



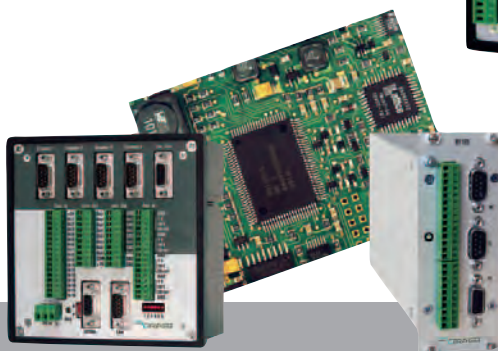
control



motion



interface



Modules for
Automation and
Motion Control

Product Range

- Electronic Counters, Process Indicators and Monitors
- Stand-Alone Motion Controllers for Electrical Drives
- Signal Converters and Interfaces for Encoders and Sensors

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control

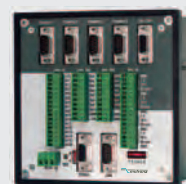
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This product range gives a review of the automation modules made by motrona. For more information and details please see our Product Range CD or visit www.motrona.com

– Subject to change and availability, errors excepted. Update July 2008 –

Electronic Counters



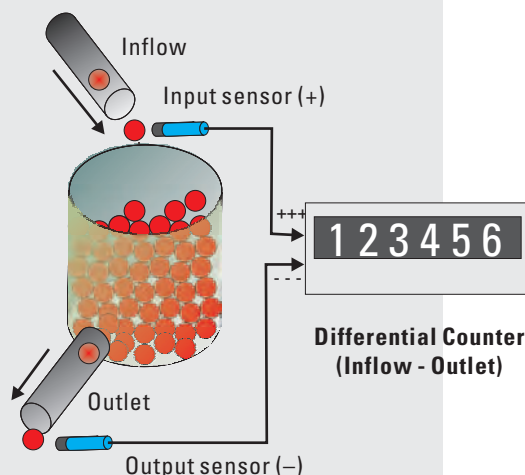
ZX 020: 48 x 24 mm (1.890 x .945")



ZX 122/123: 48 x 48 mm (1.890 x 1.890")



DX 345-348: 96 x 48 mm (3.780 x 1.890")



Part No.

ZX 020

Small-Sized Position Indicator and Event Counter

- Impulse inputs A, B and Set/Reset. Counting frequency 20 kHz
- Operation modes for quadrature count (A/B/2 x 90°), event count (A = count input, B = up/down select input) or sum/differential count (A and B operate as independent counting inputs)
- Programmable impulse scaling factor, power-down memory
- 6 decade LED display, 8 mm size (.315")
- Power supply 24 Vdc

ZX 122

ZX 123

Multi-Function Counter

- **ZX 122:** power supply 24 Vdc
- **ZX 123:** power supply 90 – 250 Vac and aux. output 24 Vdc for encoder
- Impulse inputs A, B and Set/Reset, counting frequency 1 kHz, 10 kHz or 20 kHz (depending on operation mode)
- Operation modes for quadrature count (A/B/2 x 90°), event count (A = count input, B = up/down select input) or sum/differential count (A and B operate as independent counting inputs)
- Programmable impulse scaling factor, power-down memory
- 6 decade LED display, 8 mm size (.315")
- 2 presets and output relays

DX 345

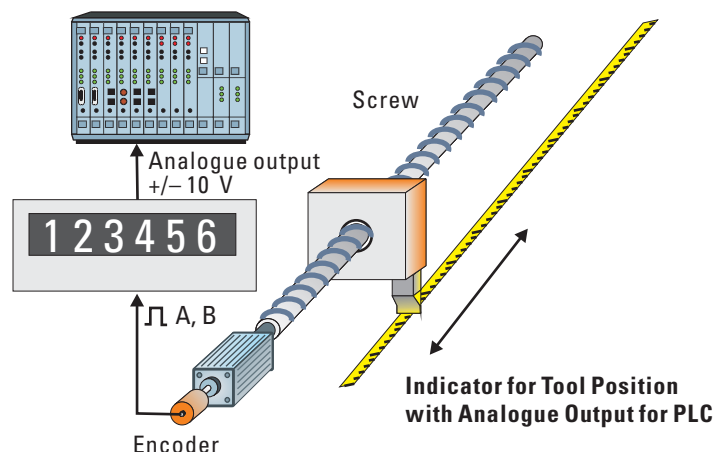
DX 346

DX 347

DX 348

High-Speed Counters with Outputs and Interfaces

- **DX 345:** indicator only
- **DX 346:** counter with analogue output ± 10 V and 0/4 – 20 mA
- **DX 347:** counter with 2 presets and transistor outputs
- **DX 348:** counter with serial RS 232 / RS 485 interface
- Impulse inputs A, B and Set/Reset, counting frequency 100 kHz
- Operation modes for quadrature count (A/B/2 x 90°), event count (A = count input, B = up/down select input) or sum/differential count (A and B operate as independent counting inputs)
- Programmable impulse scaling factor, power-down memory
- Programmable edge counting (x1, x2, x4)
- 6 decade LED display, 15 mm size (.590")
- Power supply alternatively 115/230 Vac or 24 Vdc (same unit)
- Aux. 24 Vdc output for encoder supply



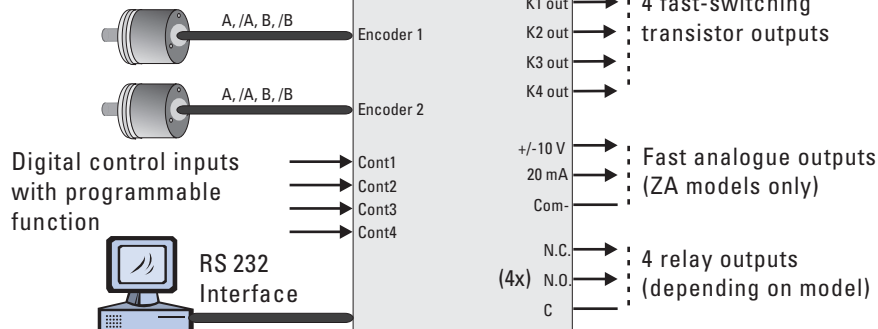
Electronic Counters

Top Class Counter Series with two Encoder Inputs

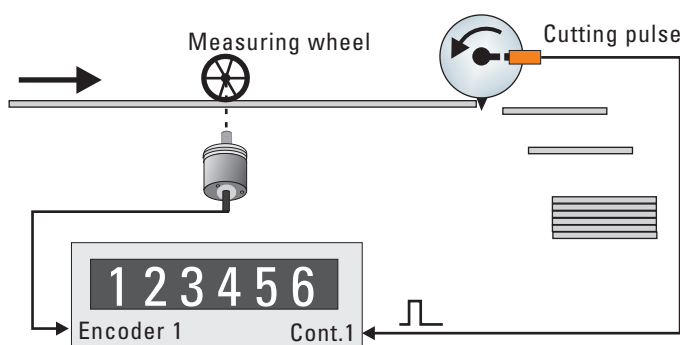
- **Series ZA:** includes fast analogue outputs ± 10 V and $0/4 - 20$ mA, **Series ZD:** without analogue output, otherwise similar to series ZA
- 2 encoder inputs, each with channels A, /A, B, /B and individual impulse scaling. Counting frequency 1 MHz per encoder.
- Impulse inputs programmable to all prevalent signal formats as TTL, RS 422, HTL, single channel or quadrature, single-ended or differential
- Exceptional choice of functions and counting modes as single counter, sum or differential counter, diameter calculator with winding rolls, real-length indicator with flying cut-to-length applications etc.
- Programmable linearisation curves (for each encoder input separately)
- 4 programmable preselections with fast responding transistor outputs (30 V / 350 mA, $t < 1$ msec)
- All models include serial RS 232 interface
- Display alternatively 6 decades / 15 mm (.56") or 8 decades / 10 mm (.36")
- Power supply 24 Vdc or Vac
- Range includes also models with relay outputs and with front thumbwheel switches

Block diagram

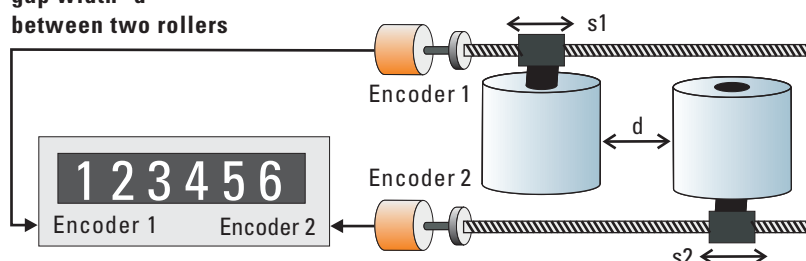
2 programmable encoder inputs 1 MHz



Example:
display of the real cutting length with a rotary cut-to-length application



Example:
display of the gap width "d" between two rollers



Part No.

