

Gönnheimer Elektronic GmbH

Revolution Indicator

without auxiliery power TÜV 03 ATEX 2090



- * Digital revolution indicator without auxiliery power
- * Can directly be connected parallel with a NAMUR-sensor (DIN 19234)
- * No problems even at use in Ex-areas; PTB-Nr. Ex-86.B.2126
- * Individual range adjustment by changable gate-time
- * Protection according to type up to IP 65
- * 4 1/2 digit LCD-display: digit height 20,5 or 13,6 mm

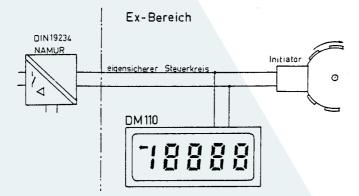
The digital revolution indicator is especially concepted for use in Ex-area.

Because of his type of construction:

- * Inner self-inductance and capacity is negligable small
- * At NAMUR/DIN 19234 driving circuit nearly negligable self-current-consumption
- * Selectable gate-time in 10ms steps

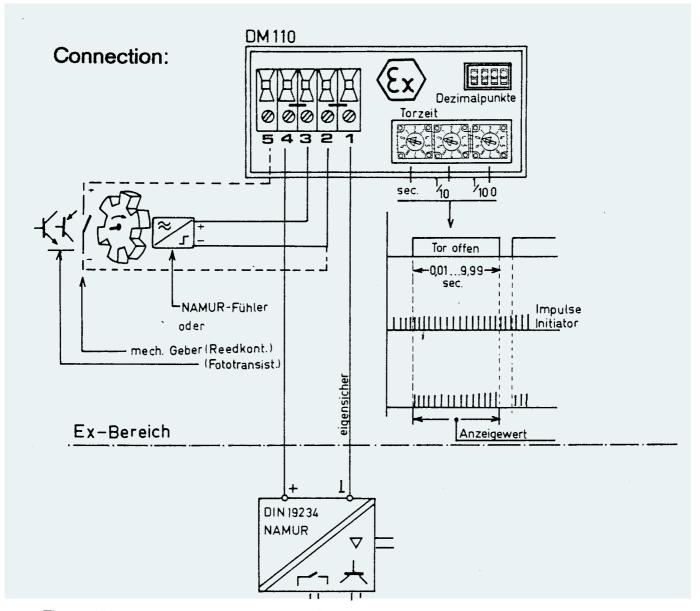
A retrofit of your plant is possible

The equipment has got 5 terminals, so the connection of sensor, driving circuit and indicator without additional terminal box in Ex-area is possible



Function

Because of the optimization of DM 110 circuit the self-current-consumption at 8 V voltage is less than 0,1 mA. This small consumption gives the possibility to connect the equipment with any NAMUPVDIN 19234 driving circuit switched with a right sensor in parallel mode, without disturbing his function. The switching commands of the sensor will come directly to the control unit to be worked up further there. Does the control unit consists of a revolution-supervisor, a max. or a min. revolution can be controlled. During operation in Ex-area the digital revolution indicator DM 110 which is connected parallel with a sensor receiver the control-commands comming from the sensor and integrates them up during choosable gate-time. The gate-time which is necessary for a revolution-proportional indication can be calculated the given equations. Gate-time can be digital adjusted by 1000 steps. Because of this universal setting the revolution counter can be adjusted on any number of teeth of a rotading wave. With another DIP-switch decimal point can be shifted verrions.



The revolution counter can be adjusted in following manner:

1. Gate-time calculation

2. Number of teeth calculation of toothed wheel

3. There is the possibility to adjust the indication by changing gate-time so the wanted indicated value even after installation of the system and a known rotation. The sensor to be used must be choosed according to the highest switching frequency of the system.

The maximum input frequency of revolution indicator DM 110 is 5 kHz (higher frequency input at request). Types DM 110.1/4/6 have no gate-time-generator, so all incoming impulses are counted and indicated. These event counters can be reset by a key at the front.



