

LED Pulse Counters – Codix 540

- Simple programmable pulse counter
- Single channel totaliser



Power supply
AC/DC



Front bezel
dimensions



Wide temper-
ature range



High IP
protection
rating



Plug-in screw
terminal



Menu-driven
programming



Operation
with gloves



Input type



Pulse counter/
Totaliser

Powerful

- **Fast count input**
Input frequency max. 60 kHz
- **Robust housing**
IP 65 protection
- **LED display**
Very bright, 14 mm high
- **Simple totalizing and quantity counters**
Single channel count input and reset input
Programmable for positive (PNP) or negative (NPN) switching input pulses
Fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts
- **Fast start-up time**
Detects incoming pulses just 16 ms after being switched on → so no pulses are lost with a simultaneous motor start-up



User-friendly

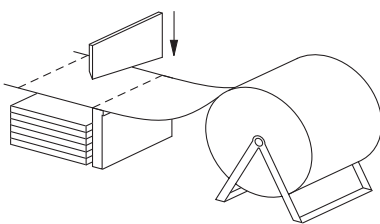
- **Big keys**
Can also be operated when using gloves
- **Easy to programme**
Easy menu-driven programming and operation
Possibility to enter the programming mode during operation, with authentication query

Universal

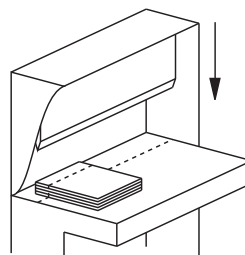
- **Programmable decimal point**
Can be set between 0.0 and 0.000
- **Manual or electrical reset**
Tamper-proof, due to lockable reset function
- **AC or DC power supply**
With sensor power supply
- **Inputs**
As an alternative to the HTL inputs, devices with a 4 ... 30 V DC input level are available, for use as parallel displays for PLCs

Applications for Pulse Counters/ Totalisers

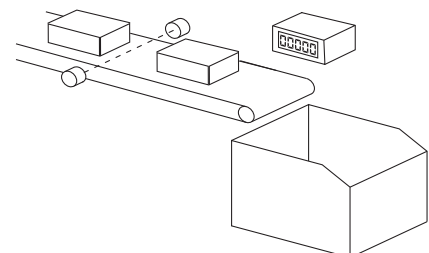
- Simple count tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



Piece-counting



Number of cuts



Piece-counting on conveyor

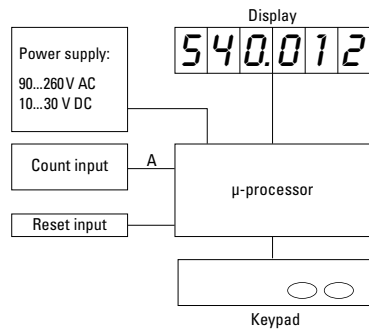
LED Pulse Counters – Codix 540

Technical data:

Supply voltage(U_B):	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption:	max. 50 mA, 6 VA
Display:	6-digit red 7-segment LED display; 14 mm [0.551"] high
Data backup:	EEPROM
Housing:	dimension 96 x 48 mm [3.78 x 1.89"] according to DIN 43 700; RAL 7021, grey
Polarity of Inputs:	programmable, npn or pnp for all inputs
Input resistance:	approx. 5k Ω
Counting frequency*:	max. 60 kHz, can be damped to 30 Hz, depending on operating mode
Reset time:	5 ms
Ambient temperature:	-20 ... +65 °C [-4 °F ... 149 °F] non-condensing
Storage temperature:	-25 ... +70 °C [-13 °F ... 158 °F]
Altitude	up to 2000 m

