THE RESULT MUST AGREE – CAM CONTROLS MADE BY DEUTSCHMANN!

ELECTRONIC CAM CONTROLS

Fast switching - even in case of dynamic speeds

Deutschmann Automation

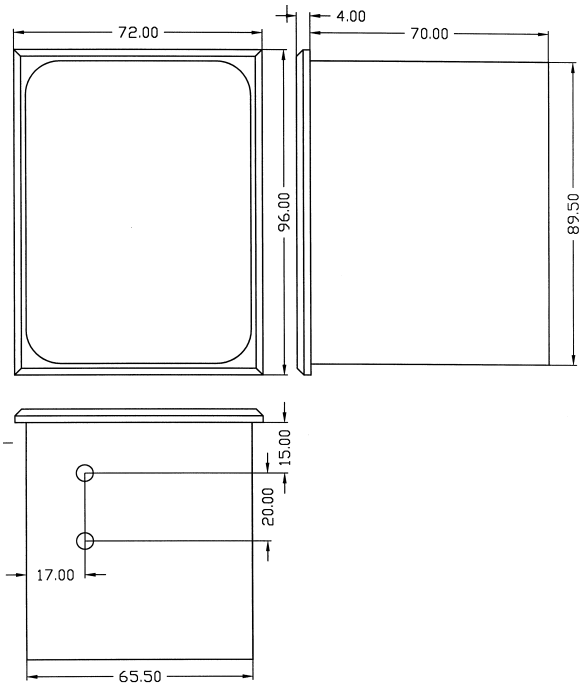
Contents

- **Development and production of electronic cam controls since 1982.**
- **Since 1990 the brand names LOCON and ROTARNOCK stand for reliable and fast electronic cam controls.**
- **LOCON – The classical concept of separate control and separate actual value acquisition.**
- **ROTARNOCK – The intelligent solution: cam control and actual value acquisition combined in one housing**
- **There is no standing still and we are continuously working on the further development of our products and the expansion of our product range. Thus the LOCON and ROTARNOCK series were adapted to the current market needs with new models. We were inspired especially through the implementation of the Fieldbus connection assocoiated with modern control and configuration concepts.**

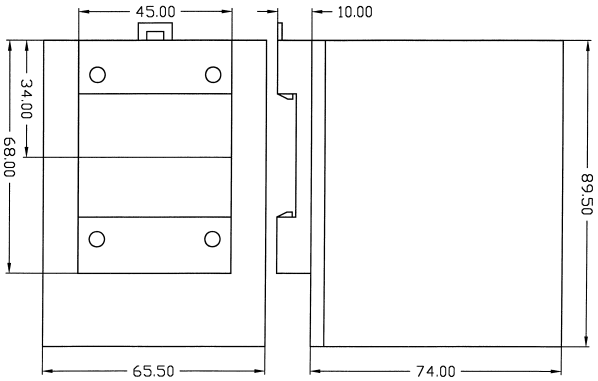
LOCON 16, 17

Multifunctional and compact

The compact solution in DIN-format 72 mm x 96 mm (width x depth) at an overall depth of 70 mm only. With its integrated operating keyboard the unit is installed into the front plate; the version without keyboard is mounted on a DIN-rail. The „4-key user interface" has proven its worth many thousand times and it can be operated easily after a short training period. The basic version features 16 outputs, 16 programs, blockwise idle time compensation.



LOCON 16, 17 with front plate



LOCON 16PM, LOCON 17PM for the DIN-rail

Structure of the order code

LOCON 16	-0360	-L	-X011

Basic device
example for the version
with control panel:
LOCON 16-0360-L-X011

Encoder type + encoder resolution
0 = absolute encoder, S = SSI-encoder
Z = incremental encoder;
the number indicates the encoder's resolution

Housing versions
and hard- and software-options
in alphabetical order

Special function
(X-options)

Note:
For the incremental encoder version (Z) the encoder resolution only has to be indicated in connection with the option speed indication.

Basic device

Option	Meaning	Excludes or only possible with the option	L16	L17
0360	Version for absolute encoder parallel 360 inf./rev.	All other resolutions	●	●
01000	Version for absolute encoder parallel 1000 inf./rev.	All other resolutions	●	●
04096	Version for absolute encoder parallel 4096 inf./rev.	All other resolutions	-	●
On	Version for absolute encoder parallel (n=encoder's resolution)	All other resolutions	-	●
S1024	Version for SSI-absolute encoder 1024 inf./rev.	All other resolutions	●	●
S4096	Version for SSI-absolute encoder 4096 inf./rev.	All other resolutions	-	●
MT	Version for SSI-absolute encoder 24 bit	All other resolutions	-	-
Zn	Version for incremental encoder (n=indicate encoder's resolution at speed indication): counting range in increments	All other resolutions	1024	4096
PM	Version available without integrated control panel		❷	❷

Hard- and software-options

Code	Meaning	Excludes or only possible with the option	L16	L17
Cn	Automatic clear position (n=enter the required value)	Only for devices with Z	■	■
D	Position / speed indication Switchover takes place depending on the speed indication		■	●
H	Faster processor for lower cycle times		-	■
I	Bitwise idle time compensation	Not with L, LT	-	●
L	Blockwise idle time compensation	Not with I, LT	●	x
LT	Blockwise idle time compensation with separate turn on/turn-off time	Not with I, L	-	■
P	Screw-/plug-connector for an encoder connection instead of a connection via a 25-pole D-SUB		■	■
P108	Switching capacity 1A on 8 outputs		■	■
P116	Switching capacity 1A on 16 outputs		■	■
R	Run control function on output 16		■	■
T	Timer/program switch		x	x
U	Direction cams depending on the sense of rotation		■	■
V0	Rotation speed/position change-over definable by the customer	Not with Vn, requires D	■	■
Vn	Locked outputs (outputs can only be changed by entering a password); n=number of locked outputs; max. 15 possible	Requires option A; not with option V0	■	■
Y	Partial idle time compensation	Available with I or L	-	x
232	Interface RS232	Not with option 485	❶	❶
485	Interface RS485-DICNET® (network of up to 16 DA cam controls)	Not with option 232	❶	❶
X004	Four output-enable inputs	Not with P	-	■
X011	Speed indication scaled to customer's value	Requires option, D, O, S	■	■
X016	Brake cam with quadratic idle time compensation		-	■
X?	Customized version	On request	■	■
Z	Encoder type incremental 24V signal voltage		x	x

● Standard
■ Optionally for an additional charge
x Optionally at no additional charge
❶ RS232/485 switchable on board
❷ The unit is alternatively available with or without integrated control panel

Technical data

	Characteristics	LOCON 16	LOCON 16PM	LOCON 17	LOCON 17PM
Available versions	- with integrated keypad	●	–	●	–
	- without integrated keypad	–	●	–	●
Installation	- front panel installation	●	–	●	–
	- DIN-rail	–	●	–	●
Outputs		16	16	16	16
Storable outputs		16	16	16	16
Data records (incl. output names) (number of switch-on/switch-off points)		1936	1936	1936	1936
Actual value acquisition	- incremental encoder - counting range incremental	1024	1024	4096	4096
	- absolute encoder parallel Gray excess	360, 1000	360, 1000	360, 720, 1000, 3600	360, 720, 1000, 3600
	- absolute encoder parallel Gray code to bit-number	–	–	9...12	9...12
	- absolute encoder SSI Gray code	360, 1024	360, 1024	360, 1024, 4096	360, 1024, 4096
	- counting/direction inputs for incremental encoder	■	■	■	■
	- timer function (value is generated internally)	1 - 65535	1 - 65535	1 - 65535	1 - 65535
Idle time compensation (dynamic cam)	- blockwise	●	●	X	X
	- bitwise	–	–	●	●
	- separate I/O	–	–	■	■
	- entering the idle time in steps	1ms - 999ms	1ms - 999ms	1ms - 999ms	1ms - 999ms
	- partial idle time compensation	–	–	X	X
Cycle time in some configurations the idle time might be higher, in case of using the high-speed-version it might also be lower!	- without idle time compensation (ITC)	500µs	500µs	150µs	150µs
	- with blockwise ITC	500µs	500µs	200µs	200µs
	- with bitwise ITC	–	–	550µs	550µs
	- with blockwise I/O ITC	–	–	550µs	550µs
	- high-speed-version for a lower cycle time	–	–	■ 60µs and more	■ ab 60µs
Software characteristics:					
zero point offset	- within the complete range	●	●	●	●
cams are interchangeable linewise		●	●	●	●
angle/time cams		–	–	–	–
direction cams		■	■	■	■
lockable outputs		■	■	■	■
Run-control-function		■ [2]	■ [2]	■ [2]	■ [2]
Speed indicator		■ [1]	■ [1]	● [1]	● [1]
Inputs	- for encoder signal	10	10	12	12
	- for program selection	4	4	4	4
	- for program change	1	1	1	1
	- for program release	1	1	1	1
Logic functions	- logic inputs	–	–	■ 4	■ 4
	- extensive logic functions	–	–	enable function (X04)	enable function (X04)
	- shift register	–	–	–	–
Programming	- teach-in programming	●	●	●	●
	- via integrated keypad	●	–	●	–
	- via Deutschmann terminal	●	●	●	●
	- via PC (WINLOC 32®-software)	●	●	●	●
	- via cam control profile	●	●	●	●
Data backup	- EEPROM (min. 100 years)	●	●	●	●
	- via transfer program on PC	●	●	●	●
Display seven-segment indication		6 digits	–	6 digits	–
	- for position	●	–	●	–
	- for speed	■ [1]	–	● [1]	–
Status display for	- outputs	●	●	●	●
	- programming status	●	●	●	●
	- external program selection	●	●	●	●
	- SSI-control	–	–	–	–
	- error-display	●	●	●	●
	- run-control	■	■	■	■
Interface	- RS232	● switchable	● switchable	● switchable	● switchable
	- RS485-DICNET®	● switchable	● switchable	● switchable	● switchable
Voltage supply 24VDC +/-20%		●	●	●	●
Max. power consumption (without load)		200mA	200mA	200mA	200mA
Output driver max. load	- 300 mA each output, max. 1A for 8 outputs at a time at 25°C ambient temperature	● ■ 8/16 outputs	● ■ 8/16 outputs	● ■ 8/16 outputs	● ■ 8/16 outputs
	- 700 mA each output, temporarily also 1A each ouput	●	●	●	●
	- outputs positive switched, short-circuit-proof				
Analog outputs	- current output	–	–	–	–
	- voltage output	–	–	–	–
Dimensions basic device in mm	- width	72	65,5	72	65,5
	- height	96	89,5	96	89,5
	- depth	70	74	70	74
Front panel cutout		90 x 66	–	90 x 66	–
Protection class		IP54	IP20	IP54	IP20
Weight in grams		580	580	580	580

