

# ***DIGITAL DISPLAY***

***for Industry Applications***



## **Content:**

<b>Technical Data</b>	<b>....2</b>
<b>Technical Drawing</b>	<b>....2</b>
<b>Electrical Connection</b>	<b>....3</b>
<b>Programming</b>	<b>....5</b>
<b>Control Modes</b>	<b>....6</b>
<b>Order Code &amp; Accessories</b>	<b>....7</b>

## **Series WAY-D**

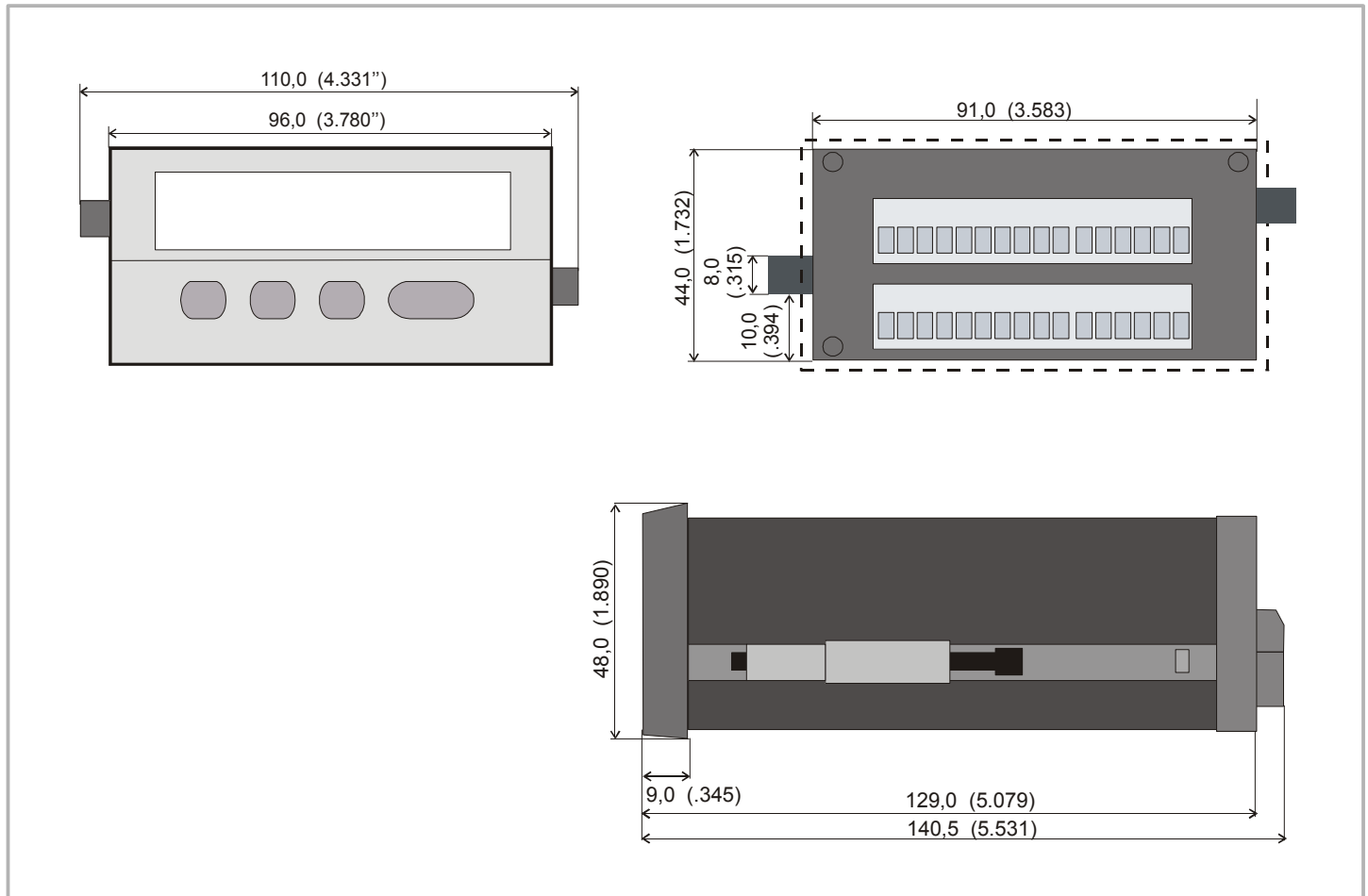
### **Key-Features:**

- **WAY-DS:** only display
- **WAY-DG:** display with two presets and switching outputs
- **WAY-DR:** Display with serial RS232 and RS485 Interface
- **Input signals:** TTL (RS422), HTL
- **High speed position and event counter (100 kHz)**
- **Tachometer and frequency meter**
- **Timer, Stop watch**
- **Additional functions:** linearisation, brightness control, digital filter, etc.