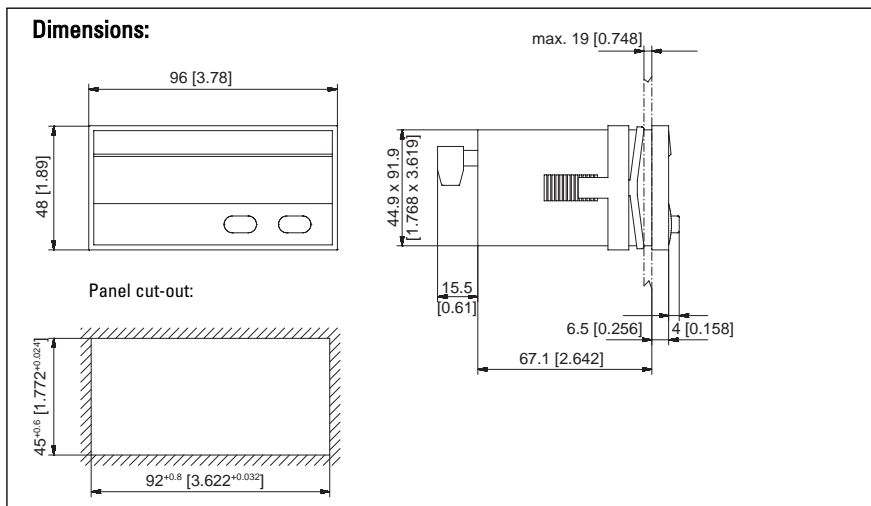
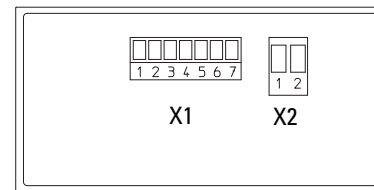
Input switching level (standard version):	DC-version:	
	low: 0 ... 0.2 [0 ... 0.008"] x U_B [V DC]	
	high: 0.6 [0.024"] x U_B ... 30 V DC	
	AC-version	
	low 0 ... 4 V DC	
	high 12 ... 30 V DC	
Input switching level 4 ... 30 V DCversion:	low 0 ... 2 V DC	
	high 4 ... 30 V DC	
Voltage output for sensors:	24 V DC \pm 15 %/100 mA for AC-version	
EMC:	Emitted interference	EN55011 Class B
	Immunity to interference:	EN61000-6-2
Device safety:	design to:	EN61010 Part 1
	protection:	Class 2
	application area:	Soiling Level 2
Protection:	IP 65 front side	
Weight:	approx. 150 g [5.291 oz]	

Block diagram:



*for further specifications please refer to the manual

Connections:



Connection: X2

Pin	AC-version	DC-version
1	90 ... 260 V AC	0 V DC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

Connection X1

Pin	AC-version	DC-version
1	n.c.	
2	n.c.	
3	Reset	
4	n.c.	
5	INP	
6	GND out	n.c.
7	+24 Vout	n.c.

Delivery specification:

Digital display Multilingual operating instructions
 Mounting clip
 Gasket
 2 screw terminals

Order code:

6.540.012.XX0

Input switching level
 0 = Standard level*
 A = 4 ... 30 V DC level

Voltage supply
 0 = 90 ... 260 V AC*
 3 = 10 ... 30 V DC*

*standard stock model

Replacement parts:

7-pin screw terminal RM 3,81 1 ... 7: N100387
 2-pin screw terminal RM 5,08 1 ... 2: N100133

LED Pulse Counters – Codix 541

Position indicator or totaliser

4 count modes:

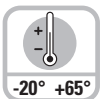
- Count with direction
- Count difference
- Count sum of 2 inputs
- Phase discriminator (quadrature) x1, x2 and x4



Power supply
AC/DC



Front bezel
dimensions



Wide temper-
ature range



High IP
protection
rating



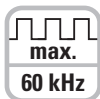
Plug-in screw
terminal



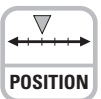
Menu-driven
programming



Operation
with gloves



Pulse counter/
Totaliser



Position
display

Powerful

- **Fast count input**
Input frequency max. 60 kHz
- **Robust housing**
IP 65 protection
- **LED display**
Very bright, 14 mm high
- **Position, difference, adding or detection of count direction**
Programmable for positive (PNP) or negative (NPN) switching input pulses
Fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts
- **Fast start-up time**
Detects incoming pulses just 16 ms after being switched on → so no pulses are lost with a simultaneous motor start-up



User-friendly

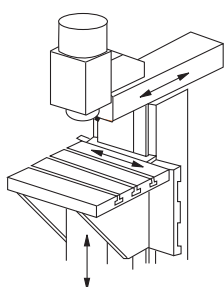
- **Big keys**
Can also be operated when using gloves
- **Easy to programme**
Easy menu-driven programming and operation
Possibility to enter the programming mode during operation, with authentication query

Universal

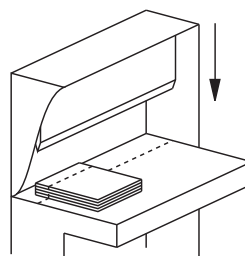
- **Individually programmable scaling**
Multiplication and division factor (0.0001 to 99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM.
- **4 different count input modes**
2-channel input for detecting count direction, difference or adding mode, quadrature x1, x2 or x4
- **Programmable setpoint**
- **AC or DC power supply**
With sensor power supply
- **Inputs**
As an alternative to the HTL inputs, devices with a 4 ... 30 V DC input level are available, for use as parallel displays for PLCs.
- **Optional output**
As zero signal

Applications for Position Displays and Totalisers

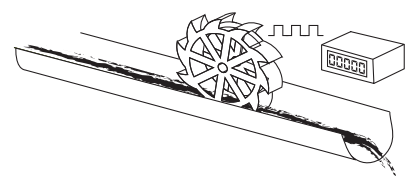
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