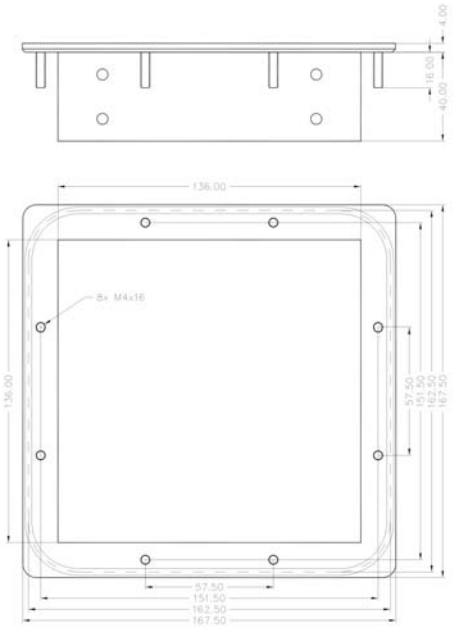
● Standard
■ Optionally for an additional charge
X Optionally at no additional charge

[1] Automatic switchover between position and speed (speed-dependent)
[2] Run-control function is assigned to output 16

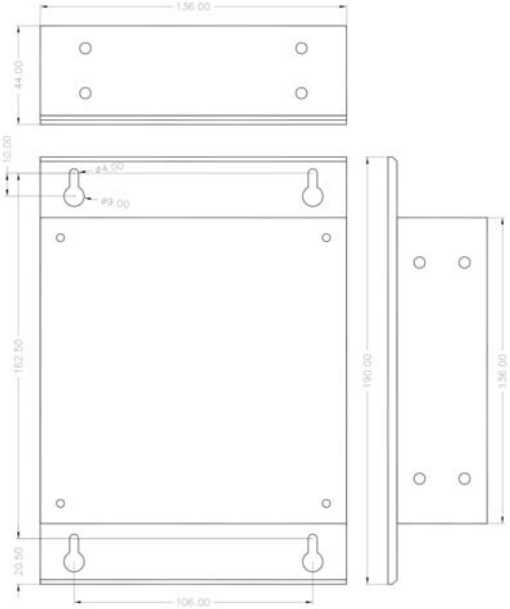
LOCON 24, 48, 64

The multifunctionals

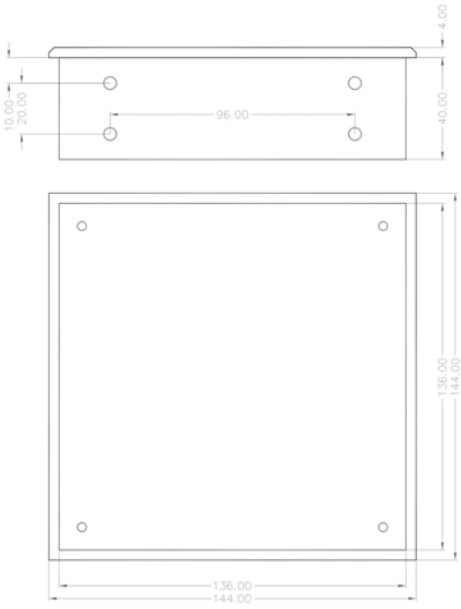
Compact series with DIN size of 144 x 144 mm. With an overall depth of 44 mm only, these models feature 24, 32, 48 or 64 outputs. 64 programs that can be selected either via the integrated control panel or that can be selected externally, a memory of 1000 data records as well as an extensive range of functions round off the features. The version with integrated control panel for front panel installation (either IP54 or IP65) offers the operating convenience you are looking for: Seven-segment display for position and speed, 2-line LCD with a multi-lingual, user-configurable menu, and both, a decimal keypad and a function keypad. Optionally LOCON 24 and LOCON 64 are available with 16 inputs for logic connections. This allows simple tasks to be relocated from the PLC to the cam control, thus performing these tasks much faster or enable-functions can be realized easily at a lower cost.



LOCON 24, 48, 64 with front panel IP65

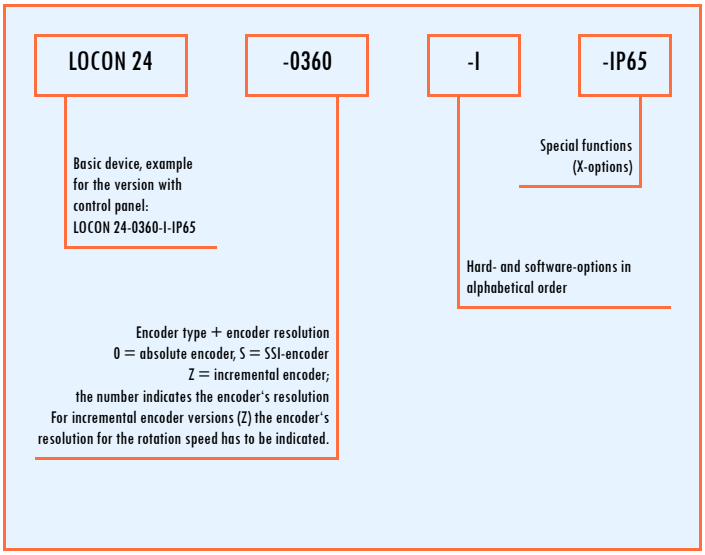


LOCON 24, 48, 64 PM for mounting plate



LOCON 24, 48, 64 with front panel IP54

Structure of the order code



Basic device

Option	Meaning	Excludes or only possible with the option	L24	L48	L64
PM	Version for mounting plate without keypad		❷	❷	❷
0360	Version for absolute encoder parallel 360 inf./rev.	All other resolutions	●	●	●
01000	Version for absolute encoder parallel 1000 inf./rev.	All other resolutions	●	●	●
On	Version for absolute encoder parallel (n=encoder's resolution)	All other resolutions	●	●	●
S4096	Version for SSI-absolute encoder 4096 inf./rev.	All other resolutions	●	●	●
S8192	Version for SSI-absolute encoder 8192 inf./rev.	All other resolutions	●	●	●
MT	Version for SSI-absolute encoder 24 bit (16 mio.)	All other resolutions	●	●	●
Zn	Version for incremental encoder (n=indicate encoder's resolution at speed indication): counting range in increments		16384	8192	8192

Hard- and software-options

Code	Meaning	Excludes or only possible with the option	L24	L48	L64
A32	Extension to 32 outputs	Not with A2	■	–	–
A2	2 analog outputs (restriction: encoder's resolution max. 13 bit)	Not with A32	■	■	–
D	Binary coded speed indication on the 8 upper outputs		■	■	■
E16	16 inputs with logic function and shift register		■	■	–
G	Encoder monitoring (for postively counting adjusted devices only)		■	■	■
H08	Highly dynamic idle time compensation on the first 8 outputs, all other outputs can be compensated bit by bit	Not with L, LT	■	■	■
I	Bitwise idle time compensation	Not with L, LT	●	●	●
IP65	Front plate; version IP65		■	■	■
L	Blockwise idle time compensation	Not with I, LT	X	X	X
LT	Blockwise idle time compensation with separate turn on and turn off time	Not with I, L	■	■	■
N	Extension to 1500 data records		■	■	■
P108	Switching capacity 1A on 8 outputs		■	■	■
P116	Switching capacity 1A on 16 outputs		■	■	■
U	Direction cams		■	■	■
T	Timer/programmable switch		X	X	X
Vn	Locked outputs		■	■	■
W16/W32	Angle/time cams on the first 16/32 outputs possible (restriction: encoder resolution max. 13 Bit)		■	■	■
X?	Customized version	On request	■	■	■

● Standard
■ Optionally for an additional charge
X Optionally at no additional charge
❶ RS232/485 switchable on board
❷ The unit is alternatively available with or without integrated control panel
❸ The unit is only available for DIN-rail mounting