## TECHNICAL DATA WAY-D

Display	6 digits, 15 mm LEDs, high efficiency orange
Panel cut out	91 x 44 mm
Inputs	3 (PNP / NPN / Namur), A/B = Impulse, C = Reset
Input currents	5.1 mA / 24V (R <sub>i</sub> = 4.7 kOhm)
Input level HTL (Standard)	Low: 0...3,5 V, High: 9...30 V
Input level TTL (Option 5VH)	CMOS levels, Low: 0...0.8 V, High: 3.6...5 V
Input frequency max.	100 kHz for all counter modes/ 25 kHz for all other operating modes / Reset input C: 1 (Min. pulse duration 500 µs)
Display update rate	Approx. 7 msec (at tachometer operation: 330 msec)
Accuracy frequency measurement	100 ppm ±1 Digit
Supply voltage	115 / 250 ADC (±12.5%)
Power Consumption	7,5 W
Supply voltage	24 VDC, (17-30)
Consumption (without sensors)	18 V = 120 mA, 24 V = 95 mA, 30 V = 80 mA
Aux. voltage for sensor supply	24 VDC (±15%), 120 mA (with AC- and DC-Supply) / 5 VDC, 120 mA with option 5VH
Switching outputs WAY-DG	PNP, max. 30V, max.150 mA
Protection class	front IP65, rear IP20
Working temperature	0...+45 °C
Housing	Norly UL94-V-0
Electrical connection	connecting terminal, signal line max 1.5 mm <sup>2</sup> , AC-supply line max. 2.5 mm <sup>2</sup>
Weight	Approx. 450 g
Conformity and Standards	CE compliant, EMV2004/108/EG: EN61000-6-2 and EN61000-6-3
Scope of delivery	display, mounting parts, sealing, manual

## TECHNICAL DRAWING WAY-D

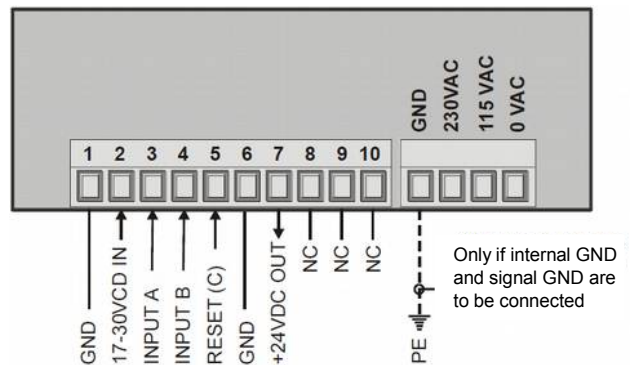


## ELECTRICAL CONNECTION WAY-DS

### WAY-DS: Display unit only

Special versions with TTL inputs (option 5VH) provide a +5 V aux. output on terminal 7, instead of +24 V.

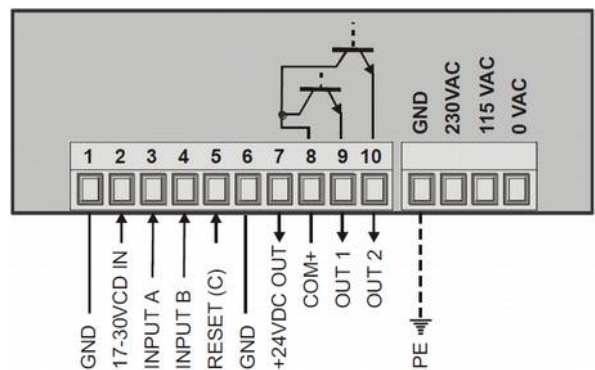
Terminal	Function
1	only for DC supply
2	only for DC supply
3	incremental output channel A
4	incremental output channel B
5	Incremental output channel Z, counter is reset to zero after every rotation
6	Sensor / Encoder supply
7	Sensor / Encoder supply 24 VDC / 120 mA
GND	only if internal GND and signal GND are to be connected
230 VAC	only for AC supply 230 V
115 VAC	only for AC supply 115 V
0 VAC	only for AC supply



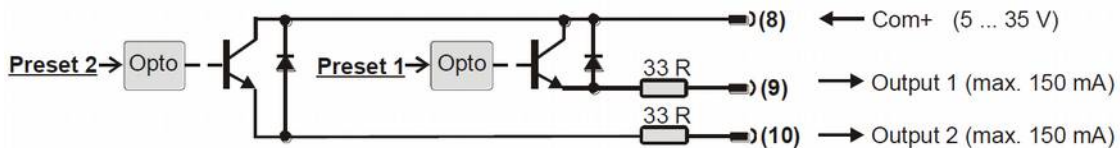
## ELECTRICAL CONNECTION WAY-DG

### WAY-DG: Display unit with 2 presets and transistor outputs

Special versions with TTL inputs (option 5VH) provide a +5 V aux. output on terminal 7, instead of +24 V.