Position on milling machine



Position or quantity



Flow rate

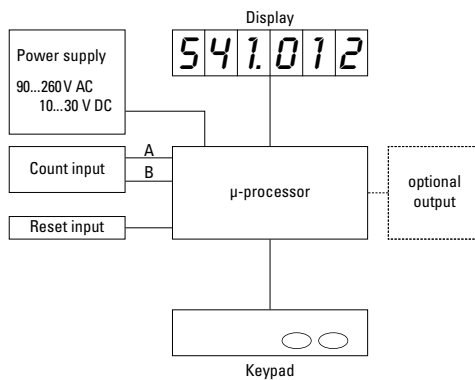
LED Pulse Counters – Codix 541

Technical data:

Supply voltage:	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption:	max. 50 mA, 6 VA
Display:	6-digit 7-segment red LED display; 14 mm [0.551"] high
Data backup:	EEPROM
Housing:	dimension 96 x 48 mm [3.78 x 1.89"] according to DIN 43 700; RAL 7021, grey
Polarity of Inputs:	programmable, npn or pnp for all inputs
Input resistance:	approx. 5 kΩ
Counting frequency*:	max. 60 kHz, can be damped to 30 Hz, depending on operating mode at position display max. 25 kHz
Reset time:	5 ms
Ambient temperature:	-20 ... +65 °C [-4 ... 149 °F] non-condensing
Storage temperature:	-25 ... +70 °C [-13 ... 158 °F]
Altitude:	up to 200 m

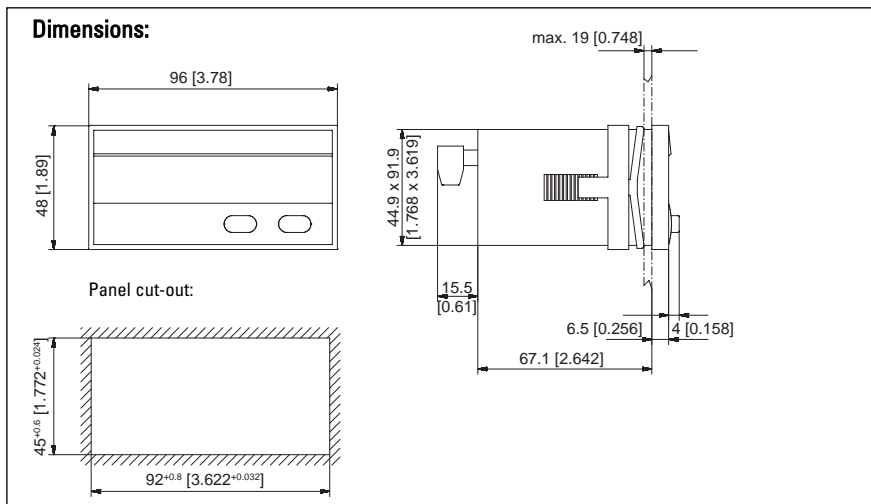
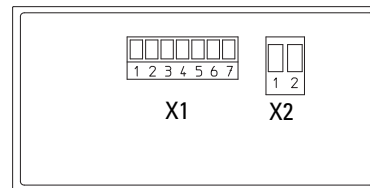
Input switching level (standard version):	DC-version	
	low: 0 ... 0.2 x U _B [V DC]	high: 0.6 x U _B ... 30 V DC
Input switching level 4 ... 30 V DC version:	AC-version	
	low 0 ... 4 V DC	high 12 ... 30 V DC
Voltage supply for sensors:	24 V DC ±15 %/100 mA for AC version	
Max power consumption	max. 30 V, 10 mA	
Optocouplers:		
EMC:	Emitted interference EN55011 Class B	Immunity to interference: EN61000-6-2
Device safety:	design to:	EN61010 Part 1
	protection	Class: 2
	application area:	Soiling Level 2
Protection:	IP 65 front side	
Weight:	approx. 150 g [5.291 oz]	

Block diagram:



*for further specifications please refer to the manual

Connections:



Connection: X2:

Pin	AC-version	DC-version
1	90 ... 260 V AC	0 V DC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

Connection X1:

Pin	AC-version	DC-version
1	Optocoupler-output Emitter	
2	Optocoupler-output Collector	
3	Set	
4	INP B	
5	INP A	
6	GNDout	n.c.
7	+24 Vout	n.c.