Technical data

	Characteristics	LOCON 24	LOCON 24PM	LOCON 48	LOCON 48PM	LOCON 64	LOCON 64PM
Available versions	- with integrated keypad - without integrated keypad	● –	– ●	● –	– ●	● –	– ●
Installation	- front panel installation - mounting plate - DIN-rail	● ● without front –	– ● without front –	● ● without front –	– ● without front –	● ● without front –	– ● without front –
Outputs		24 ■ 32	24 ■ 32	48 –	48 –	64 –	64 –
Storable programs		64	64	64	64	64	64
Data records (incl. output names) (number of switch-on/switch-off points)		1000 ■ 1500	1000 ■ 1500	1000 ■ 1500	1000 ■ 1500	1000 ■ 1500	1000 ■ 1500
Actual value acquisition	- incremental encoder - counting range incremental - absolute encoder Gray excess - absolute encoder parallel Gray code to bit number - absolute encoder SSI Gray code (at option MT) - count/direction inputs for incremental encoders - timer function (value is generated internally)	16384 360, 720, 1000, 3600, 7200 2...13 2...13, (24) ☒ 1 - 65535	16384 360, 720, 1000, 3600, 7200 2...13 2...13, (24) ☒ 1 - 65535	8192 360, 720, 1000, 3600, 7200 2...13 2...13, (24) ☒ 1 - 65535	8192 360, 720, 1000, 3600, 7200 2...13 2...13, (24) ☒ 1 - 65535	8192 360, 720, 1000, 3600, 7200 2...13 2...13, (24) ☒ 1 - 65535	8192 360, 720, 1000, 3600, 7200 2...13 2...13, (24) ☒ 1 - 65535
Idle time compensation (dynamic cam)	- blockwise - bitwise - separate I/O - entering the idle time in steps - partial idle time compensation - highly dynamic ITC for number of outputs	X ● ■ 1ms - 999ms – ■ 8	X ● ■ 1ms - 999ms – ■ 8	X ● ■ 1ms - 999ms – ■ 8	X ● ■ 1ms - 999ms – ■ 8	X ● ■ 1ms - 999ms – ■ 8	X ● ■ 1ms - 999ms – ■ 8
Cycle time In some configurations the cycle time may be higher, in case of using the high-speed-version it may also be lower!	- without idle time compensation (ITC) - with blockwise ITC - with bitwise ITC - with blockwise I/O ITC	75µs 150µs 300µs 250µs	75µs 150µs 300µs 250µs	100µs 200µs 500µs 400µs	100µs 200µs 500µs 400µs	150µs 250µs 600µs 500µs	150µs 250µs 600µs 500µs
Software characteristics: **zero point offset** **cams are interchangeable linewise** **angle/time cams** **direction cams** **lockable outputs** **scalable encoder value**	- within the complete range	● ● ■ 16/32 outputs ■ ■ ●	● ● ■ 16/32 outputs ■ ■ ●	● ● ■ 16/32 outputs ■ ■ ●	● ● ■ 16/32 outputs ■ ■ ●	● ● ■ 16/32 outputs ■ ■ ●	● ● ■ 16/32 outputs ■ ■ ●
Run-control-function		● (relay)	● (relay)	● (relay)	● (relay)	● (relay)	● (relay)
Speed indicator		●	●	●	●	●	●
Inputs	- for encoder signal - for program selection - for program change - for program release	13 6 1 1	13 6 1 1	13 6 1 1	13 6 1 1	13 6 1 1	13 6 1 1
Logic functions	- logic inputs - extensive logic functions - shift register	■ 16 ● ●	■ 16 ● ●	■ 16 ● ●	■ 16 ● ●	– – –	– – –
Programming	- teach-in programming - via integrated keypad - via Deutschmann terminal - via PC (WINLOC 32®-software) - via cam control profile	● ● ● ● ●	● – ● ● ●	● ● ● ● ●	● – ● ● ●	● ● ● ● ●	● – ● ● ●
Data backup	- EEPROM (min. 100 years) - via transfer program on PC	● ●	● ●	● ●	● ●	● ●	● ●
Display seven-segment indication	 - for position - for speeed	10 digits ● ●	– – –	10 digits ● ●	– – –	10 digits ● ●	– – –
Status display for	- outputs - programming status - external program selection - SSI-control - error-display - run-control	● ● ● ● ● ●	● ● ● ● ● ●	● ● ● ● ● ●	● ● ● ● ● ●	● ● ● ● ● ●	● ● ● ● ● ●
Interface	- RS232 - RS485-DICNET®	● switchable ● switchable	● switchable ● switchable	● switchable ● switchable	● switchable ● switchable	● switchable ● switchable	● switchable ● switchable
Voltage supply 24VDC +/-20%		●	●	●	●	●	●
Max. power consumption (without load)		200mA	200mA	200mA	200mA	200mA	200mA
Output driver max. load	- 300 mA per output, max. 1A for 8 outputs at a time at 25°C ambient temperature - 700 mA per output, temporarily also 1A per output - outputs positive switching, short-circuit-proof	● ■ 8/16 outputs ●	● ■ 8/16 outputs ●	● ■ 8/16 outputs ●	● ■ 8/16 outputs ●	● ■ 8/16 outputs ●	● ■ 8/16 outputs ●
Analog outputs	- current output - voltage output	■ 2 or ■ 2	■ 2 or ■ 2	■ 2 or ■ 2	■ 2 or ■ 2	– –	– –
Dimensions basic device in mm	- width - height - depth	144 144 44	144 144 44	144 144 44	144 144 44	144 144 44	144 144 44
Front panel cutout		138 x 138	–	138 x 138	–	138 x 138	–
Protection class		IP20 [1] IP54 [2] ■ IP65 [3]	IP20 [1] – –	IP20 [1] IP54 [2] ■ IP65 [3]	IP20 [1] – –	IP20 [1] IP54 [2] ■ IP65 [3]	IP20 [1] – –
Weight in grams		1000	1000	1000	1000	1000	1000

● Standard
■ Optionally for an additional charge
X Optionally at no additional charge
☒ Freely configurable

[1] Without housing
[2] Standard version for front panel installation
[3] Version for front panel installation IP65

LOCON 200

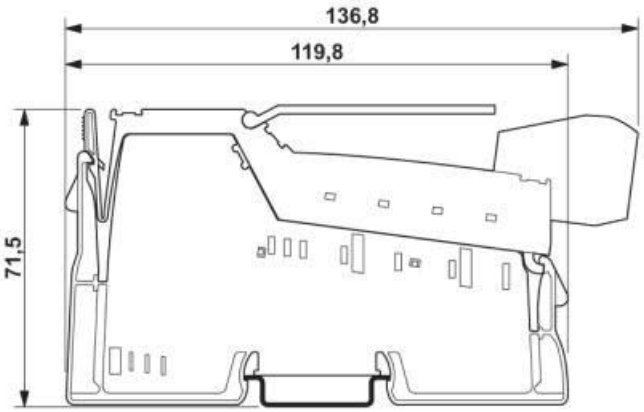
Fast and modular

LOCON 200 consists of a basic unit with the tasks of the central actual-value acquisition, communication with the periphery, voltage supply and some further administration topics.

The complete performance capacity is achieved by using the expansion module with 8 I/Os each.

Through the consistent arrangement as I/Os the basic module as well as the expansion unit achieve highest possible flexibility and best possible utilization of the hardware.
If, for instance only 8 externally selectable programs are required, the otherwise usually reserved pins are not useless but they can be used elsewhere.

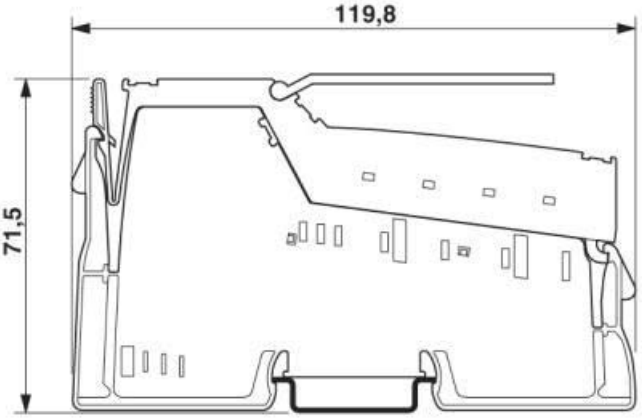
The system is limited to one basic unit and max. 16 I/O-modules. Through the use of a separate processor for each module the cycle time in the overall system remains constant and depends upon configuration, encoder type, resolution as well as used software-performance characteristics. All modern actual value acquisition systems from incremental to multiturn encoder are supported. Alternatively the device can also be operated as program control unit (timer function). The time basis is generated internally and can be adjusted in the range from 1 to 65535 ms.
The connection to Fieldbus systems is a matter of course just like the configuration via a PC-program that is to be operated intuitively. The alternative operation through an external terminal or the complete integration in the Fieldbuses come naturally with us. A version with integrated ProfibusDP is optionally available.



LOCON 200
Overall width: 48.8 mm

Expansion module I/O8

With this module LOCON 200 is expanded by 8 I/Os up to the maximum configuration level of 144 I/Os step by step.
The expansion module contains its own processor. Therefore, the switching accuracy (cycle time) is independent of the LOCON 200(-PB) basic module or in other words: the configuration-dependent cycle time remains the same independent of the configuration level.
In the I/O8, the idle time can be configured in a module-related way. Besides, the device supports logic functions. That way logic connections can be realized in a module-related manner.



LOCON 200-IO8 Expansion module
Overall width: 12.2 mm

LOCON 100

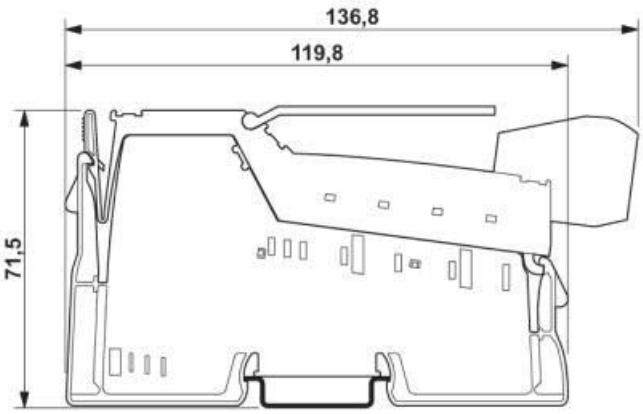
Powerful and expandable

LOCON 100 consists of a basic unit with a total of 16 I/Os. They can be configured depending on the respective application. If, for instance, only a 9-bit encoder is required, then the other encoder connections must not remain useless but can be put to practical use for other applications.

