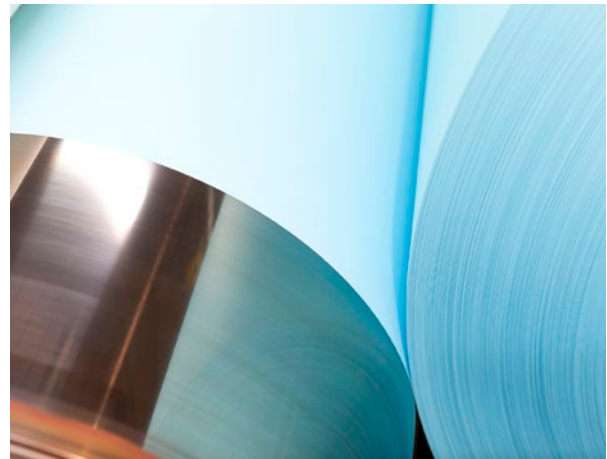


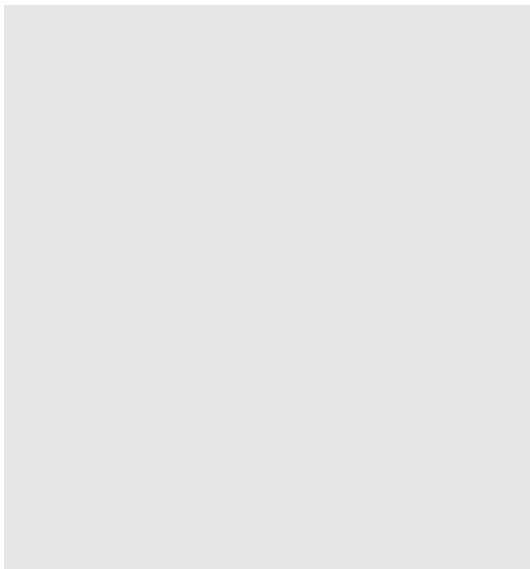
Speed Pressure Flow Rate Temperature

FREQUENCY RELAY FMP 1836

for limit value and standstill monitoring, detection of rotation direction



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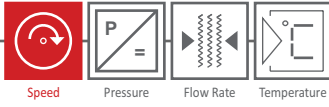
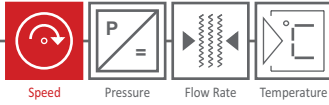


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General description

The 2 Channel frequency transducer FMP 1836 displays all measurands which can be converted to the equivalent parameter frequency by applicable transmitters.

The FMP 1836 is designed for recognition of rotation direction as well as limit value monitoring and standstill monitoring. The ECT - Esters Configuration Tool running on Microsoft Windows provides all functions to program the required features for its application.

Detection of the rotation direction (4-quadrant operation)

The FMP 1836 is designed for the recognition of rotation direction of two signals, out of phase 90° (4-quadrant operation). The directions of CLOCKWISE and COUNTERCLOCKWISE are connected to the frequency input. The mA output can be used for the actual speed of the frequencies. The integrated relays show the status of the direction. Additionally one relay can be programmed for limit value monitoring.



Monitoring of limit values and standstill

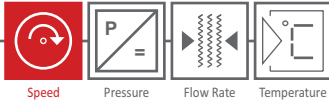
The FMP 1836 with its 2 frequency inputs and 4 freely programmable relay output can be used for limit value and standstill monitoring. Each relay can be programmed with a limiter which provides 5 operation modes:

- lower limit value („underrange“)
- upper limit value („overrange“)
- band limit value („band“)
- notch limit value („notch“)

Each limiter can be programmed with a trigger delay. For the lower and upper limit a hysteresis band can be defined.

Fields of Application

- | | | |
|-----------------------------------------|------------------------------------------------|--------------------|
| ■ Actual value for analog speed control | ■ Paper, fibre, film, steel and crane industry | ■ Centrifuges |
| ■ Test stands | ■ Textile machines | ■ Emergency diesel |
| ■ Turbines | ■ Generators | ■ Agitators |



Technical details

The devices of the series FMP 1836 are available as 2 channel devices.