Series ZA and Series ZD

Examples for available ZA and ZD models:



ZD 330: 96 x 48 mm (3.780 x 1.890")
Display range 8 decades



ZD 340: 96 x 48 mm (3.780 x 1.890")
Display range 6 decades



ZD 632: 96 x 96 mm (3.780 x 3.780")
Display range 8 decades
4 relay outputs, 2 thumbwheel sets



ZD 644: 96 x 96 mm (3.780 x 3.780")
Display range 6 decades
4 relay outputs, 4 thumbwheel sets

Tachometers, Frequency Meters, Timers



DX 020: 48 x 24 mm (1.890 x .945")



ZX 122/123: 48 x 48 mm (1.890 x 1.890")



DX 345-348: 96 x 48 mm (3.780 x 1.890")

Part No.

DX 020

Small-Sized Tachometer and Frequency Meter

- Display of rpm, speed, cycle rate and frequency
- Impulse input 0 – 20 kHz, selectable input filter for limitation to 30 Hz
- Programmable scaling factor
- 6 decade LED display, 8 mm size (.315")
- Power supply 24 Vdc

ZX 122

ZX 123

Multi-Function Tachometer

- **ZX 122:** power supply 24 Vdc,
- **ZX 123:** power supply 90 – 250 Vac and aux. output 24 Vdc for sensor
- Operation modes for tachometer, frequency meter, timer and counter
- Max. input frequency 20 kHz (tachometer mode)
- Programmable scaling factor
- 6 decade LED display, 8 mm size (.315")
- 2 presets and output relays

DX 345

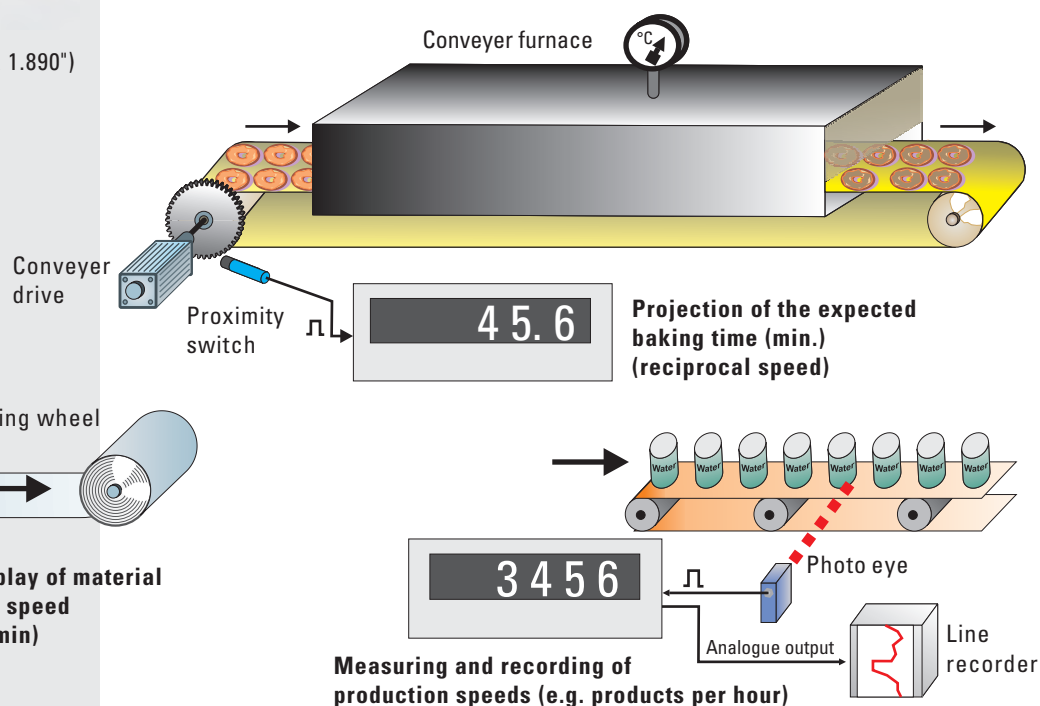
DX 346

DX 347

DX 348

Tachometer, Frequency Meter, Baking Time Indicator, Timer

- **DX 345:** indicator only
- **DX 346:** tachometer with analogue output ± 10 V and 0/4 – 20 mA
- **DX 347:** tachometer with 2 presets and transistor outputs
- **DX 348:** tachometer with serial RS 232 / RS 485 interface
- Universal impulse input for encoders, proximity switches, photocells etc.
- Max. input frequency 25 kHz (tachometer mode)
- Operation modes for tachometer, baking time indicator (reciprocal speed), speed calculation from differential time, stopwatch and counter
- Programmable scaling factor
- 6 decade LED display, 15 mm size (.590")
- Power supply alternatively 115/230 Vac or 24 Vdc (same unit)
- Aux. 24 Vdc output for encoder supply



Tachometers, Frequency Meters, Timers

Top Class Units for Measurement of Speeds, Differential Speeds, Speed Ratios etc.

- **Series SA:** includes fast analogue outputs ± 10 V and $0/4 - 20$ mA, **Series SD:** without analogue output, otherwise similar to series SA
- 2 encoder inputs, each with channels A, /A, B, /B and individual impulse scaling. Counting frequency 1 MHz per encoder
- Impulse inputs programmable to all prevalent signal formats as TTL, RS 422, HTL, single channel or quadrature, single-ended or differential
- Consideration of the direction of rotation and display of the sign with use of quadrature input signals (A/B, $2 \times 90^\circ$)
- Wide range of functions and operating modes, e.g. single tachometer, sum or differential speed evaluation, speed ratio or percentage of difference of two speeds etc.
- Special method of multi-period measurement principle with sampling time overlay
- Programmable linearisation (every input channel separately)
- 4 preselections with fast-switching transistor outputs (switching capability 350 mA)
- All models include serial RS 232 interface
- Display alternatively 6 decades / 15 mm (.56") or 8 decades / 10 mm (.36")
- Power supply 24 Vdc or Vac
- Range includes also models with relay outputs and with front thumbwheel switches

Part No.

Series SA and Series SD



SA/SD 340: 96 x 48 mm (3.780 x 1.890")

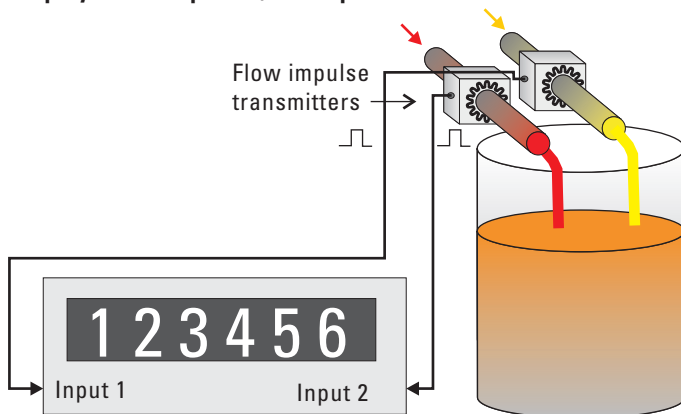


SA/SD 640: 96 x 96 mm (3.780 x 3.780")
with 4 relay outputs

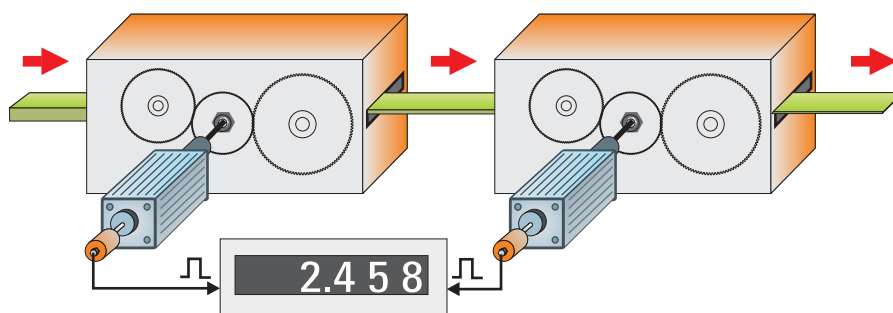


SA/SD 644: 96 x 96 mm (3.780 x 3.780")
with 4 relay outputs and
4 thumbwheel switch sets

Display of flow speed 1, flow speed 2 and ratio of mixture



Display of the stretching factor



Process Indicators with Analogue Inputs



AX 020: 48 x 24 mm (1.890 x .945")

Part No.