The system can be expanded by one module to a total of 48 I/Os which are configured in the same way. So you can assemble your cam control individually and you are totally free regarding outputs, inputs, logic connection and utilization of functions such as external program selection, encoder type and resolution etc.

LOCON 100 as well features connection facilities for all modern actual-value acquisition systems. Alternatively the device can also be operated as program control unit (timer function). The time basis is generated internally and can be adjusted in the range from 1 to 65535 ms. The software gives you the freedom to choose from various types of idle time compensation (dynamic cam). No matter whether angle-/angle-cams or angle-/time-cams are used - everything can be configured and combined.

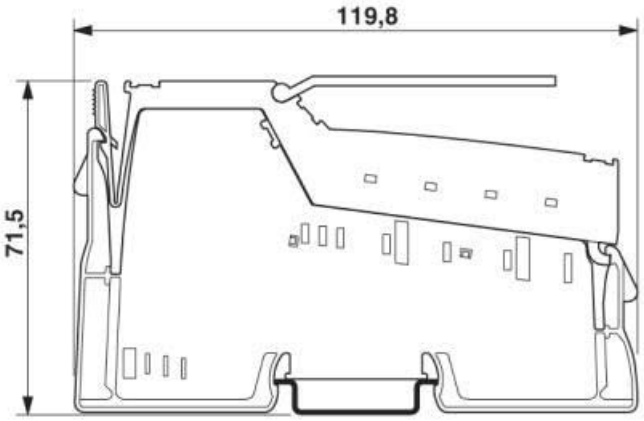
The modern control-concept is convincing and offers something for all tastes: Modern PC GUI, that can be connected to any Fieldbus or the easy-to-handle terminal GUI. The device with integrated ProfibusDP is optionally available.



LOCON 100
Overall width: 48.8 mm

Expansion module A32

With this module the basic device LOCON 100(-PB) is expanded by 32 to a total of 48 I/Os.
The expansion module does not contain an own processor. Therefore, the switching accuracy (cycle time) depends on the LOCON 100(-PB), its configuration and programmed data records.



LOCON 100-A32 Expansion module
Overall width: 48.8 mm

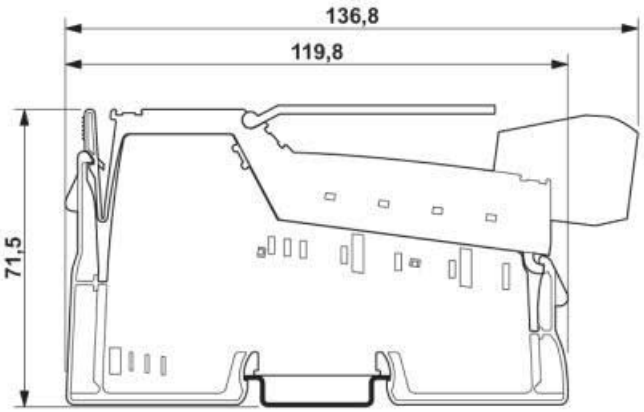
LOCON 90

Powerful and reasonably priced

LOCON 90 is a less expensive version of the bigger brothers LOCON 200 and LOCON 100. Equipped with 16 I/Os – of which a maximum of 8 can be configured as outputs – this unit is predestined for simple applications. Absolute encoders can be connected via SSI up to a resolution of 13 bit. In case some of the I/Os are configured as inputs, then a logic connection can be made through it or they are used as external program selection.

LOCON 90 as well features connection facilities for all modern actual-value acquisition systems. Alternatively the device can also be operated as program control unit (timer function). The time basis is generated internally and can be adjusted in the range from 1 to 65535 ms. The software gives you the freedom to choose from various types of idle time compensation (dynamic cam). No matter whether angle-/angle-cams or angle-/time-cams are used - everything can be configured and combined.

LOCON 90 is operated via the PC-software WINLOC 32®.



LOCON 90
Overall width: 48.8 mm

Description	Explanation	Order number
LOCON 90		V3542
LOCON 100	Basic module	V3374
LOCON 100-MB	Basic module with Modbus RTU-interface	V3589
LOCON 100-PB	Basic module with Profibus-interface	V3397
LOCON 100-A32	Expansion module with 32 I/Os for LOCON 100/100-PB	V3425
LOCON 200	Basic module	V3485
LOCON 200-PB	Basic module with Profibus-interface	V3487
LOCON 200-Out I/O8	Expansion module with 8 I/Os for LOCON 200/200-PB	V3486
Logic	Logic function for LOCON 90 / LOCON 100 / LOCON 200	V3426

Description	Explanation	Order number
Programming cable for LOCON 90/100/200	Assembled configuration and programming cable-232 Length: 2.0m, Side A: 9pin. D-SUB socket with metalized hood, side B: 8 pin. Terminal strip with universal power supply 12W, 24V, 0.5A **Note:** The USB-RS232 converter, 20 cm, Article-No.: V3656) must be ordered seperately if required.	V3964

Technical data

	Characteristics	LOCON 90	LOCON 100	LOCON 100-MB	LOCON 100-PB
Available versions	without integrated keypad	●	●	●	●
Installation	Din-rail mounting	●	●	●	●
Outputs		8	16 I/Os 48 (with LOCON 100-A32)	16 I/Os (32 SW outputs) 48 (mit LOCON 100-A32)	16 I/Os (32 SW outputs) 48 mit L100-A32
Storable programs		64	64	64	64
Data records (incl. ouput names) (number of switch-on/switch-off points)		1000	1000	1000	1000
Actual value acquisition	- incremental encoder - counting range incremental - absolute encoder Gray excess - absolute encoder parallel Gray code to bit number - absolute encoder SSI Gray code - count/direction inputs for incremental encoders - timer function (value is generated internally)	8192 / 16 million – – 2...13, 24 (MT) ☒ 1 - 65535	8192 / 16 million 360, 720, 1000, 3600, 7200 2...13 2...13, 24, 25 ☒ 1 - 65535	8192 / 16 million 360, 720, 1000, 3600, 7200 2...13 2...13, 24, 25 ☒ 1 - 65535	8192 / 16 million 360, 720, 1000, 3600, 7200 2...13 2...13, 24, 25 ☒ 1 - 65535
Idle time compensation (dynamic cam)	- blockwise - bitwise - separate I/O - entering the idle time in steps	☒ ● ☒ 0.2ms - 999ms	☒ ● ☒ 0.2ms - 999ms	☒ ● ☒ 0.2ms - 999ms	☒ ● ☒ 0.2ms - 999ms
Cycle time In some configurations the cycle time might be higher, in case of using the high-speed version it might also be lower!	- without idle time compensation (ITC) - with blockwise ITC - with bitwise ITC - with I/O ITC - high speed version for lower cycle time	dynamic from 100µs on dynamic from 130µs on dynamic from 165µs on dynamic from 190µs on –	dynamic from 100µs on dynamic from 130µs on dynamic from 165µs on dynamic from 190µs on –	dynamic from 140µs on dynamic from 170µs on dynamic from 205µs on dynamic from 230µs on –	dynamic from 250µs dynamic from 280µs dynamic from 315µs dynamic from 340µs –
Software characteristics: **zero point offset** **cams ar interchangeable linewise** **angle/time cams** **direction cams** **scalable encoder value**	- within the complete range	 ● ● ☒ ☒ ☒	 ● ● ☒ ☒ ☒	 ● ● ☒ ☒ ☒	 ● ● ☒ ☒ ☒
Run-control-function		☒	☒	☒	☒
Speed indicator		•	•	•	●
Inputs	- for encoder signal - for program selection - for program change - for program release	– ☒ 1...6 ☒ 1 ☒ 1	☒ 2...13 ☒ 1...6 ☒ 1 ☒ 1	☒ 2...13 ☒ 1...6 ☒ 1 ☒ 1	☒ 2...13 ☒ 1...6 ☒ 1 ☒ 1
Logic functions	- logic inputs - extensive logic functions - shift register	■ 16 ● ●	■ 16 ● ●	■ 16 ● ●	■ 16 ● ●
Programming	- teach-in-programming - via Deutschmann terminal - via PC (WINLOC 32®-software) - via cam control profile - others	● ● ● ● –	● ● ● ● –	● – ● ● ● Modbus-RTU	● ● ● ● PLC at connection
Data backup	- EEPROM (min. 100 years) - via transfer program on PC	● ●	● ●	● ●	● ●
Status display for	- outputs - programming status - external program selection - SSI-control - error-display - run-control (if configured) - Fieldbus status	● – – – ● ● –	● – – – ● ● –	● – – – ● ● –	● – – – ● ● bus status
Interface	- RS232 - RS485-DICNET® - integrated Profibus-interface - integrated CANopen-interface - integrated NTERBUS-interface	● – – – –	● switchable ● switchable via Gateway via Gateway via Gateway	● (RS232/Modbus) ● (RS232/Modbus) – – –	● – ● – –
Voltage supply 24VDC +/-20%		●	●	●	●
Max. power consumption (without load)		200mA	200mA	200mA	200mA
Output driver max. load	- 300 mA each output, max. 1A for 8 outputs each - 700 mA each output, temporarily also 1A each output - plus switching outputs, short circuit-proof	– ● ●	– ● ●	– ● ●	– ● ●
Analog outputs	- current output - voltage output	– –	– –	– –	– –
Dimensions basic device in mm	- width - height - depth	48.8 71.5 120	48.8 71.5 120	48.8 71.5 120	48.8 71.5 120
Protection class		IP20	IP20	IP20	IP20
Weight in grams		220	220	220	230