Delivery specification:

Digital display Multilingual operating instructions
Mounting clip Seal

Order code:

6.541.01X.XX0

Output	Input switching level
1 = Optocoupler output	0 = Standard level*
2 = No output	A = 4 ... 30 V DC level
	Voltage supply
	0 = 90 ... 260 V AC*
	3 = 10 ... 30 V DC*

* standard stock model

Replacement parts:

7-pin screw terminal	RM 3,81 1 ... 7: N100387
2-pin screw terminal	RM 5,08 1 ... 2: N100133

LED Multifunction Counters – Codix 544

programmable as:

- Pulse counter
- Position display
- Frequency / speed display
- Timer/ short time meter



Power supply
AC/DC



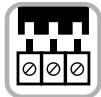
Front bezel
dimensions



Wide temper-
ature range



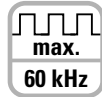
High IP
protection
rating



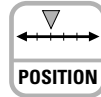
Plug-in screw
terminal



Menu-driven
programming



Pulse counter/
Totaliser



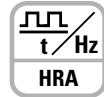
Position
display



Frequency
meter/
Tachometer



Timer/
Hour Meter



Frequency
meter HRA

Powerful

- **Fast count input and frequency input**
Input frequency max. 60 kHz
- **Robust housing**
IP 65 protection
- **LED display**
Very bright, 14 mm high
- **HRA – High Rate Accuracy System**
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement.
Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- **Fast start-up time**
Detects incoming pulses just 16 ms after being switched on → so no pulses are lost with a simultaneous motor start-up



User-friendly

- **Big keys**
Can also be operated when using gloves
- **Easy to programme**
Easy menu-driven programming and operation
Possibility to enter the programming mode during operation, with authentication query

Universal

- **Individually programmable scaling**
Multiplication and division factor (0.0001 to 99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM
- **4 different count input modes**
2-channel input for detecting count direction, difference or adding mode, quadrature x1, x2 or x4
- **Frequency measurement**
Display in 1/min or 1/sec
- **Time counting**
Pulse width or time interval measurement in hours, minutes or seconds, as well as real-time display
- **AC or DC power supply**
With sensor power supply
- **Inputs**
As an alternative to the HTL inputs, devices with a 5 V DC input level are available, for use as parallel displays for PLCs.
- **Optional output**
Zero signal for position and count, zero-speed monitoring, 1 Hz clock pulse for active time measurement

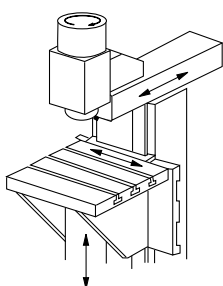
Applications for Multi-function Display

- Counting tasks such as quantity and piece counting, measuring and recording of speed and of operating and processing times
- Piece counting or tool-life measurement on die cutters, presses, extruders, wood-working machines, drilling machines,

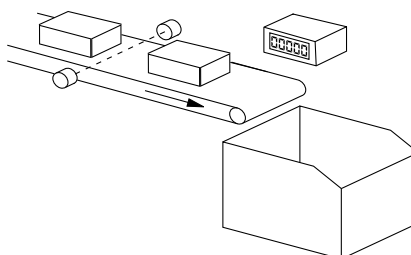
pick-and-place machines, guillotines, special-purpose vehicles etc.

- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.

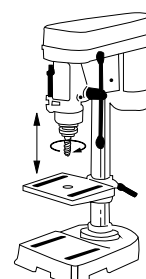
- Production data acquisition by means of piece counting (using difference or adding), or measurement of production times or production speeds.
- Totalizing flow, quantity and other scaleable media, or display of current flow rates.



Position or rotary speed on milling machine



Piece count on conveyor or production speed



Drilling machine head, speed or drilling depth

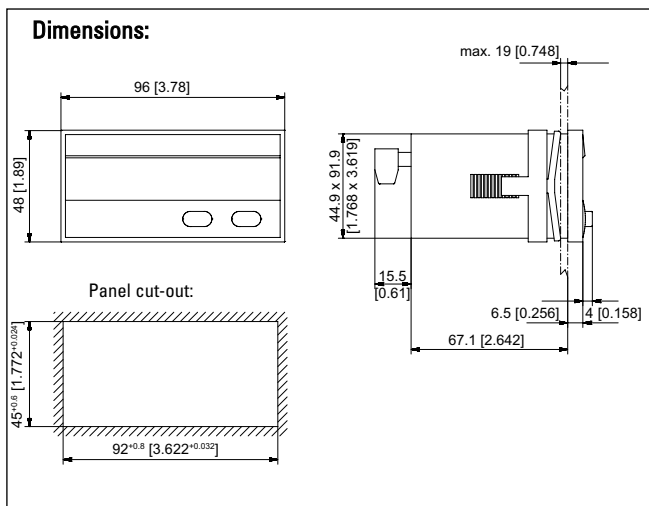
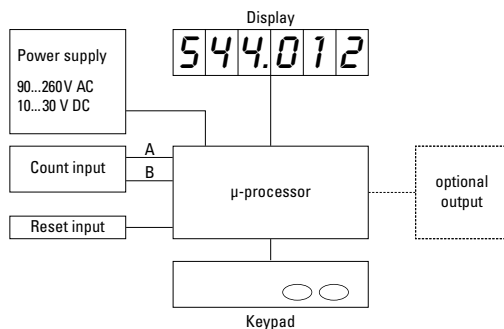
LED Multifunction Counters – 544