The outputs provide programmable switching characteristics and are potential-free. Please connect terminal 8 (COM+) to the positive potential of the voltage you like to switch (range 5V...30V). You must not exceed the maximum output current of 150 mA. Where you switch inductive loads, please provide filtering of the coil by means of an external diode.

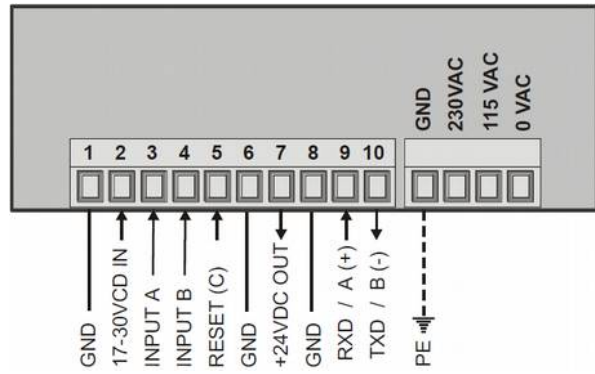


\*) For relay outputs please contact WayCon

## ELECTRICAL CONNECTION WAY-DR

### WAY-DR: Display unit with serial interface

Special versions with TTL inputs (option 5VH) provide a +5 V aux. output on terminal 7, instead of +24 V.

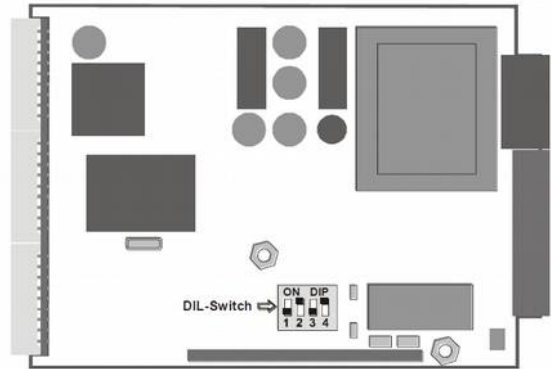


Ex factory the unit is set to RS 232 communication. This setting can be changed to RS 485 (2-wire) by means of an internal DIL switch. To access the DIL switch, please remove the screw terminal connectors and the backplane. Then pull the print to the rear to remove the PCB from the housing.

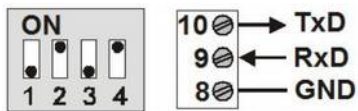
Removal of the back plane



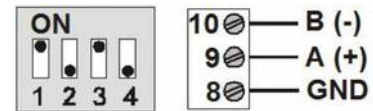
Location of the DIL switch



#### RS 232:



#### RS 485:

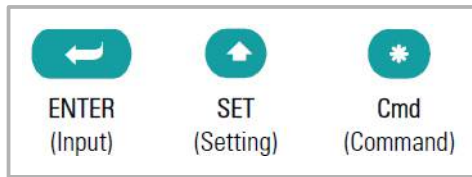


- Never set DIL switch positions 1 and 2 or DIL switch positions 3 and 4 to ON at the same time!
- After setting the switch, shift the print carefully back to the housing, in order to avoid damage of the front pins for connection with the front plate.

## PROGRAMMING

The programming is described in detail in the manual.

For set-up and other operations the unit uses three front keys which subsequently will be denominated as follows:



The functions of the keys are depending on the actual operating state of the unit. The following three operating states apply:

- Normal display state
- Set-up state
  - a) Basic set-up
  - b) Operational parameter set-up
- Teach operation

### Operator menu

The menu provides one section with „Basic Parameters“ and another section with „Operational Parameters“. On the display you will only find those parameters which have been enabled by the basic settings. E. g. when the Linearisation function has been disabled in the basic set-up, the associated linearisation parameters will also not appear in the parameter menu.

All parameters, as good as possible, are designated by text fragments. Even though the possibilities of forming texts are very limited with a 7-segment display, this method has proved to be most suitable for simplification of the programming procedure.