AX 020

Small-Sized Panel Meter for Standard Analogue Signals

- Analogue inputs 0 – 10 V, 0/4 – 20 mA,
- Display range – 19 999 ... 99 999 with programmable scaling
- 14 bits resolution
- Bright LED display 5 decades, 8 mm size (0.315")
- 24 Vdc power supply



AX 345–347: 96 x 48 mm (3.780 x 1.890")

AX 345

AX 346

AX 347

Process Indicators with Dual Input and Calculation

- **AX 345:** indicator only
- **AX 346:** indicator with analogue output ± 10 V and 0/4 – 20 mA
- **AX 347:** indicator with 2 presets and transistor outputs
- 2 analogue inputs, each 0 – 10 V, 0/4 – 20 mA, with individual scaling
- Selectable display for input A, input B and A+B, A-B, A:B
- Display range – 19 999 ... 99 999, 14 bits resolution
- Programmable linearisation with 16 interpolation points
- Tare function
- Bright LED display 6 decades, 15 mm size (0.590")
- Power supply alternatively 115/230 Vac or 24 Vdc (same unit)
- Aux. 24 Vdc output for supply of sensors and transducers



AX 340: 96 x 48 mm (3.780 x 1.890")

AX 340

AX 540

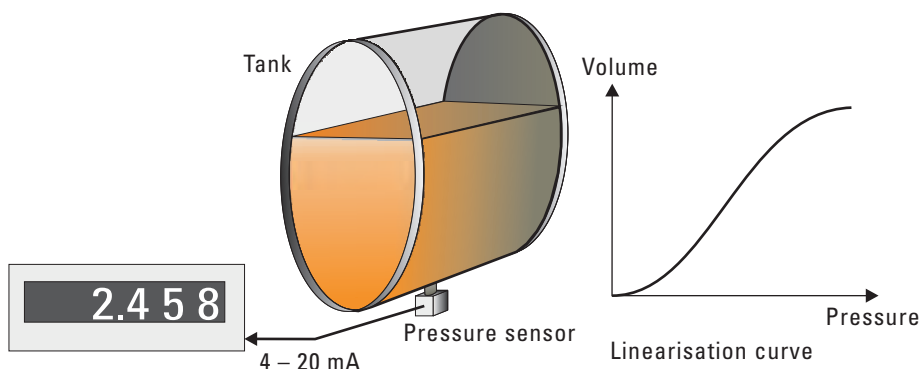
Process Indicators for Standard Analogue Signals

- **AX 340:** indicator with 2 preselections and transistor outputs
- **AX 540:** similar to model 340, but with additional options for relay outputs and front thumbwheel switches
- Analogue inputs 0 – 1 V, 0 – 10 V, 0/4 – 20 mA, 12 bits resolution
- Free scaling and zero definition
- Proportional or reciprocal evaluation of the input signal
- Selectable linearisation function with 10 interpolation points
- Bright LED display 6 decades, 15 mm size (0.590")
- Min. / max. value record memory
- Power supply alternatively 115/230 Vac or 24 Vdc (same unit)
- Aux. 12 Vdc output for supply of sensors and transducers
- Optional interfaces like analogue output, parallel output or serial RS 232 / RS 485 link (several options are possible in one unit)



AX 540: 96 x 72 mm (3.780 x 2.835")

Display of the fill volume (liters) by measuring of the bottom pressure and linearisation



SSI Indicators and Parallel Code Indicators

SSI Indicators for Absolute Encoders, Scales and Sensors using SSI interface

- IX 345: SSI indicator only
- IX 346: SSI indicator with analogue output ± 10 V and 0/4 – 20 mA
- IX 347: SSI indicator with 2 presets and transistor outputs
- IX 348: SSI indicator with serial RS 232 / RS 485 interface
- Suitable for all SSI formats and all codes, up to 25 bits
- Master operation or Slave operation at baud rates up to 1 MHz
- Programmable scaling and zero definition
- Programmable bit blanking functions, round-loop operation and more
- Bright LED display 6 decades, 15 mm size (0.590")
- Power supply alternatively 115/230 Vac or 24 Vdc (same unit)
- Aux. 24 Vdc output for supply of SSI encoder or linear scale

Part No.

IX 345
IX 346
IX 347
IX 348



IX 345–348: 96 x 48 mm (3.780 x 1.890")



PX 340: 96 x 48 mm (3.780 x 1.890")

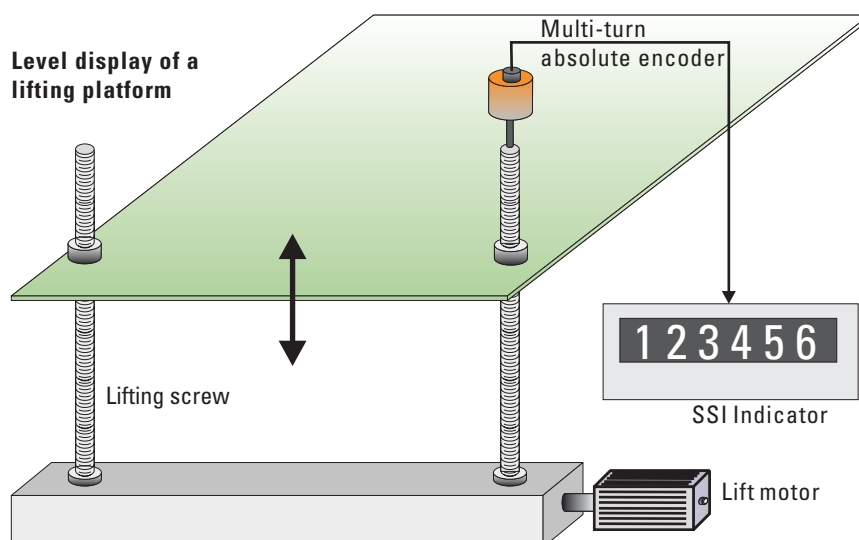


PX 540 with option VR 500:
96 x 72 mm (3.780 x 2.835")

Parallel Code Indicators

- PX 340: indicator with 2 preselections and transistor outputs
- PX 540: similar to model 340, but with additional options for relay outputs and front thumbwheel switches
- Parallel data input 20 bits, for absolute encoder or similar signals
- Suitable for data using BCD, binary or Gray code
- Programmable scaling and zero definition
- Optional analogue output and serial RS 232 / RS 485 interface
- Min. / max. value record memory
- Bright LED display 6 decades, 15 mm size (0.590")
- Power supply alternatively 115/230 Vac or 24 Vdc (same unit)
- Aux. 12 Vdc output for supply of encoder or data source

PX 340
PX 540



Displays and Preset Switches for PROFIBUS and CANBUS Applications



PB/CA 340: 96 x 48 mm (3.780 x 1.890")



PB/CA 306: 96 x 48 mm (3.780 x 1.890")



PB/CA 541: 96 x 72 mm (3.780 x 2.835")

Part No.