Abb. DM 110.3

Abb. DM 110.5



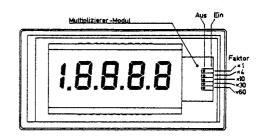
Options for revolution indicator DM 110

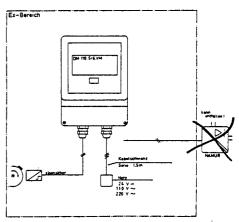
Multiplier-module DM 110.[].IM

The multiplier-module offers the possibility to multiply the incoming impulses of the measuring sensor according to a choosable factor. Therefore it is possible, even at a low rate of impulses, f. e. only one impulse per rotation and a multiply-factor of 60, gate-time one sec., to realize a direct indication of the revolution. With the standard-equipment the factors x1, x4, x10, x30, x60 can be adjusted right next to the LCD-display, after lifting the front frame. The input frequency range is 1 Hz to 5000 Hz.

Supply-module DM 110.[].VM

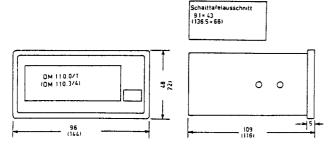
The supply-module is integrated into the DM 110. It generates an intrinsically safe NAMUR-supply-circuit with the supply voltage (220V, 110V, 24V-) It is necessary to feed measuring sensor and your revolution indicator. The result is a self-running measuring-system in ex-area; because there is no additional supply-circuit needed.

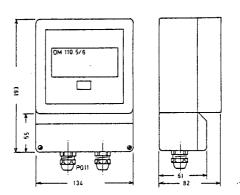




Detailed information about the options, see additional info-page DM 110.

Dimensions





Technical details

| Display | 4 1/2-digit-LCD-seven-segment-display | |
|---------------------------|--|--|
| Digit height | 20,5 mm DM 110.3/4/5/6; 13,6 mm DM 110.0/1 | |
| Indication range | 19999 | |
| Decimal point | by DIP-switch | |
| Driving circuit | intrinsically safe driving circuit; NAMUR/DIN 19234 | |
| Ex protection | E Ex ib IIC T6 Inner self-inductance and capacity is negligable small E Ex ib IIC T5 | |
| Limits of driving circuit | open circuit voltage U _O < 65 V / short-circuit current I _K < 160 mA | |
| power consumption | < 0,1 mA at 8 V; < 0,3 mA at 3 V | |
| Measuring error | < 0,2 % +- 3 digit | |
| Temperatur coefficient | < 0,2 %o/K | |
| Equipment | panel-standard DIN 43700 | LxWxH = 72 x 114 x 116 mm DM 110.3/4 LxWxH = 193 x 134 x 82 mm DM 110.5/6 |
| Material | LxWxH = 48 x 96 x 109 mm DM 110.0/1 Noryl DM 110.0-4 / ABS DM 110.5/6 | 193 X 134 X 62 IIIII DM 110.3/6 |
| Environmental temperature | -10°C+50°C temperature class T6 | |
| ` · | -10°C+65°C temperature class T5 | |
| Type of protection | IP 65 DM 110.5/6; front panel IP 55 DM 110.0-4 | |

Models DM 110.1/4/6 have no gate-time-generator, so all incoming impulses are counted and indicated. These event counters can be reset by a key at the front.

Type code DM 110.[]

+ IM= mulitplier module not possible with event counters +VM= integrated supply module 220 V-, 110 V-, 24 Vnot possible with DM 110.0/1

0 = revolution indicator: equipment 48x96 mm, digit height 13,6 mm

4 = event counter: equipment 72x144 mm revolution indicator: field case 5 =

1 = event counter: equipment 48x96 mm type of protection IP 65, digit height 20,5 mm 6 = event counter: field case, IP 65 3 = revolution indicator: equipment

72x144 mm, digit height 20,5 mm

Attachments: Lockable protection screen, equipment 72x144 mm, type of protection **IP 55**





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