Technical data:

Supply voltage:	10 ... 30 V DC, with reverse polarity protection
(galvanically isolated)	90 ... 260 V AC
Current consumption:	max. 50 mA, 6 VA
Display:	6-digit 7-segment red LED display; 14 mm high [0.551"]
Data backup:	EEPROM
Housing:	dimension 96 x 48 mm [3.78 x 1.89"] according to DIN 43 700; RAL 7021, grey
Polarity of Inputs:	programmable, npn or pnp for all inputs
Input resistance:	approx. 5 kΩ
Counting frequency*:	60 kHz, can be damped to 30 Hz. For position display max. 25 kHz
Minimum reset pulse time: :	5 ms
Display range timer:	0.001 s ... 999999 h
Weight:	approx. 150 g [5.291 oz]

*for further specifications please refer to the manual

Block diagram:



Order code:

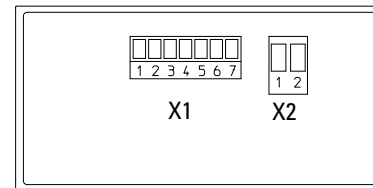
6.544.01X.XX0

Output	Input switching level
1 = Optocoupler output	0 = Standard level*
2 = No output*	A = 4 ... 30 V DC level
Further stock model	Voltage supply
6.544.011.000	0 = 90 ... 260 V AC*
	3 = 10 ... 30 V DC*

* standard stock model

Input switching level (standard version):	DC-version
	low: 0 ... 0.2 [0 ... 0.008"] x UB [V DC]
	high: 0.6 x [0.024"] UB ... 30 V DC
	AC-version
	low: 0 ... 4 V DC
	high: 12 ... 30 V DC
Input switching level 4 ... 30 V DC version:	low: 0 ... 2 V DC
	high: 4 ... 30 V DC
Voltage supply for sensors:	24 V DC ±15 %/100 mA at AC-versions
Accuracy:	tachometer: <0,1 %
	timer: < 50 ppm
Ambient temperature:	-20 ... +65 °C [-4 ... 149 °F] non condensing
Storage temperature:	-25 ... +70 °C [-13 ... 158 °F]
Altitude:	up to 2000 m
EMC:	Emitted interference: EN55011 Class B
	Immunity to interference: EN61000-6-2
Device safety:	design to: EN61010 Part 1
	protection Class: 2
	application area: Soiling Level 2
	protection: IP65 from front

Connections:



Connection: X2:

Pin	AC-version	DC-version
1	90 ... 260 V AC	0 V DC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

Connection X1:

Pin	AC-version	DC-version
1	Optocoupler-output Emitter	
2	Optocoupler-output Collector	
3	Set	
4	INP B	
5	INP A	
6	GNDout	n.c.
7	+24 Vout	n.c.

Delivery specification:

Digital display	2 screw terminals
Mounting clip	Multilingual operating instructions
Gasket	

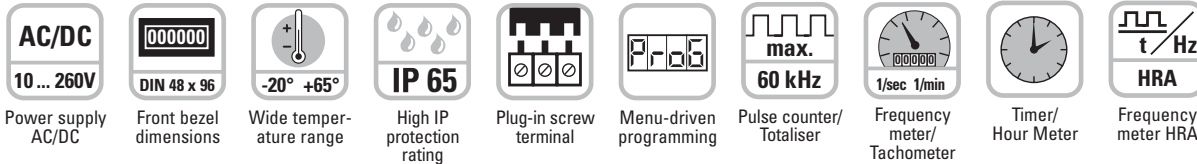
Delivery specification:

Digital display	2 screw terminals
Mounting clip	Multilingual operating instructions
Gasket	

Universal with dual functions **CODIX 54U**

4 dual functions in one device
 > solves all applications where 2 different values must be displayed simultaneously.

- Counter with 2 totalizing ranges
- Totaliser and time counter
- Totaliser and frequency counter
- Timer with 2 time ranges



Powerful

- **Fast count input**
Input frequency max. 60 kHz
- **Robust housing**
IP 65 protection
- **LED display**
Very bright, 14 mm high
- **HRA – High Rate Accuracy System**
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement.
Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of > 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- **Fast start-up time**
Detects incoming pulses just 16 ms after being switched on – so no pulses are lost with a simultaneous motor start-up



User-friendly

- **Big keys**
Can also be operated when using gloves
- **Easy to programme**
Easy menu-driven programming and operation
Possibility to enter the programming mode during operation, with authentication query
Pressing the right key switches between displays