The subsequent table shows the general structure of the menu.

Overview of Basic Parameters (Basic menu):

WAY-DS	WAY-DG	WAY-DR
Type (Application Mode)	Type (Application Mode)	Type (Application Mode)
Input Characteristics	Input Characteristics	Input Characteristics
Brightness	Brightness	Brightness
Code	Code	Code
Linearization Mode*	Linearization Mode*	Linearization Mode*
	Preselection Mode 1	Serial Unit Nummer
	Preselection Mode 2	Serial Format
	Hysteresis 1	Serial Baud Rate
	Hysteresis 2	

\* Appears only with modes „RPM“ and „Count“

## CONTROL MODES

	Mode „RPM“ (Tachometer)	Mode „Time“ (Baking time)	Mode „Timer“ (Stopwatch)	Mode „Count“ (Counter)	Mode „Speed“ (Transition speed)
<b>WAY-DS</b>	Frequency	Display Format	Base (Resolution)	Counter Mode	Time
	Display Value	Frequency	Start/Stop	Scaling Factor	Display Value
	Decimal Point	Decimal Value	Auto Reset	Set Value	Decimal Point
	Wait Time	Wait Time	Latch Function	Reset/Set	Wait Time
	Average Filter	Average Filter		Decimal Point	
<b>WAY-DG</b>	Preselection 1				
	Preselection 2				
	Frequency	Display Format	Base (Resolution)	Counter Mode	Time
	Display Value	Frequency	Start/Stop	Scaling Factor	Display Value
	Decimal Point	Decimal Value	Auto Reset	Set Value	Decimal Point
	Wait Time	Wait Time	Latch Function	Reset/Set	Wait Time
	Average Filter	Average Filter		Decimal Point	
<b>WAY-DR</b>	Frequency	Display Format	Base (Resolution)	Counter Mode	Time
	Display Value	Frequency	Start/Stop	Scaling Factor	Display Value
	Decimal Point	Decimal Value	Auto Reset	Set Value	Decimal Point
	Wait Time	Wait Time	Latch-Function	Reset/Set	Wait Time
	Average Filter	Average Filter		Decimal Point	
	Serial Timer				
	Serial Mode				
	Serial Code				
<b>All units</b>	P01_H*)			P01_H*)	
	P01_Y*)			P01_Y*)	
	..			..	
	P16_H*)			P16_H*)	
	P16_Y*)			P16_Y*)	

\* Appears only with modes „RPM“ and „Count“ when the linearisation function has been enabled.

## HOUSING

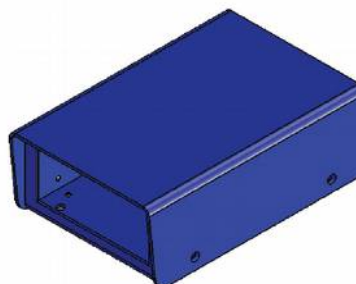
### Aluminium housing GEH0IP65

- black powder coating
- internal grounding terminal
- protection class: IP65
- dimensions: (W x H x D) 168 mm x 83 mm x 220 mm
- delivery: housing, mounting material
- without cable passages (must be drilled individually)



### Table housing TG9648

- The housing is suited for all displays with front dimensions 96 x 48 mm
- self assembly
- dimensions: (W x H x D) 114 mm x 62 mm x 176 mm
- delivery: housing, mounting material



## ORDER CODE

<b>WAY-DS</b>	Display only, input level HTL
<b>WAY-DS-5VH</b>	Display only, input level TTL
<b>WAY-DG</b>	Display with 2 presets and switching outputs, input level HTL
<b>WAY-DG-5VH</b>	Display with 2 presets and switching outputs, input level TTL
<b>WAY-DR</b>	Display with serial interface RS232 / RS485, input level HTL
<b>WAY-DR-5VH</b>	Display with serial interface RS232 / RS485, input level TTL

## ACCESSORIES

### Housing

TG9648	table housing
GEH0IP65	Aluminium housing, IP65

### Other

Einstellung	Pre-adjustment according to customer specifications
-------------	---

Subject to change without prior notice.

### WayCon Positionsmesstechnik GmbH

email: [info@waycon.de](mailto:info@waycon.de)  
internet: [www.waycon.de](http://www.waycon.de)

### Head Office

Mehlbeerenstr. 4  
82024 Taufkirchen  
Tel. +49 (0)89 67 97 13-0  
Fax +49 (0)89 67 97 13-250

### Office Köln

Auf der Pehle 1  
50321 Brühl  
Tel. +49 (0)2232 56 79 44  
Fax +49 (0)2232 56 79 45