● Standard
■ Optionally for an additional charge
X Optionally at no additional charge
☒ Freely configurable

Technical data

	Characteristics	LOCON 200	LOCON 200-PB	LOCON 100-A32	LOCON 200-I/O8
Available versions	without integrated keypad	●	●	●	●
Installation	Din-rail mounting	●	●	●	●
Outputs		16 I/Os 144 (+16 x I/O8)	16 I/Os 80 (+8 x I/O8)	32 –	8 I/Os –
Storable programs		256	64	64	
Data records (incl. ouput names) (number of switch-on/switch-off points)		1000 + 32 per module	1000	data stored in L100 (-PB/-MB)	232
Actual value acquisition	- incremental encoder - counting range incremental - absolute encoder Gray excess - absolute encoder parallel Gray code to bit number - absolute encoder SSI Gray code - count/direction inputs for incremental encoders - timer function (value is generated internally)	8192 / 16 million 360, 720, 1000, 3600, 7200 2...13 2...13, 24, 25 ☒ 1 - 65535	8192 / 16 million 360, 720, 1000, 3600, 7200 2...13 2...13, 24, 25 ☒ 1 - 65535	dependent L100 (-PB/-MB) dependent L100 (-PB/-MB) dependent L100 (-PB/-MB) dependent L100 (-PB/-MB) dependent L100 (-PB/-MB) dependent L100 (-PB/-MB)	dependent L200 (-PB) dependent L200 (-PB) dependent L200 (-PB) dependent L200 (-PB) dependent L200 (-PB) dependent L200 (-PB)
Idle time compensation (dynamic cam)	- blockwise - bitwise - separate I/O - entering the idle time in steps	☒ ● ☒ 0.2ms - 999ms	☒ ● ☒ 0.2ms - 999ms	dependent L100 (-PB/-MB) dependent L100 (-PB/-MB) dependent L100 (-PB/-MB) via basis L100	☒ ● ☒ 0.2ms - 999ms
Cycle time In some configurations the cycle time might be higher, in case of using the high-speed version it might also be lower!	- without idle time compensation (ITC) - with blockwise ITC - with bitwise ITC - with I/O ITC - high speed version for lower cycle time	dynamic from 500µs dynamic from 500µs dynamic from 500µs dynamic from 500µs ☒	dynamic from 500µs dynamic from 500µs dynamic from 500µs dynamic from 500µs ☒	L100 + 50µs L100 + 50µs L100 + 50µs L100 + 50µs –	dynamic from 55µs dynamic from 65µs dynamic from 85µs dynamic from 115µs ☒
Software characteristics: **zero point offset** **cams ar interchangeable linewise** **angle/time cams** **direction cams** **scalable encoder value**	- within the complete range	 ● ● ☒ ☒ ☒	 ● ● ☒ ☒ ☒	 via basis L100 via basis L100 via basis L100 via basis L100 via basis L100	 via basis L200 via basis L200 ☒ ☒ via basis L200
Run-control-function		☒	☒	–	–
Speed indicator		●	●	via basis L100	via basis L200
Inputs	- for encoder signal - for program selection - for program change - for program release	☒ 2...13 ☒ 1...8 ☒ 1 ☒ 1	☒ 2...13 ☒ 1...8 ☒ 1 ☒ 1	– ☒ 1...6 ☒ 1 ☒ 1	– – – –
Logic functions	- logic inputs - extensive logic functions - shift register	■ 16 ● ●	■ 16 ● ●	– – –	■ 8 ● ●
Programming	- teach-in-programming - via Deutschmann terminal - via PC (WINLOC 32®-software) - via cam control profile - others	● ● ● ● –	● ● ● ● PLC at connection	● ● ● ● see L100 (-PB)	● ● ● ● see L200 (-PB)
Data backup	- EEPROM (min. 100 years) - via transfer program on PC	● ●	● ●	see L100 (-PB) see L100 (-PB)	● ●
Status display for	- outputs - programming status - external program selection - SSI-control - error-display - run-control (if configured) - Fieldbus status	● – – – – – –	● – – – ● ● bus status	● – – – ● – –	● – – – ● – –
Interface	- RS232 - RS485-DICNET® - integrated Profibus-interface - integrated CANopen-interface - integrated NTERBUS-interface	● switchable ● switchbale via Gateway via Gateway via Gateway	● – ● – –	see L100 (-PB/-MB) see L100 (-PB/-MB) see L100 (-PB/-MB) see L100 (-PB/-MB) see L100 (-PB/-MB)	see L200 (-PB) see L200 (-PB) see L200 (-PB) see L200 (-PB) see L200 (-PB)
Voltage supply 24VDC +/-20%		●	●	–	–
Max. power consumption (without load)		200mA	200mA	200mA	200mA
Output driver max. load	- 300 mA each output, max. 1A for 8 outputs each - 700 mA each output, temporarily also 1A each output - plus switching outputs, short circuit-proof	– ● ●	– ● ●	– ● ●	– ● ●
Analog outputs	- current output - voltage output	– –	– –	– –	– –
Dimensions basic device in mm	- width - height - depth	48.8 71.5 120	48.8 71.5 120	48.8 71.5 120	12.2 71.5 120
Protection class		IP20	IP20	IP20	IP20
Weight in grams		220	230	200	70

● Standard
■ Optionally for an additional charge
X Optionally at no additional charge
☒ Freely configurable

The ROTARNOCK family

With the ROTARNOCK-series Deutschmann Automation took a new innovative path. The entire cam control was integrated in the housing of the absolute encoder. This saves work and money. The wiring of the encoder can be dispensed with entirely. The outputs of the cam control are applied directly to the device via its connector. The devices ROTARNOCK 80 and 100 are optionally available with integrated Profibus-interface. The device versions with Profibus can be connected to SIEMENS SIMATIC S7 and other PLCs and Soft-PLCs very easily. The data exchange between the PLC and the cam control is carried out via a data component. The data component for S7 can be generated by the user himself by means of the data component generator that is available free of charge. A data component in the version required in each case is generated by the data component generator, so that no unnecessary storage space is occupied in the PLC. The handling components needed for an S7-Profibus-connection are also made available by Deutschmann free of charge. With it no programming effort is involved for the user and he does not have to carry out changes in the PLC-program. For the initial programming the comfortable PC-software WINLOC 32® can be used and the already fixed data component including cams, idle times etc. can be generated automatically.

ROTARNOCK 80

Low-cost - but only when it comes to the price

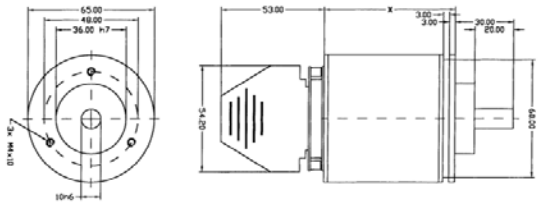
Our standard model for normal applications. A resolution of 360 information items per revolution, 8 switching outputs and bitwise idle time compensation allow this unit to be used for many applications. "Standard" does not mean second best though: ROTARNOCK 80 also has a modern operator-control concept: as an alternative you can opt for a convenient PC GUI or a fully integrated ProfibusDP or you decide on one of the powerful Deutschmann terminals.

Version	Overall length in mm (dimension x)
ROTARNOCK 80, 100 standard D-Sub version	69
ROTARNOCK 80, 100 with option IF	69
ROTARNOCK 80, 100 Profibus with D-SUB-plug	81
ROTARNOCK 80, 100 Profibus, IP65 and ROTARNOCK 100 Fieldbus version, IP65	98

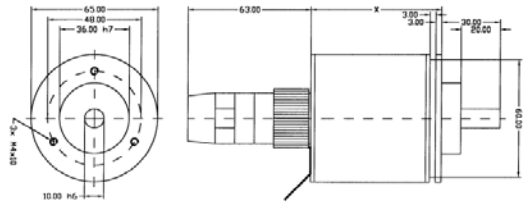
ROTARNOCK 100

Complete equipment for all applications

In this high-end model the advantages of the most recent Deutschmann software package have been implemented. This provides you with free software configuration. The switching outputs have a load rating of 700 mA and cut additional costs in the switch cabinet. After all the ROTARNOCK-series is already economical by nature:
The wiring effort is reduced since no additional rotary encoder needs to be wired up. The ROTARNOCK 100 Profibus-version unfolds its cost advantages more that ever. Of course the ROTARNOCK-versions are equipped for various industrial requirements. The versions you can choose from are IP54 version with D-SUB connector or IP65 version with round connector.



ROTARNOCK RS232 or RS485, version IP54

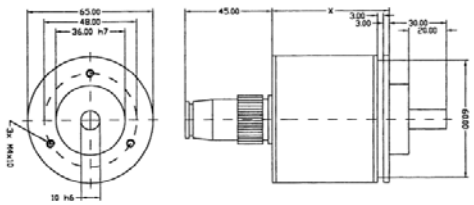


ROTARNOCK RS232 or RS485, version IP65

ROTARNOCK 100 with integrated Fieldbus

ROTARNOCK 100 is available with all Fieldbuses and Industrial Ethernet-Buses from December 2010, such as:

CANopen DeviceNet EtherCAT EtherNet/IP ETHERNET TCP/IP
MODBUS TCP MPI PROFIBUS PROFINET



ROTARNOCK 80/100 with integrated Profibus, protection class IP65
ROTARNOCK 100 with integrated Fieldbus, protection class IP65

Starterkit ROTARNOCK

This starterkit contains all required cables and power supplies for the quick laboratory setup. Packages with other ROTARNOCK-versions are available on request.