Universal

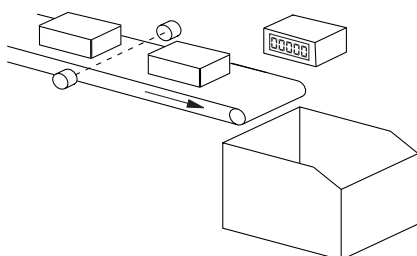
- **Individually programmable scaling**
Multiplication and division factor (0.0001 to 99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM.
- **Separate factors for frequency- and pulse counting**
- **AC or DC power supply**
With sensor power supply
- **Inputs**
As an alternative to the HTL inputs, devices with a 5 VDC input trigger level are available, for use as parallel displays for PLCs
- **Timer specials**
Timer or hours-run meter with various Start Stop measurements, time range settings in hours, minutes or seconds, with decimal point. Resolutions up to 1/1000 can be programmed

Applications for dual functions

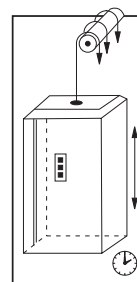
- **Pulse and frequency (speed)**
e.g. production data acquisition: total piece count and speed on OEM equipment, flow rate measuring systems – total flow and current flow
- **2 pulse counters**
Measurement of batch and total piece count or of daily production count and total count values

- **Pulse and time (Maintenance counter)**
Used in the lift industry as trip counters and hours-run meters and on production machines for piece and time counting, flow and time measurement, materials handling time and quantities

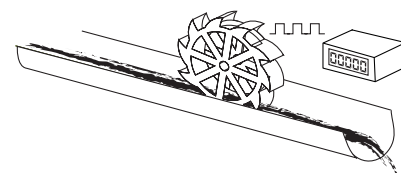
- **2 timers**
Measurement of total time and order-specific times, maintenance intervals and total time, time of day and total time



Piece count on conveyor and production speed



Trip counter and hours-run



Flow rate and total volume

Universal with dual functions **CODIX 54U**

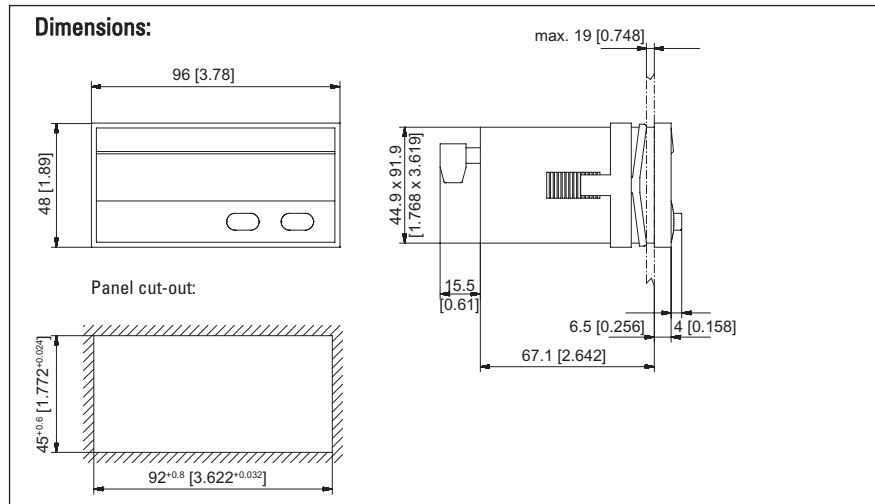
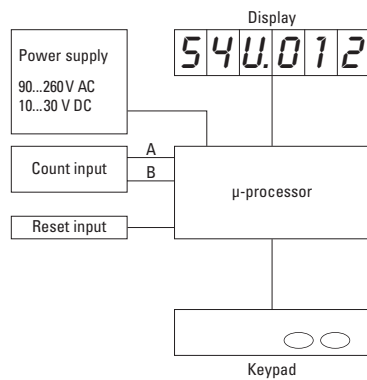
Technical data:

Supply voltage:	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption:	max. 50 mA, 6 VA
Display:	6-digit 7-segment red LED display; 14 mm [0.551"] high
Data backup:	EEPROM
Housing:	Dimension 96 x 48 mm [3.78 x 1.89"] according to DIN 43 700; RAL 7021, grey
Polarity of Inputs:	programmable, npn or pnp for all inputs
Input resistance:	approx. 5 k Ω
Counting frequency*:	60 kHz, can be damped to 30 Hz depending on operating mode
Display range:	0.001 s ... 999999 h
Reset time:	5 ms
Input switching level (standard version):	DC-version: Low: 0 ... 0.2 [0 ... 0.008"] x U _B [V DC] High: 0.6 [0.024"] x U _B ... 30 V DC