PB 340
CA 340

PROFIBUS and CANBUS Indicator Units

- **PB 340:** PROFIBUS indicator
- **CA 340:** CANBUS indicator
- "on site" units for remote display of process data from the field bus
- DIL switches provide setting of the communication parameters
- Bright LED display 6 decades, 15 mm size (0.590")
- Power supply 24 Vdc

PB 306
CA 306

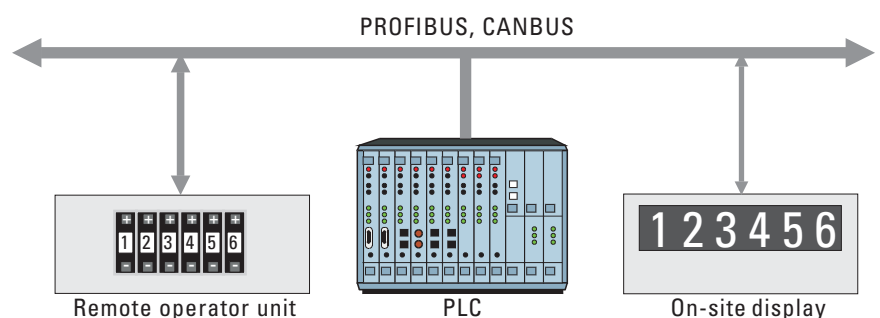
Simple Preset Units for PROFIBUS and CANBUS

- **PB 306:** PROFIBUS preset switch
- **CA 306:** CANBUS preset switch
- Simple operator units with front thumbwheel switches, for easy remote setting of process parameters via field bus
- Pressing the front ENTER key produces immediate transmission of the thumbwheel settings to the specified target unit
- DIL switches provide setting of the communication parameters
- Setting range 6 decades or 5 decades and sign
- Power supply 24 Vdc

PB 541
CA 541

Combination of Preset and Display Unit

- **PB 541:** PROFIBUS combination
- **CA 541:** CANBUS combination
- Combines the function of the previous display and preset units
- Front thumbwheel switches provide easy remote setting of process parameters via field bus
- 6 decade LED display provides remote readout of process data via field bus (size 15 mm, 0.590")
- DIL switches provide setting of the communication parameters
- Power supply 24 Vdc



Monitors for Speed, Standstill, Direction of Rotation, Slip

Monitor for Direction of Rotation and Standstill

- Monitor with impulse inputs A, /A, B and /B, for optional use with single-ended signals (A,B only) or differential RS 422 signals, with HTL level or TTL level
- Maximum operating frequency 500 kHz
- 2 output relays (dry change-over) for indication of clockwise and anti-clockwise motion (with standstill, none of the relays is active)
- DIL switches for setting of the input characteristics and the desired standstill definition
- Small and space-saving housing for DIN rail mounting

Part No.

DZ 210



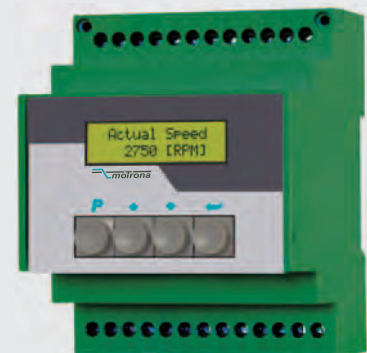
DZ 210: 22,5 x 82,5 mm (0.886 x 3.248")

Monitor for Speed, Standstill and Direction of Rotation

- **DZ 260:** Monitor with 3 output relays and with analogue output
- **DZ 267:** Monitor with 3 output relays only (no analogue output)
- Units for control and monitoring of overspeed, underspeed (with start-up delay), standstill and direction of rotation
- Impulse inputs A, /A, B and /B, alternatively for use with single channel-signals (A only) or quadrature signals (A, B, 2 x 90°) or TTL- and RS 422-signals with differential format A, /A, B, /B
- Maximum operating frequency 1 MHz
- Parameter settings by 4 front keys and LCD menu or by PC
- Power supply 24 Vdc
- Auxiliary +5 V output for supply of TTL encoders
- Housing for panel or DIN rail mounting

DZ 260

DZ 267



DZ 260/267: 72 x 91 mm (2.677 x 3.425")

Monitor for Skew Position, Torsion, Shaft Fracture, Slip

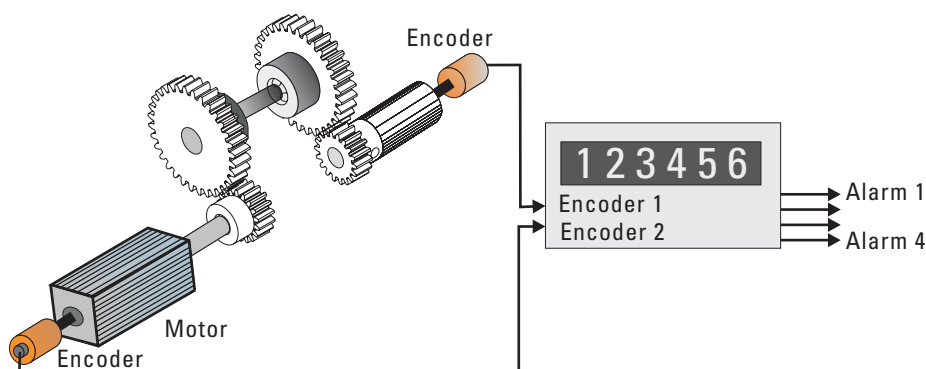
- Monitor with inputs for 2 independent incremental encoders, each A/B (2 x 90°) or A, /A, B, /B (RS 422 or TTL)
- The unit forms the difference between both encoder positions and compares the result (including sign) with 4 programmable preset values
- 4 output relays indicate the state of the actual position error
- Selectable Reset functions under timer control also allow monitoring of nominal slip, with alarm outputs when exceeding slip preset limits

ZD 640



ZD 640: 96 x 96 mm (3.780 x 3.780")

Monitoring and control of gearbox backlash and shaft fracture



Monitors for Speed, Standstill, Direction of Rotation, Slip



MM 640: 96 x 96 mm (3.780 x 3.780")

Part No.

MM 640

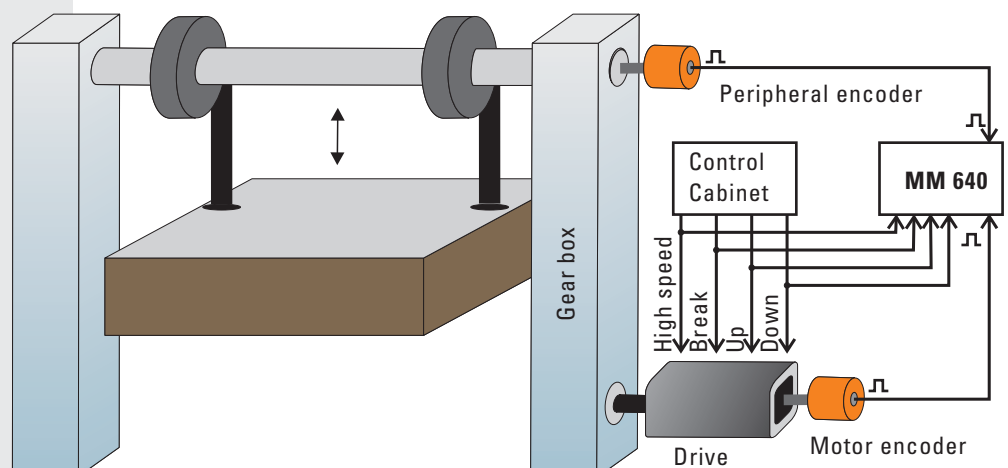
Motion Monitor for secure and redundant control of motion sequences

- Unit for logical control of actual motion commands and the effective peripheral response of a drive system
- Two independent encoder inputs (e.g. one on the motor site and another on the peripheral site) allow comparison between peripheral motion, motor motion and the scheduled demand values of the control system
- Continuous monitoring of overspeed, underspeed, direction of rotation, standstill, slip, shaft or gearbox fracture as well as positions and differential positions of the two encoders
- Four control inputs and six logical inputs for logical combination of all actual machine states with the expected state, via programmable AND / OR functions
- Four high-speed outputs (transistor) and four relay outputs to signal alarm or OK conditions according to customer settings
- Easy setup of the whole control structure by means of PC operator software