Article description	Order number
Starterkit for ROTARNOCK 80 with RS232-interface	P1086
Starterkit for ROTARNOCK 80 with Profibus-interface	P1087
Starterkit for ROTARNOCK 100 with RS232-interface	P1084
Starterkit for ROTARNOCK 100 with Profibus-interface	P1066
Starterkit for ROTARNOCK 100 with RS485-DICNET®-interface	P1068

Basic device

Code	Meaning	Explanation
TN65-0360-80	ROTARNOCK 80, 360 inf./rev., 8 switching outputs	
TN65-4096-100	ROTARNOCK 100, 4096 inf./rev., 16 switching outputs	Resolution freely configurable

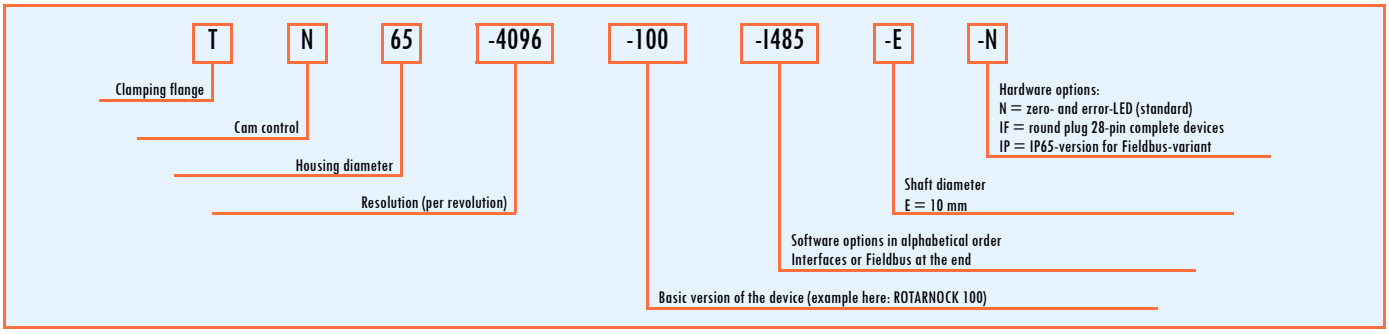
Hard- and software-versions

Code	Meaning	Excludes option or only possible with option	R80	R100
D	Position-/speed indicator switchover; switchover depending on the speed		●	●
G	Encoder monitoring		–	☒
I	Bitwise idle time compensation	Not with L, LT, IT	●	●
IF	28-pole round plug for protection class IP65	Not with PB and IP	■	■
IP	Version IP65 for versions with integrated Profibus	Not with devices without Profibus or with IF	■	■
	Version IP65 for versions with integrated Fieldbus	Not with devices without Fieldbus or with IF	–	■
IT	Separate switch-on /switch-off idle time compensation bitwise	Not with I, L, LT	–	☒
L	Blockwise idle time compensation	Not with I, LT, IT	–	☒
LT	Separate switch-on /switch-off idle time compensation blockwise	Not with I, L, IT	–	☒
R	RUN-CONTROL-function on output 16; for the Fieldbus-version with IP65 only to output 12		–	☒
U	Output change depending on the direction of rotation		–	☒
232	Interface RS232	Not with option 485, PB	●	X
485	Interface RS485 DICNET® (cross-linking of up to 16 DA cam controls)	Not with option 232, PB	–	X
PB	Integrated Profibus-interface (additional RS232-interface)	Not with option 485 or other Fieldbus	■	■
CO	Integrated CANopen-interface (additional RS232-interface)	Not with option 485 or other Fieldbus	–	■
DN	Integrated DeviceNet-interface (additional RS232-interface	Not with option 485 or other Fieldbus	–	■
EC	Integrated EtherCAT-interface (additional RS232-interface)	Not with option 485 or other Fieldbus	–	■
EI	Integrated Ethernet/IP-interface (additional RS232-interface)	Not with option 485 or other Fieldbus	–	■
FE	Integrated Ethernet 10/100 MBit-interface (Modbus TCP or Ethernet TCP/IP) (additional RS232-interface)	Not with option 485 or other Fieldbus	–	■
IB	Integrated Interbus-interface (additional RS232-interface)	Not with option 485 or other Fieldbus	–	■
MPI	Integrated MPI-interface (additional RS232-interface)	Not with option 485 or other Fieldbus	–	■
PL	Integrated Powerlink-interface (additional RS232-interface)	Not with option 485 or other Fieldbus	–	■
PN	Integrated Profinet-interface (additional RS232-interface)	Not with option 485 or other Fieldbus	–	■

R80 = ROTARNOCK 80 R100 = ROTARNOCK 100 ● Standard ■ Optionally for an additional charge X Optionally at no additional charge ☒ Freely configurable

LOGIC	The Logic-license code can be ordered by indicating the serial number	Only availble for ROTARNOCK 100	Article number: V3426

Structure of the order code



Technical data

	Characteristics	ROTARNOCK 80	ROTARNOCK 80 PB	ROTARNOCK 100	ROTARNOCK 100 PB	ROTARNOCK 100 FB*
Mechanical data	- shaft load	axial 40 N, radial 110 N	axial 40 N, radial 110 N	axial 40 N, radial 110 N	axial 40 N, radial 110 N	axial 40 N, radial 110 N
	- shaft diameter	10 mm	10 mm	10 mm	10 mm	10 mm
	- shaft length	20 mm	20 mm	20 mm	20 mm	20 mm
	- shock resistance	= 200 m/s²	= 200 m/s²	= 200 m/s²	= 200 m/s²	= 200 m/s²
		(12 ms)	(12 ms)	(12 ms)	(12 ms)	(12 ms)
	- vibration resistance	= 100 m/s²	= 100 m/s²	= 100 m/s²	= 100 m/s²	= 100 m/s²
		(10 Hz...1000 Hz)	(10 Hz...1000 Hz)	(10 Hz...1000 Hz)	(10 Hz...1000 Hz)	(10 Hz...1000 Hz)
	- rotor's moment of inertia	~ 30 gcm²	~ 30 gcm²	~ 30 gcm²	~ 30 gcm²	~ 30 gcm²
	- durability	> 105 h	> 105 h	> 105 h	> 105 h	> 105 h
		at 1000 min⁻¹	at 1000 min⁻¹	at 1000 min⁻¹	at 1000 min⁻¹	at 1000 min⁻¹
Outputs		8	8	16	16 + 32 software outputs or 12 - 48 at IP65	12 + 32 software outputs
Storable programs		16	16	64	64	64
Data records (number of switch-on /switch-off points)		1936	1936	1000	1000	1000
Actual value acquisition	- absolute encoder parallel Gray excess	360	360	360, 1000, 3600	360, 1000, 3600	360, 1000, 3600
	- absolute encoder parallel Gray code up to number of bits	–	–	9...12	9...12	9...12
Idle time compensation (dynamic cam)	- blockwise	–	–	☒	☒	☒
	- bitwise	●	●	●	●	●
	- separate I/O	–	–	☒	☒	☒
	- entering the idle time in steps	1 ms - 999 ms	1 ms - 999 ms	1 ms - 999 ms	1 ms - 999 ms	1 ms - 999 ms
Cycle time In some configurations the cycle time may be higher.	- without idle time compensation (ITC)	–	–	approx. 110µs	approx. 260µs	approx. 260µs
	- with blockwise ITC	–	–	approx. 145µs	approx. 295µs	approx. 295µs
	- with bitwise ITC	500µs	650µs	approx. 225µs	approx. 425µs	approx. 425µs
	- with I/O ITC	–	–	approx. 270µs	approx. 430µs	approx. 430µs
Software characteristics:						
zero offset	- within the complete range	●	●	●	●	●
cams movable track by track		●	●	●	●	●
angle/time cams		–	–	☒	☒	☒
direction cams		–	–	☒	☒	☒
Run-control function		–	–	☒	☒	☒
Speed indicator		●	●	●	●	●
Inputs	- for program selection	4	via Fieldbus only	4	via Fieldbus only	via Fieldbus only
	- for program change	1	via Fieldbus only	1	via Fieldbus only	via Fieldbus only
Logic functions	- logic inputs	–	–	-	16 via Fieldbus	16 via Fieldbus
	- extensive logic functions	–	–	■	■	■
	- shift register	–	–	■	■	■
Programming	- teach-in programming	●	–	via Fieldbus only	via Fieldbus only	via Fieldbus only
	- via integrated keypad	–	–	–	–	–
	- via Deutschmann terminal	●	–	●	–	–
	- via PC (WINLOC 32®-software)	●	–	●	–	–
	- via cam control profile	●	●	●	●	●
	- integrated Fieldbus and any desired visualization system	–	Profibus	–	Profibus	Fieldbus
Data protection	- EEPROM (min. 100 years)	●	–	●	–	–
	- via trabsfer program on PC	●	–	●	–	–
LED for	- error-display	●	●	●	●	●
	- zero indication	●	●	●	●	●
	- Fieldbus status	–	●	–	●	●
Interface	- RS232	●	●	X	●	●
	- RS485-DICNET®	–	–	X	–	–
Supply voltage 24VDC +/-20%		●	●	●	●	●
Max. current consumption (without load)		150mA	200mA	150mA	200mA	200mA
Output driver max. load	- 300 mA per output, max. 1A for 8 outputs at a time	●	●	–	–	–
	- 700 mA per output, temporarily also 1A per output	–	–	●	●	●
	- outputs positive-swiching, short-circuit-proof	●	●	●	●	●
Dimensions Basic device in mm	- diameter	65	65	65	65	65
	- length	see drawing	see drawing	see drawing	see drawing	see drawing
Protection class		IP54 ■ IP65	IP54 ■ IP65	IP54 ■ IP65	IP54 ■ IP65	IP65
Weight in grams		400	400	400	400	480