AC-version:	Low 0 ... 4 V DC High 12 ... 30 V DC
Input switching level (5 V version):	Low 0 ... 2 V DC High 4 ... 30 V DC
Voltage supply for sensors:	24 V DC \pm 15 %/100 mA at AC version
Accuracy:	<0.1 % (Frequency display/Rate meter) <50 ppm (Timer)
Ambient temperature:	-20 ... +65 °C [-4 ... 149 °F] non-condensing
Storage temperature:	-25 ... +70 °C [-13 ... 158 °F]
EMC:	according to EC EMC directive 89/36/EWG
Emitted interference:	EN 61000-6-4/EN 55011 class B
Immunity to interference:	EN 61000-6-2
Protection:	IP65 from front
Weight:	approx. 150 g [5.291 oz]

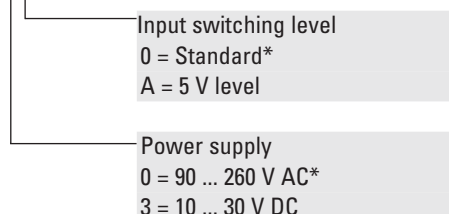
*for further specifications please refer to the manual

Block diagram:

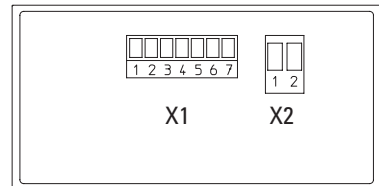


Order code:

6.54U.012.XX0



Connections:



Connection: X2

Pin	AC-version	DC-version
1	90 ... 260 V AC	0 V DC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

Connection: X1

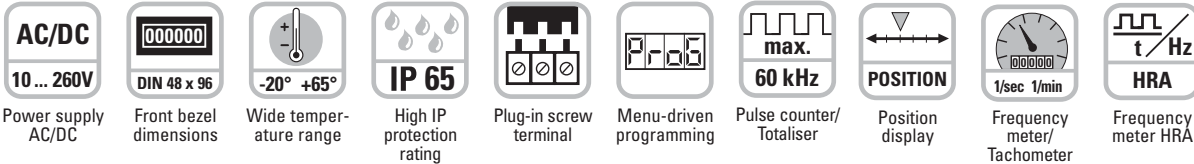
Pin	AC-Version	DC-Version
1	n.c.	
2	n.c.	
3	Reset	
4	INP B	
5	INP A	
6	GNDout	n.c.
7	+24 Vout	n.c.

Delivery specification:
Digital display
Mounting clip

Seal
Multilingual operating instructions

Position and Frequency display **CODIX 54P**

separate inputs for frequency and position



Powerful

- **Fast count input**
Input frequency max. 60 kHz
- **Robust housing**
IP 65 protection
- **LED display**
Very bright, 14 mm high
- **HRA – High Rate Accuracy System**
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement.
Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of > 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- **Fast start-up time**
Detects incoming pulses just 16 ms after being switched on – so no pulses are lost with a simultaneous motor start-up



User-friendly

- **Big keys**
Can also be operated when using gloves
- **Easy to programme**
Easy menu-driven programming and operation
Possibility to enter the programming mode during operation, with authentication query
Pressing the right key switches between displays

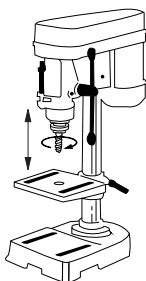
Universal

- **Individually programmable scaling**
Multiplication and division factor (0.0001 to 99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM.
- **Separate factors and inputs for frequency- and pulse counting**
- **4 different count input modes for the position display**
2-channel input for detecting count direction, difference or adding mode, quadrature x1, x2 or x4. 1 separate input for rotary speed and speed, display in 1/min or 1/sec
- **AC or DC power supply**
With sensor power supply
- **Inputs**
As an alternative to the HTL inputs, devices with a 5 VDC input trigger level are available, for use as parallel displays for PLCs

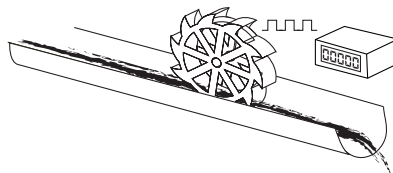
Applications for Frequency and Position Display/ Totaliser

Position and rotary speed applications, e.g.

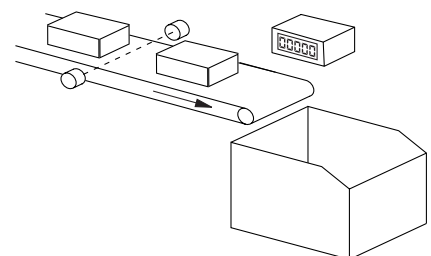
- OEM equipment or retrofitting to drilling machines
- OEM equipment on flow measuring plant, e.g. total flow and current flow
- Total piece count and pieces per minute, where the pulse counting occurs in the add/subtract mode, in order to deduct reject parts
- Production data acquisition: total piece count and production speed, or absolute distance traversed and current speed