Options	Relay1
Input 1	<input checked="" type="checkbox"/>
Input 2	<input checked="" type="checkbox"/>
Input 3	<input checked="" type="checkbox"/>
Input 4	<input checked="" type="checkbox"/>
Input 5	<input checked="" type="checkbox"/>
Input 6	<input checked="" type="checkbox"/>
[V1] >= Pres.Speed 1	<input checked="" type="checkbox"/>
[V1] <= Pres.Speed 1	<input checked="" type="checkbox"/>
V1 = 0	<input checked="" type="checkbox"/>
V1 != 0	<input checked="" type="checkbox"/>
[V2] >= Pres.Speed 2	<input checked="" type="checkbox"/>
[V2] <= Pres.Speed 2	<input checked="" type="checkbox"/>
V2 = 0	<input checked="" type="checkbox"/>
V2 != 0	<input checked="" type="checkbox"/>
[Z1] >= Pres.Counter 1	<input checked="" type="checkbox"/>
[Z1] <= Pres.Counter 1	<input checked="" type="checkbox"/>
Z1 = ++	<input checked="" type="checkbox"/>
Z1 = --	<input checked="" type="checkbox"/>
[Z2] >= Pres.Counter 2	<input checked="" type="checkbox"/>
[Z2] <= Pres.Counter 2	<input checked="" type="checkbox"/>
Z2 = ++	<input checked="" type="checkbox"/>
Z2 = --	<input checked="" type="checkbox"/>
[Z1-Z2] >= Pres.DIFFERENCE	<input checked="" type="checkbox"/>
[Z1-Z2] <= Pres.DIFFERENCE	<input checked="" type="checkbox"/>

Clearly arranged
assignment of the
logical switching
conditions for each
of the output relays

Control of speeds, extreme
positions and correct
command response with a
hoisting application



Universal Motion Controller for Rotary Cutters, Flying Shears etc.

Part No.

Besides common applications like multi-axes synchronization, MC 700 has proved special performance with all processing and machining "on the fly" and with motion-sequences in packing machines, printing machines and winding procedures. More applications and customer-specific solutions are possible on request.

MC 700

Universal Motion-Controller for 1 to 4 axes

MC 700 provides a universal motion control hardware, designed for control of 1 to 4 axes (cascadable for any number of drives). A specific control function is assigned to the controller by download of an appropriate application firmware.

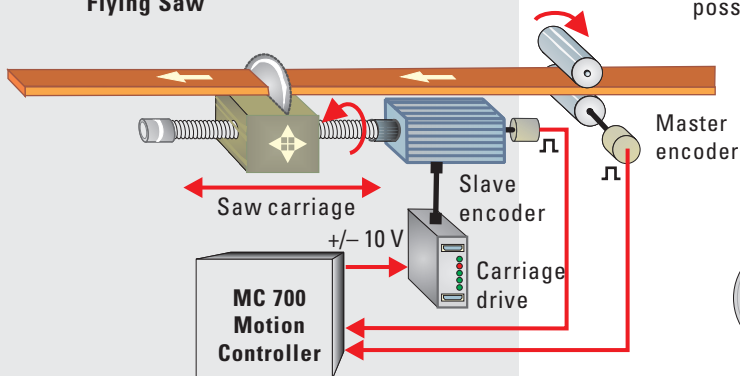
A choice of application firmware can be found on the motrona homepage and on the product range CD, for direct download to the MC 700 controller.

- All functions are field-tested and immediately ready to work, after setting of only a few mechanical and electrical parameters. No unnecessary risks.
- No complicated programming, no time-wasting commissioning
- Mathematically optimized motion profiles and extremely short control loop cycles provide excellent accuracy and maximum performance, even with high speeds
- Full remote control via serial link or CANBUS, with use of a PC or PLC or any of the motrona operator terminals. PROFIBUS operation possible with use of the motrona PB 251 gateway

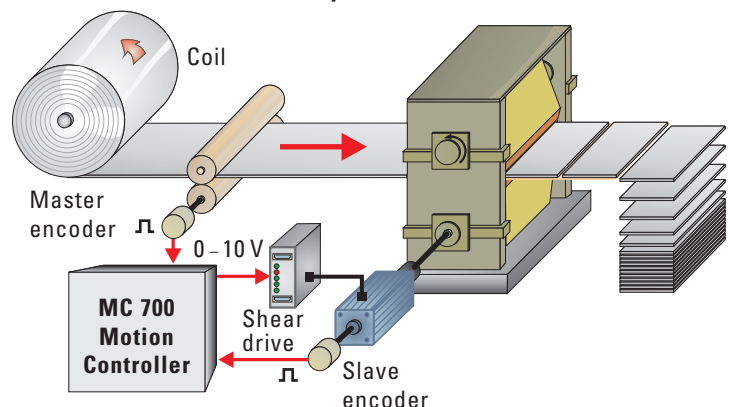


MC 700: 144 x 144 mm (5.669 x 5.669")

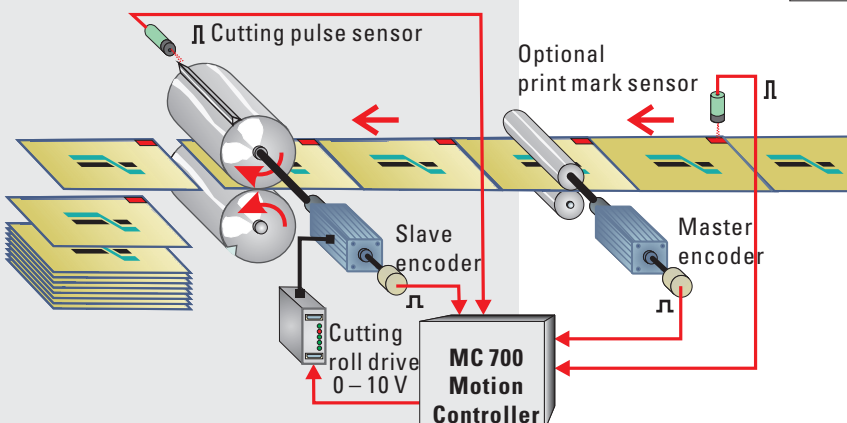
Flying Saw



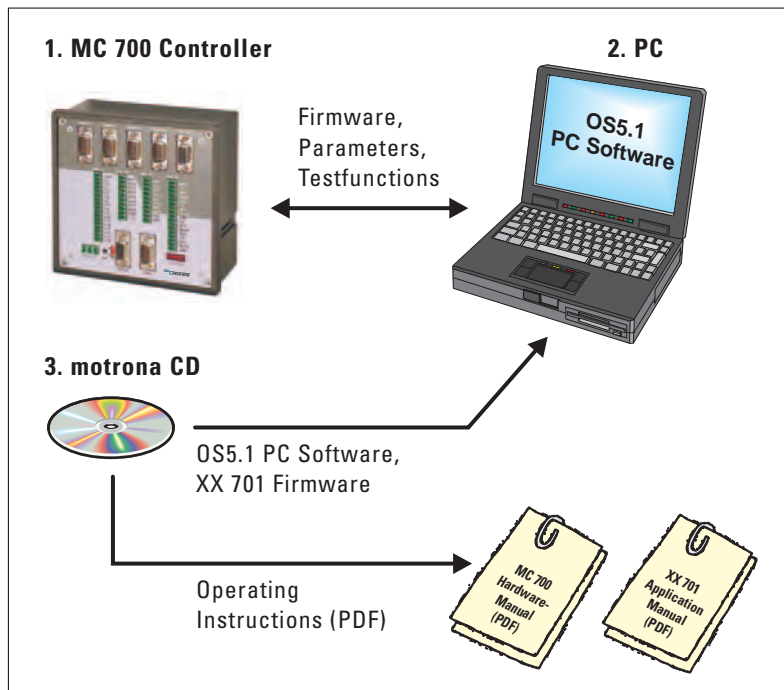
Rotary shear



Rotary cardboard cutter



Universal Motion Controller for Rotary Cutters, Flying Shears etc.