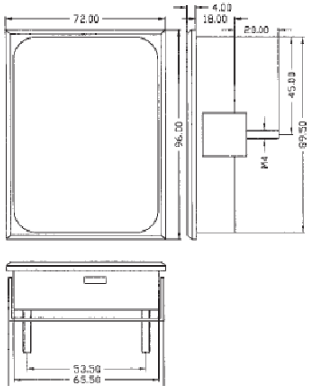
● Standard
■ Optionally for an additional charge
☒ Freely configurable
PB Profibus
X Optionally at no additional charge
* FB Available with integrated Fieldbus

CANopen DeviceNet EtherCAT EtherNet/IP ETHERNET TCP/IP MODBUS TCP MPI PROFIBUS PROFINET

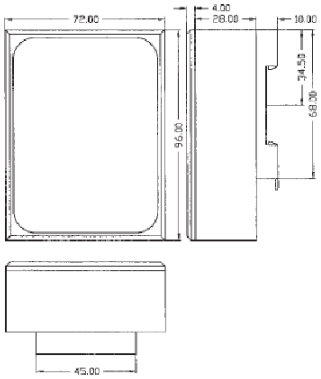
TERM 6

The small ones

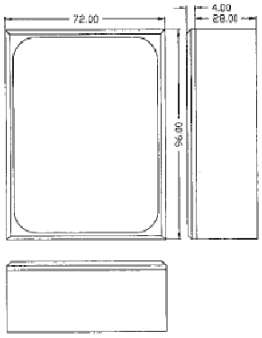
The “four-key operation” which has proven its worth over the years in countless applications can be operated easily after a short familiarization period only. A clear structure and practical symbols on the seven-segment display, in conjunction with the function LEDs, made this interface very popular. The integrated and switchable interfaces RS232- and RS485-DICNET® allow the communication with any Deutschmann cam control. In addition to the version for front-panel installation, a version for DIN-rail mounting and a portable version for the service technician is also available.



TERM 6
for front panel installation



TERM 6
for DIN-rail mounting

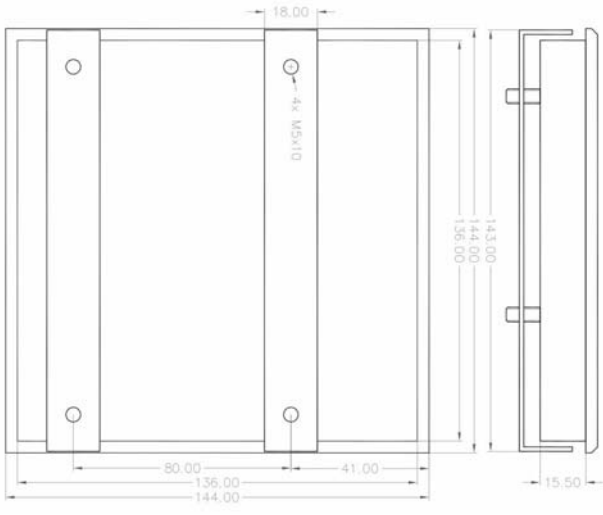


TERM 6
hand-held terminal

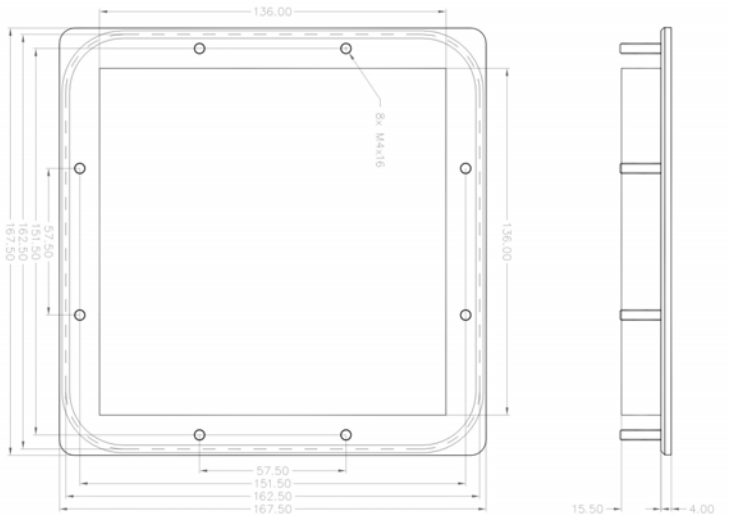
TERM 24

The compact ones

This multi-lingual menu driven user-interface in connection with the decimal key-pad and the function keys offers a high level of convenience. Encoder position and speed are displayed simultaneously on the seven-segment display. Depending on the kind of application, you can choose between the housing versions IP54 and IP65. This terminal can be used with any Deutschmann cam control thanks to the RS232- or RS485-DICNET®-interface.



TERM 24, front panel IP54



TERM 24, front panel IP65

Compatibility of Deutschmann cam controls with terminals and the WINLOC® 32-software

The integrated front panel of a LOCON 24, 48 or 64 can also be used as terminal, provided that several devices are connected with one another. With it the compatibility as for TERM 24 applies.

Device type	TERM 6	TERM 24	WINLOC® 32 PC-tool
LOCON 7	●	●	●
LOCON 9	●	●	●
LOCON 9-MT	●	●	●
LOCON 16	●	●	●
LOCON 17	●	●	●
LOCON 24	●	●	●
LOCON 48	●	●	●
LOCON 64	●	●	●
LOCON 90	●	●	●
LOCON 100	●	●	●
LOCON 100-MB	–	–	● (configuration only)
LOCON 100-PB	–	–	●
LOCON 200	●	●	●
LOCON 200-PB	–	–	●
ROTARNOCK 80	●	●	●
ROTARNOCK 80-PB	–	–	●
ROTARNOCK 100	●	●	●
ROTARNOCK 100-PB	–	–	●
ROTARNOCK 100 with integrated Fieldbus*	–	–	●

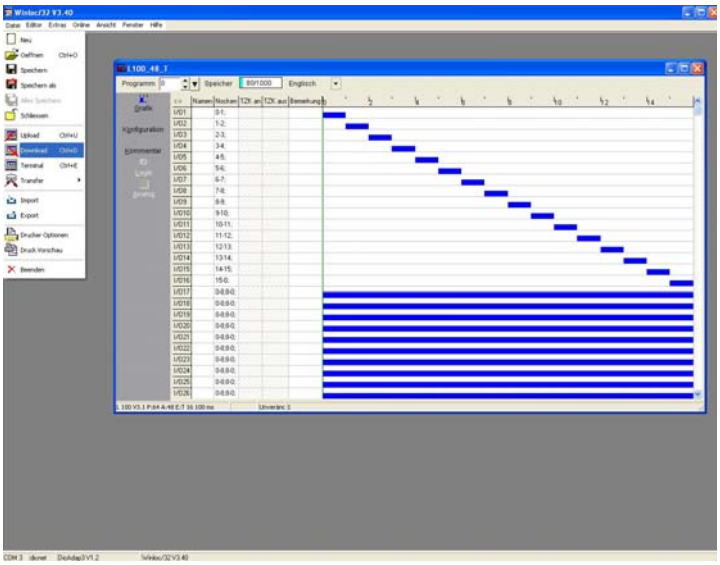
● possible

* CANopen, DeviceNet, EtherCAT, EtherNet/IP, ETHERNET TCP/IP, MODBUS TCP, MPI, PROFIBUS, PROFINET

Device type	TERM 6	TERM 24-IP54	TERM 24-IP65
Features	display and control unit	display and control unit	display and control unit
Display	8-digit 7-segment display for position/speed output indication for 16 outputs	10-digit 7-segment display for position/speed output indication for 48 outputs	10-digit 7-segment display for position/speed output indication for 48 outputs
Interface	RS232 (V.24) and RS485-DICNET®, max. any 3 terminals in one bus, interface switchable	RS232 (V.24) or RS485-DICNET®, max. any 3 terminals in one bus interface not switchable	RS232 (V.24) or RS485-DICNET®, max. any 3 terminals in one bus interface not switchable
LCD-display	–	2-line LCD-display with LED-backlight 16 characters/line operator guidance in ten languages	2-line LCD-display with LED-backlight 16 characters/line operator guidance in ten languages
Connections	screw-type connector	screw-type connector	screw-type connector
Function LEDs	6 status LEDs	-	-
Installation	front panel installation DIN-rail mounting portable version	front panel installation	front panel installation
Protection class	IP54	IP54	IP65
Dimensions (W x H x D)	72 x 96 x 18 mm 72 x 96 x 25 (DIN-rail version)	144 x 144 x 15 mm	168 x 168 x 15 mm
Weight	approx. 200 g	approx. 450 g	approx. 450 g
Panel cut-out	66 x 90 mm	138+1 x 138+1 mm	138+1 x 138+1 mm

WINLOC 32®

Programming Deutschmann cam controls using Windows



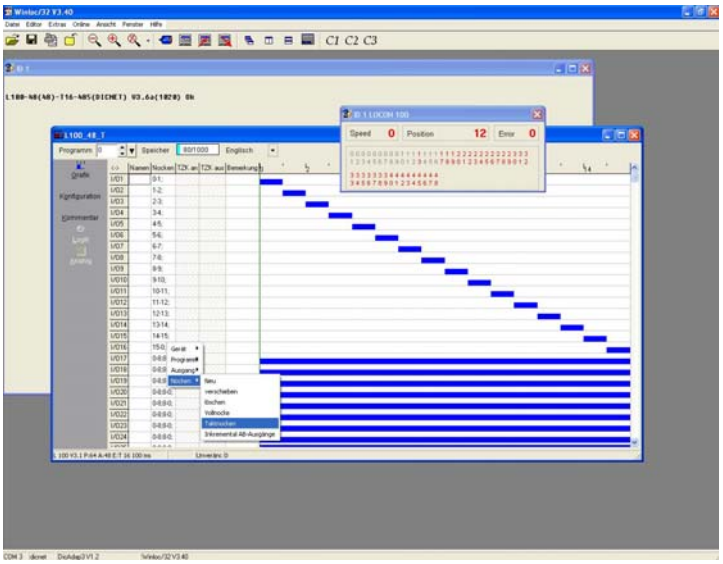
WINLOC 32® offers an easy to use graphical user interface for programming Deutschmann cam controls under Microsoft Windows 3.1x, 95, 98, Windows NT and Windows 2000/XP.