Rotary speed and drilling depth



Flow rate and total volume



Piece count on conveyor and production speed

Position and Frequency display **CODIX 54P**

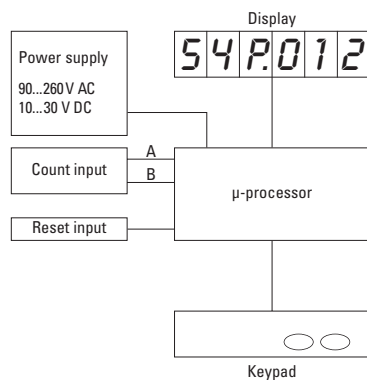
Technical data:

Supply voltage:	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption:	max. 50 mA, 6 VA
Display:	6-digit 7-segment red LED display; 14 mm [0.551"] high
Data backup:	EEPROM
Housing:	Dimension 96 x 48 mm [3.78 x 1.89"] according to DIN 43 700; RAL 7021, grey
Polarity of Inputs:	programmable, npn or pnp for all inputs
Input resistance:	approx. 5 kΩ
Counting frequency*:	30 kHz, can be damped to 30 Hz depending on operating mode
Reset time:	5 ms
Input switching level (standard version):	DC-version: Low: 0 ... 0.2 [0 ... 0.008"] x U _B [V DC] High: 0.6 [0.024"] x U _B ... 30 V DC

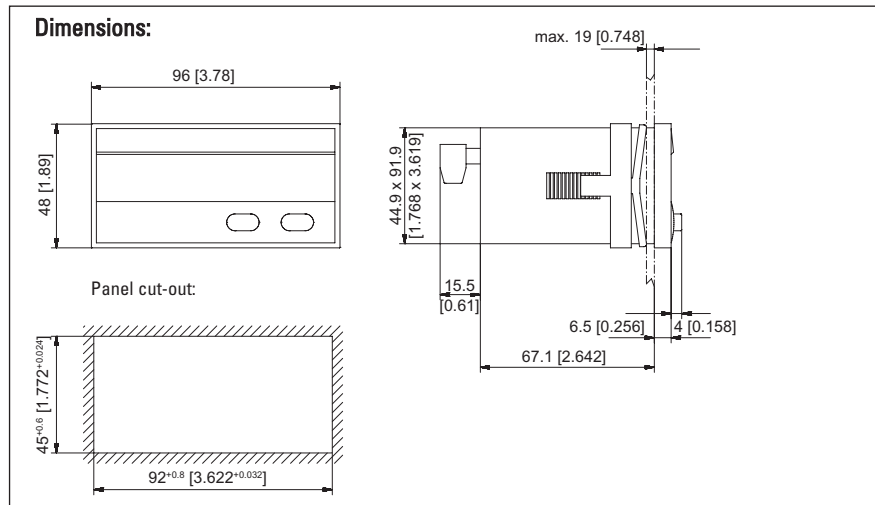
AC-version:	Low 0 ... 4 V DC High 12 ... 30 V DC
Input switching level (5 V version):	Low 0 ... 2 V DC High 4 ... 30 V DC
Accuracy:	<0.1 % (Frequency display/Rate meter)
Voltage supply for sensors:	24 V DC ±15 %/100 mA at AC version
Ambient temperature:	-20 ... +65 °C [-4 ... 149 °F] non-condensing
Storage temperature:	-25 ... +70 °C [-13 ... 158 °F]
EMC:	according to EC EMC directive 89/36/EWG
Emitted interference:	EN 61000-6-4/EN 55011 class B
Immunity to interference:	EN 61000-6-2
Protection:	IP65 from front
Weight:	approx. 150 g [5.291 oz]

Display counters

Block diagram:

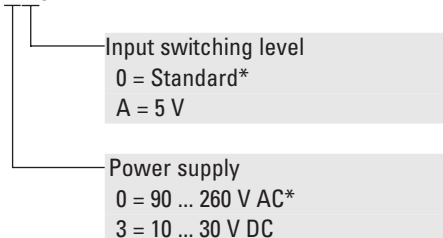


*for further specifications please refer to the manual



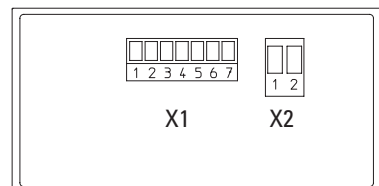
Order code:

6.54P.012.XX0



* standard stock model

Connections:



Connection: X2

Pin	AC-version	DC-version
1	90 ... 260 V AC	0 V DC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

Connection: X1

Pin	AC-Version	DC-Version
1	n.c.	
2	n.c.	
3	INP C (Frequency)	
4	INP B (Count)	
5	INP A (Count)	
6	GNDout	n.c.
7	+24 Vout	n.c.

Delivery specification:

- Digital display
- Mounting clip
- Seal
- Multilingual operating instructions