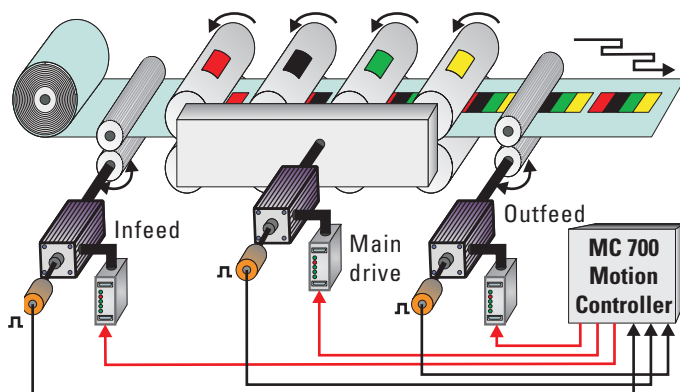
Part No.

MC 700

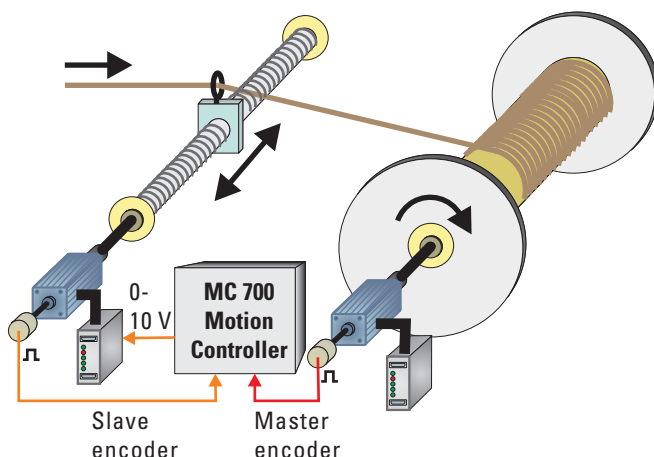
It's really easy:

- Choose your application from our range of functions. Detailed information is available on the motrona CD and on our homepage.
- Install the OS5.1 software on your PC and connect it to your MC700 controller.
- Download the appropriate application firmware to the controller and then enter all necessary parameters and machine specifications according to the menu.
- Install the electrical connections between encoders, drives and the controller.
- Run the Test program and the Adjust program of the OS5.1-Software, to adapt the controller to peripheral conditions and specific encoder and drive properties.
- Start your machine. We are ready to run.

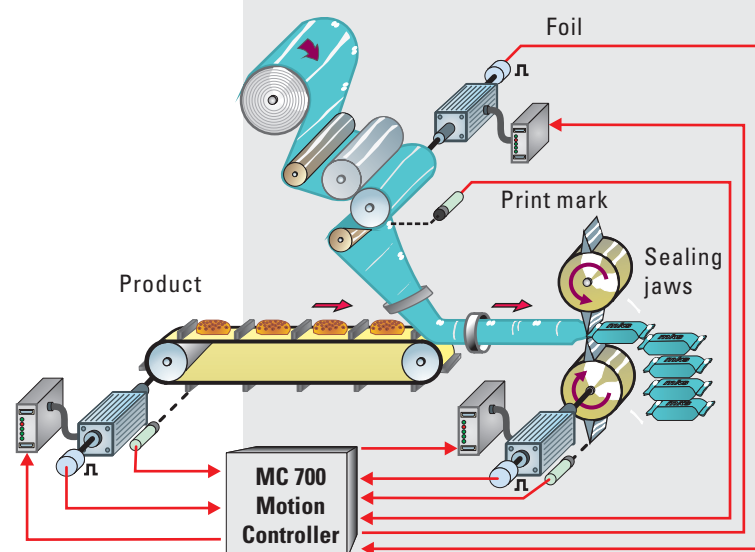
Intermittent label printing



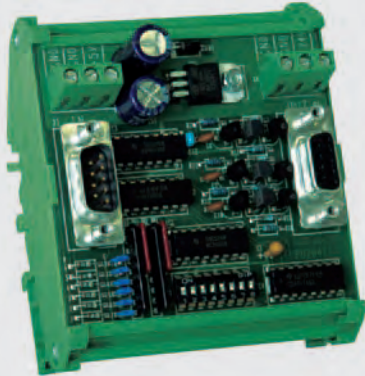
Winding and Traverse Control



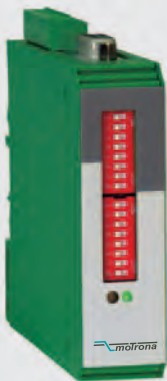
Tubular Bag Packing Machine



Level Converters, Splitters and Switchers for Incremental Encoder Signals



PU 202/204: 85 x 90 mm (3.346 x 3.543")



PU 210: 22,5 x 82,5 mm (0.886 x 3.248")



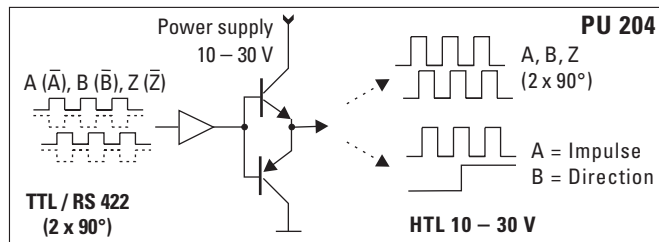
IT 251: 40 x 80 mm (1.575 x 3.150")

Part No.

Simple Level Converters for Incremental Encoders

PU 202
PU 204

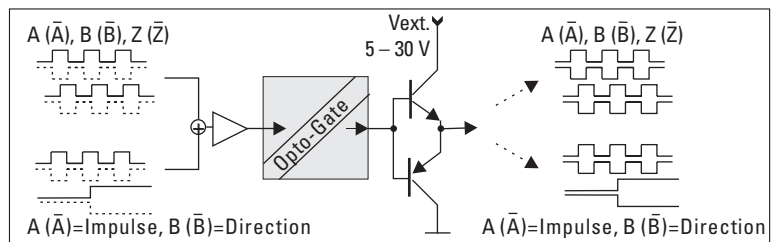
- **PU 202:** Converter from HTL A/B/Z to TTL A, /A, B, /B, Z, /Z
- **PU 204:** Converter from TTL A, /A, B, /B, Z, /Z to HTL A/B/Z
- Open PCB with frame for DIN rail mounting
- Signal connections via 9-position Sub-D-connectors
- Also suitable for translation of direction modes (quadrature A/B/90° to static direction signal and vice-versa)
- Power supply: PU 202: 5 Vdc, PU 204: 24 Vdc
- Max. frequency 200 kHz



PU 210

Universal Level Converter TTL / RS 422 ↔ HTL Potential Separator and Direction Signal Decoder

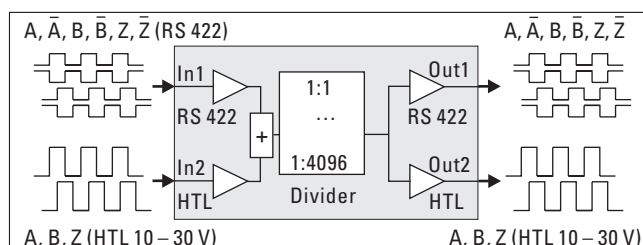
- Encoder input A, /A, B, /B, Z, /Z, selectable for TTL, RS 422 or HTL signals
- Push-pull outputs A, /A, B, /B, Z, /Z
- The power supply level of the unit (5 – 30 volts) determines also the swing of the output signals
- Max. operating frequency 500 kHz
- Full potential isolation between input and output
- Also suitable for translation of direction modes (quadrature A/B/90° to static direction signal and vice-versa)
- Connections alternatively via Sub-D-9 connectors or screw terminal strips



IT 251

Universal Level Converter and Direction Signal Decoder with Programmable Frequency Divider

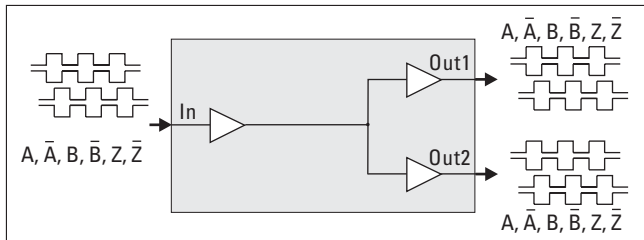
- One HTL input line A/B/Z, one TTL input line A, /A, B, /B, Z, /Z (RS 422)
- One HTL output channel, one TTL output channel, both A, /A, B, /B, Z, /Z
- Programmable quadrature frequency divider for error-free division of the encoder input information, ratio adjustable from 1:1 to 1:4096
- Programmable formats for direction indication (quadrature or static)
- Power supply 24 Vdc, max. frequency 500 kHz



Level Converters, Splitters and Switchers for Incremental Encoder Signals

Encoder Splitter with two Output Channels

- **GV 202:** Input TTL / RS 422 A, /A, B, /B, Z, /Z
- **GV 203:** Input HTL A, B, Z or A, /A, B, /B, Z, /Z
- 2 encoder outputs, each A, /A, B, /B, Z, /Z
- Output level of each output separately programmable to TTL or HTL
- Power supply range 5 – 30 Vdc



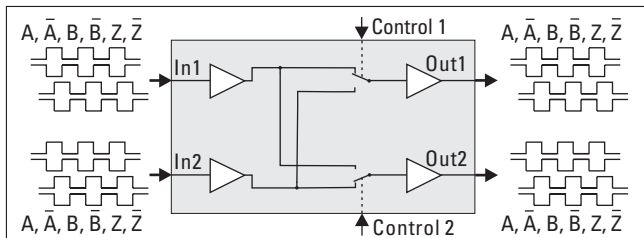
Part No.