MEASUREMENTS

- absolute value: channel A and channel B (frequency and rotational speed)
- absolute difference: A-B (frequency and rotational speed)
- percental difference: $(A-B)/B*100$, $(A-B)/A*100$ and $(A-B)/(A+B)*100$ (frequency)
- ratio: (A/B) and (B/A) (frequency)
- incremental signal evaluation (4-quadrant operation, recognition of direction of speed)

MEASURING INPUT

| | | WITH SC 500 |
|-----------------------|-------------------------------------|-------------------------------------------------------------------------------------|
| INPUT 1 (CHANNEL „A“) | frequency „A“ 1 Hz - 60 kHz NPN | frequency „A“ 1 Hz - 60 kHz HTL-TTL 1 Hz - 60 kHz PNP 1 Hz - 60 kHz Namur |
| INPUT 2 (CHANNEL „B“) | frequency „B“: 1 Hz - 60 kHz NPN | frequency „B“: 1 Hz - 60 kHz HTL-TTL 1 Hz - 60 kHz PNP 1 Hz - 60 kHz Namur |

OUTPUT

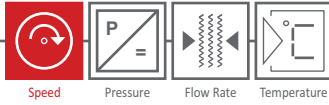
| | |
|------------------------|----------------------------------------------------|
| OUTPUT 1 (CHANNEL „A“) | 0(4) - 20 mA, freely programmable (e.g. speed „A“) |
| OUTPUT 2 (CHANNEL „B“) | 0(4) - 20 mA, freely programmable (e.g. speed „B“) |

RELAY

| | |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| K1 AND K2: | changer, 30 V, AC, 1A inductive direction of rotation „A“ and „B“ or customer-specific parameterisation using ECT - Esters Configuration Tool (e.g. direction of speed „A“, „B“, limit value or failure) |
| K3 AND K4: | NO switch, 30 V, AC, 1A inductive limit value or customer-specific parameterisation using ECT - Esters Configuration Tool (direction of rotation „A“, „B“, limit value or failure) |

FILTER FOR LIMIT VALUES

- lower limit value - underrange
- upper limit value - overrange
- band limit value - band
- notch limit value -notch
- hysteresis



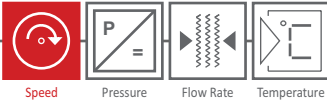
| ELECTRICAL VALUES | |
|---------------------|----------------------------------------------------------------------------|
| ACCURACY | $\pm 0,05 \% \text{ EW} \pm 1 \text{ digit at } 23 \text{ }^\circ\text{C}$ |
| POWER SUPPLY | 24 V, DC $\pm 3 \text{ V}$ |
| CURRENT CONSUMPTION | max. 1,25 A, protection by 3 A fuse or intrinsically safe power supply |
| POWER CONSUMPTION | max. 30 VA |

| ENVIRONMENTAL INFLUENCES | |
|-------------------------------|------------------|
| AMBIENT TEMPERATURE | -10 to +55°C |
| STORAGE TEMPERATURE | -20 to +85°C |
| TEST VOLTAGE | 3 kV |
| HUMIDITY CLASS | E-DIN 40040 |
| ELECTROMAGNETIC COMPATIBILITY | acc. to EN 61000 |

| INTERFACES | |
|------------|---------------------------------------------------------------------------------------------|
| USB | Mini-USB connection (5-pin, USB 2.0) for configuration with ECT - Esters Configuration Tool |

| DISPLAY, HOUSING, WEIGHT | |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| DISPLAY | LCD-display display height: 8 mm |
| STANDARD HOUSING FOR RAIL MOUNTING | dimensions: 100 mm (B) x 100 mm (H) x 107 mm (T) material ABS UL 94 V0 protection class: IP 20 net weight: approx. 480 g |
| PROTECTIVE HOUSING FOR WALL MOUNTING (OPTION M104) | dimensions: 343 mm (B) x 330 mm (H) x 210 mm (T) with tab and high-strength cable gland protection class: IP 65 |

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Order information

| FMP 1836- | 8008-0000 |
|----------------------------------------|-----------|
| INPUT | |
| 1: frequency | • |
| 2: frequency | • |
| OUTPUT | |
| 9: 0 (4) - 20 mA, freely programmable | • |
| 10: 0 (4) - 20 mA, freely programmable | • |
| RELAY | |
| K1: changer, freely programmable | • |
| K2: changer, freely programmable | • |
| K3: NO switch, freely programmable | • |
| K4: NO switch, freely programmable | • |

HOUSING M104 (OPTIONAL)
 protective housing for wall mounting,
 protection class IP65

TRANSDUCER SC 500 (OPTIONAL)
 universal transducer for namur, PNP, HTL-TTL signals
 to frequency

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PROTECTIVE HOUSING FOR WALL MOUNTING M104





Speed



Pressure



Flow Rate



Temperature

Incremental Speed Impulse Sensors

Collection of electromagnetic and hall effect impulse sensors for pole wheel scanning.

For further information see datasheet DS 103 E.



Pole wheels

Collection of pole wheels

For further information see datasheet DS 107 E.