GV 202
GV 203


GV 202/203: 85 x 90 mm (3.346 x 3.543")

Dual Encoder Splitter and Switcher

- Very versatile and universal unit for level conversion, signal distribution and bounce-free (contactless) switching of encoder signals
- 2 input channels, separately selectable to HTL level (A, B, Z) or TTL / RS 422 format (A, /A, B, /B, Z, /Z)
- 2 output channels, each A, /A, B, /B, Z, /Z, with separately adjustable output levels (TTL or HTL)
- Power supply 24 Vdc
- Connections via screw terminal strips, DIN rail mounting



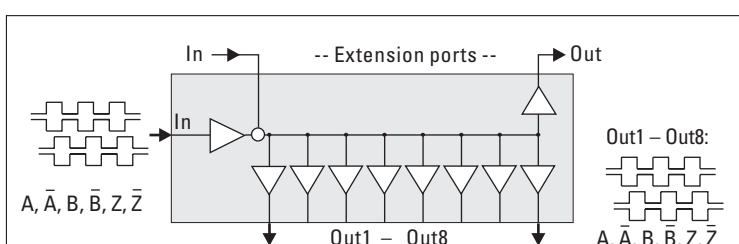
GV 210



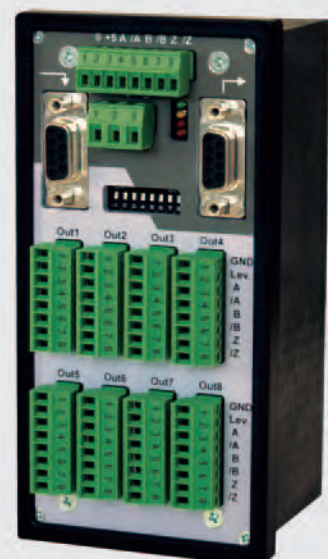
GV 210: 22,5 x 82,5 mm (0.886 x 3.248")

Encoder Signal Distributor with 8 Output Channels and Potential Isolation

- Most compact and space-saving model for versatile distribution of incremental signals of encoders, linear scales and measuring systems
- Input A, /A, B, /B, Z, /Z, selectable to TTL / RS 422 format or HTL format
- Suitable for single-ended and for differential input signals
- LEDs to indicate the A / B / Z input states
- 8 output channels, isolated from the input potential
- Push-pull outputs with individual assignment of the output level, by applying a remote voltage from 5 to 30 volts to each of the outputs
- Cascadable to n x 8 outputs without loss of regular output terminals
- Connections via screw terminal strips, DIN rail mounting



GV 470



GV 470: 72 x 144 mm (5.669 x 2.835")

Signal Converters



FU/ZU 252: 40 x 80 mm (1.575 x 3.150")
IV 251: 40 x 80 mm (1.575 x 3.150")

Part No.

The converters of series 251 / 252 described subsequently belong to the world top class of signal converters for industrial applications.

All models shown below provide the following common properties:

- Very fast conversion times (< 1 msec)
- Simple and easy setup by means of DIL switches and Teach procedure
- Extended set of functions accessible by PC, providing definition of conversion windows, bit blanking, linearisation, digital filtering and more
- RS 232 / RS 485 serial interface for read-out of all relevant information and for data communication with a PC or data logger
- Power supply 24 Vdc, DIN rail mounting

FU 252

Converter Frequency → Analogue / Serial RS 232 or RS 485

- Suitable for conversion of any single or quadrature frequency, but also of the sum or difference of two frequencies, to a voltage or current and to serial
- Wide operating range from 0.1 Hz full scale to 1 MHz full scale
- Universal impulse inputs TTL / RS 422 (A, /A, B, /B) or HTL (A, B)
- Output +/- 10 Volt and 0/4 – 20 mA, resolution 14 bits
- Output polarity +/- results from direction of rotation (phase A/B)
- Adjustable digital filters for operation with unsteady input frequencies
- Auxiliary output 5 volts for supply of TTL encoders

ZU 252

Incremental Count → Analogue / Serial RS 232 or RS 485

- Suitable to convert the counting process of an incremental counter to an analogue output +/- 10 V or 0/4 – 20 mA and to serial
- Quadrature counter inputs HTL (A only or A/B, 2 x 90°) and TTL / RS 422 (A, /A, B, /B)
- Can also convert the sum A+B and the difference A-B of two counts
- Counting frequency range 0 – 1 MHz
- Especially suitable for analogue or serial evaluation of incremental positions and other measuring results

IV 251

Converter SSI → Analogue / Serial RS 232 or RS 485

- Suitable for use with all single-turn or multi-turn encoders, scales and sensors providing SSI interface with 6 to 25 bits word length (binary or Gray code)
- SSI-Master or SSI-Slave operation (switch selectable)
- Analogue outputs +/- 10 V and 0/4 – 20 mA proportional to the encoder position (resolution 14 bits)
- Programmable round-loop functions, bit blanking facilities and more

Signal Converters

Converter SSI → Parallel and also RS 232 → Parallel

- Suitable for conversion of either SSI encoder data or serial RS 232 data to a parallel data format (25 bits, BCD or binary or Gray code)
- SSI-Master or SSI-Slave operation (switch selectable)
- Parallel data output with push-pull characteristics, short-circuit proof
- Programmable bit blanking for unused bits, round-loop operation mode and other useful options

Part No.

IP 251



IP 251: 40 x 80 mm (1.575 x 3.150")

Converter Analogue → Frequency / Serial RS 232 or RS 485

- Analogue input range: – 10 ... + 10 V and 0/4 ... 20 mA
- Quadrature frequency outputs HTL (A/B/Z) from 1 Hz (full scale) to 100 kHz (full scale) and TTL (A, /A, B, /B, Z, /Z) from 1 Hz (full scale) to 500 kHz (full scale)
- Output phase A/B results from polarity +/- of input signal
- Programmable marker pulse distance (Z, /Z)
- Free programmable V/f-characteristic curves, modes for generation of repeating frequency cycles, motorized potentiometer function etc.

UF 251

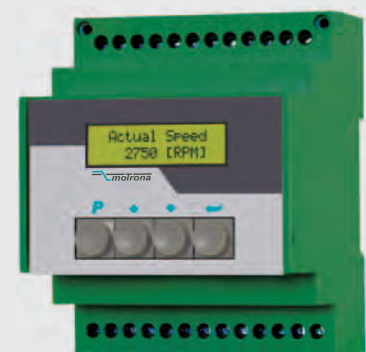


UF 251: 40 x 80 mm (1.575 x 3.150")

Converter Frequency → Analogue

- Setup of the conversion range by keypad and LCD menu or by PC
- Display of the actual input frequency
- Universal impulse inputs A, /A, B, /B for use with single-channel or quadrature encoders with TTL or HTL levels
- Wide input range 0.1 Hz – 1 MHz
- Analogue outputs – 10 ... 0 ... + 10 V and 0/4 ... 20 mA

DZ 266



DZ 266: 72 x 91 mm (2.677 x 3.425")

Frequency Dividers, Frequency Multipliers



IT 251: 40 x 80 mm (1.575 x 3.150")



SI 251: 40 x 80 mm (1.575 x 3.150")



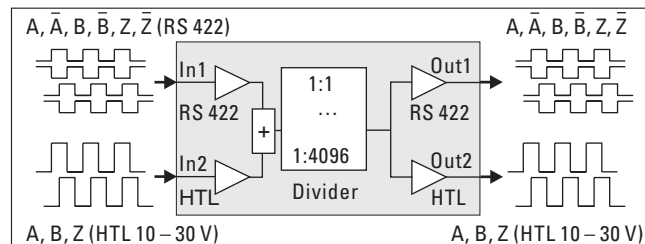
FM 260: 72 x 91 mm (2.677 x 3.425")

Part No.

IT 251

Programmable Frequency Divider

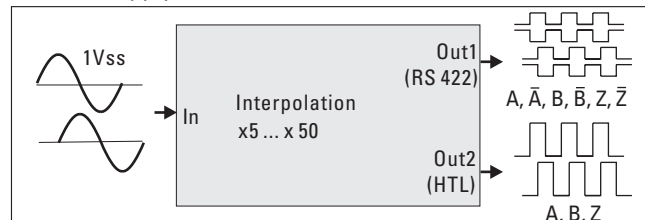
- Quadrature frequency divider, for error-free division of incremental encoder signals, with programmable ratio 1:1 to 1:4096
- Separately adjustable divider for the encoder marker pulse
- HTL input lines A/B/Z and TTL input lines A, /A, B, /B, Z, /Z (RS 422)
- HTL output channel and TTL output channel, both with signals A, /A, B, /B, Z, /Z, therefore also suitable as level converter
- Programmable direction formats (quadrature or static indication)
- Power supply 24 Vdc, max. frequency 500 kHz



SI 251

Sine/Cosine Interpolator Unit

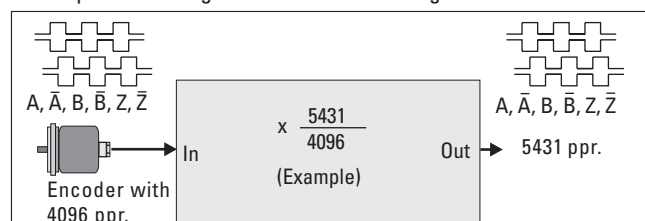
- Suitable for conversion of the sine signals (1 Vpp) generated by a sine/cosine encoder to incremental impulse signals
- Sine input frequency up to 400 kHz
- Quadrature square-wave output up to 4 MHz (TTL A, /A, B, /B, Z, /Z)
- Additional HTL outputs A, B, Z, 10 – 30 V push-pull
- Interpolation factor programmable from x5 to x50
- Programmable divider to reduce the output frequency if applicable
- Selectable glitch filter
- Power supply 24 Vdc



FM 260

Impulse and Frequency Multiplier

- Incremental encoder input A, /A, B, /B for TTL levels and HTL levels up to 30 V
- Impulse output A, /A, B, /B, Z, /Z with remote supply for output levels 5 – 30 V
- Programmable marker pulse output
- Provides multiplication of the input pulses with a proportional and a reciprocal factor, both adjustable in a range from 0.0001 to 9.9999. Error-free multiplication, impulse by impulse, under full consideration of the A/B direction. Therefore also no cumulative errors
- Maximum frequency 1 MHz (input and output)
- Easy setup by front keys and LCD menu
- Serial RS 232 link and USB port
- Power supply 24 VDC, aux. output 5 VDC for supply of TTL encoders
- Compact housing for DIN rail mounting



Accessories

PROFIBUS Gateway

- Universal gateway for easy connection of motrona units to a PROFIBUS network (PROFIBUS DP-V1)
- Provides a simple and easy way of PROFIBUS communication with all counters, indicators, converters and motion controllers shown in this brochure (serial link assumed)

Part No.

PB 251



PB 251

Incremental Encoder Simulator

- Testing unit for generation of all typical encoder output signals
- Outputs A, /A, B, /B, Z, /Z with any level between 5 and 30 volts
- Output frequency adjustable from 0 to 500 kHz
- Marker pulse output with programmable distance
- Selectable direction of rotation (phase A/B)
- Indexing mode for generation of a fixed number of output pulses in multiples of 1, 10, 100 and 1000 pulses
- Suitable best for testing of cables and wiring in a machine, for "dry run" with the machine in standstill, for multiple operational testing and set-up of counters, meters and converters needing incremental input signals

ES 001



ES 001

Serial RS 232 Cable

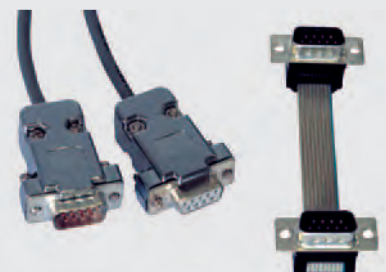
- Suitable for connection between PC and all motrona units with serial link by Sub-D-9 connector
- Cable with one connector Sub-D-9 male and one connector Sub-D-9 female
- Cable length 3 meters (10 feet)

SK 232

Cascading Cable

- Ribbon cable for easy cascading of encoder splitters of type GV 470 (when mounted side by side)
- 2 Sub-D-9 connectors (male)
- Cable length 10 cm (3.94")

FK 470


SK 232
FK 470

Accessories



NT 215



SM 300



BT 348



BT 700

Part No.

NT 215

Power Unit 24 Vdc / 15 W (made by Lambda)

- Universal wide-band input 85 – 264 Vac (50 – 60 Hz) or 90 – 375 Vdc
- Output 24 Vdc (+/- 1 %), 630 mA, 15 watts
- Dimensions 22,8 x 75 x 96,7 mm (0.898 x 2.953 x 3.807")
- DIN rail mounting

SM 150

SM 300

SM 500

SM 600

Mounting Clamps and Brackets

- **SM 150:** Fixture for DIN rail mounting, suitable for all controllers of series xx125 and xx150
- **SM 300:** Angle support with brackets, for DIN rail mounting of indicators and display units with front dimensions 96 x 48 mm (3.780 x 1.890")
- **SM 500:** ditto for display units with front dimensions 96 x 72 mm (3.780 x 2.835")
- **SM 600:** ditto for display units with front dimensions 96 x 96 mm (3.780 x 3.780")

BT 348

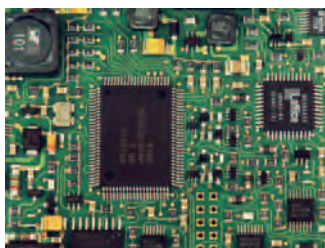
Mini Operator Terminal for Serial Operation of motrona Controllers and other Units

- Simple terminal for serial entry or readout of single parameters
- Also suitable as an additional remote display with all motrona units providing serial interface

BT 700

Touch-Screen Terminal (made by Hitech)

- Universal HMI with 2 serial ports, suitable for simultaneous and integrated operation with motrona motion controllers and PLC
- Project-oriented software like batch management with Cut-to-length applications etc. is available on request



control

motion

interface

Welcome to themotrona range of products

control – motion – interface,
these keywords best describe our business of supplying high-performance
modules for industrial automation.

motronais distinguished from our competitors because of our innovative
development in hardware and software, modern production methods,
high quality and performance together with the market experience
of more than 25 years serving customers worldwide.

motronais a medium sized company targeted to serve international
businesses. We have qualified agents in many countries and their professional
business methods will provide a complete consultation service including
problem solving and the final delivery of products suitable for the application.

To find the contact details of your nearest agent, click on the "agents"
icon on the enclosed CD or on our homepage. You are of course welcome
to contact us at any time by telephone, fax or email or to visit us at our
headquarters in Rielasingen in Germany.

Rielasingen is situated in southwest Germany at the southern end of the A81
motorway close to the Swiss border and not far from the cities of Konstanz
(Lake Constance) and Schaffhausen (in Switzerland). You can reachmotrona
by car in 50 minutes from Zurich airport, in 60 minutes from Friedrichshafen
airport or within 1 hour and 40 minutes from Stuttgart airport.

We would like to thank you for showing an interest in our company and our
high quality products and would be delighted to provide you with any further
information you may require.



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