The user may print all device data as complete documentation. The compilation of the data is made by the user. The printout is prepared as a scaleable preview, which can be observed before it is printed on paper.

With the basic version WINLOC 32® already offers all necessary abilities for programming devices as well as for transferring data from Deutschmann cam controls to the PC.

By simply entering a license number the basic version is upgrated to a comfort version with an interface that is easier to use and an extended printout capability. WINLOC 32® is available as German or English language version.

Basic or comfort version?



The software WINLOC 32®, that has been developed for the programming of all Deutschmann cam controls is available in two versions. The basic version can be ordered directly from us or it is also available for download free of charge from our website at www.deutschmann.de. It offers all functions that are required to program Deutschmann cam controls. The comfort version of WINLOC 32® is also available. By entering a license number that can be ordered from Deutschmann you can use additional convenient tools in the software, that simplify the operation of the program.
The following tools can be used:

The toolbar: It contains buttons that simplify the handling of the program.

Extented print options: Deviating from the standard presetting this tool allows an individual setting so that the printout complies with your requests.

Selecting devices at upload/download: The availability of Pull-Down Menus simplifies the selection of devices, that exist in the net.

Data migration function: If you want to transfer data from one cam control to another, this is automatically carried out by this function.

Online-presentation: This function is very important for devices that are supplied without a terminal. The settings of your cam control, such as position, speed, outputs are being visualized.

Teach-In: This function simplifies the initialization of your device, since the electronic zero-point can be set by simply pressing the Teach-In button. With it a manual setting is dropped.

Comparison function: The comparison of 2 cam controls is possible by opening two windows with the respective settings of your cam controls.

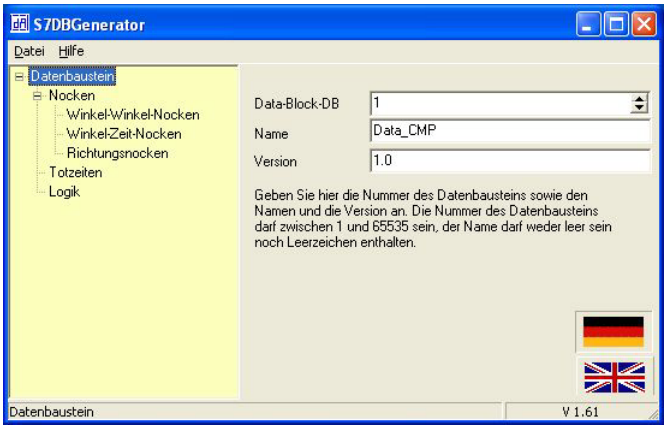
If you want to use the convenient tools of the comfort version order your license number at Deutschmann Automation directly at http://ww.deutschmann.de or by phone: + 49 (0) 6434-9433-0.

Function	Basic version	Comfort version
Programming general, cams, logic, names, idle times, analog values	●	●
Graphical display of the programming	●	●
Diagnostic option of the communication channels (DICNET®)	●	●
Complete support of all configuration parameters	●	●
Context-sensitive help German/English	●	●
DA cam control error list	●	●
Color adjustments	●	●
Different communication interfaces for all Deutschmann cam controls with RS232 or DICNET® connection	●	●
Simplified operation of the program	–	●
Terminal window	●	●
Toolbars	–	●
Context-sensitive mouse menu	–	●
Extended print adjustment	–	●
Comfortable selection of the devices during upload/download	–	●
Flexible print with extended adjustment possibilities	–	●
Data transfer function	–	●
Online display position, speed outputs	–	●
„Teach-in“ zero offset	–	●
Comparison function – two cam controls can be compared in two windows	–	●
Generating a data component	–	●

DB generator

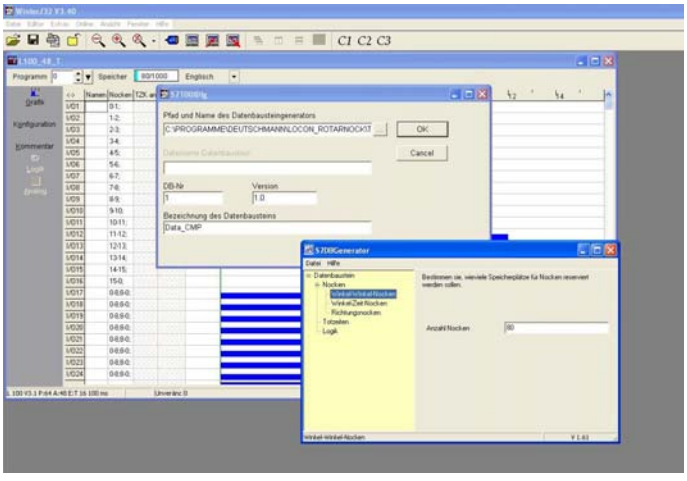
PC-software data component generator

In a simple manner the program makes it possible to generate an AWL source file. Due to the clear arrangement of the component options they can be entered fast and easily. By means of these settings the program generates the AWL source file. Based on a configuration file the program receives information on parameters and the size of this component. While the program starts this file is read. It is also possible to read this file again later.



Generating the S7® program code – fast and easy

After the program is started, you can navigate through the setting options by means of the survey on the left side. On the individual parameter cards you can set the parameter values, such as number of cams to be used as well as the cam type.



Generating the component through WINLOC 32® elegantly

If the data component generator is started from the WINLOC 32®-software, then the data, created in WINLOC 32® (cams, programs, idle times, etc.) will automatically be assigned to the data component. By means of the corresponding settings in the DB generator‘s window it is also possible to create “reserves” for programs, cams, idle times etc. that are to be recorded later.

Absolute encoders, singleturn
SA58/TA58 utilising integrative technology

Essential advantages:
- Shock resistance > 2500 m/s², 6 ms according to DIN IEC 68-2-27
- 2 years warranty
- Better EMC-behaviour compared to conventional encoders

General order code for encoders

Order reference: X A 5 8 - X X X X - G X X - X - X

Series
S = Synchro flange
T = Clamping flange

Resolution
0360, 1000, 1024, 4096, 8192

Code type
G = Gray

Interface and supply voltage
Y = Push-pull 10 - 30 V (absolute parallel)
S = SSI 10 - 30 V

Shaft
E = Shaft 10 mm with T-flange (clamping flange)
C = Shaft 6 mm with S-flange (synchro flange)

Connection
ID = 16-pole round plug axial (parallel)
IDR = 16-pole round plug radial (parallel)
IE = 12-pole round plug axial (SSI)
IER = 12-pole round plug radial (SSI)

Options
Z = Supply voltage 5 V
(protection class IP65)

For the detailed order codes please take a look at the corresponding encoders.

Absolute encoders, singleturn
Shaft version SSI

- Up to a resolution of 13 bit, singleturn in integrative technology*
- SSI-interface
- Housing Ø 58 mm
- Shaft Ø 6 mm or 10 mm
- Max. IP66
- Electronic temperature and ageing compensation
- Short-circuit proof outputs

*Integration of all components because of an innovative assembly priciple and the use of an opto-asic on one printed circuit board only, at a resolution of up to 13 bit.

Mechanical characteristics

Housing diameter	58 mm
Shaft diameter	S: 6 mm / C: 10 mm
Flange types (housing fastening)	Clamping flange / synchro flange
Protection class shaft input verified according to EN60529	IP66
Protection class housing verified according to EN60529	IP65
Shaft load axial	S: 20 N, C: 40 N
Shaft load radial	S: 80 N, C: 110 N
Max. number of revolutions (temporarily)	12000 rev./min.
Max. number of revolutions (permanent operation)	3000 rev./min.
Starting torque	5 Ncm
Moment of inertia	30 kgm²
Vibration resistance (DIN EN 60068-2-6)	10 m/s² (10...100 Hz)
Shock resistance (DIN EN 60068-2-27)	100 m/s² (6 ms)
Continuous shock resistance (DIN EN 60028-2-29)	10 m/s² (16 ms)
Operating temperature	-40...+85°C
Storage temperature	-40...+85°C
Weight	200 g

Electrical characteristics

Supply voltage	10 - 30 VDC
Power consumption max.	100 mA (without load)
Power consumption typ.	70 mA (without load)
Pulse frequency	100...2000 kHz
Step frequency	200 kHz
Resolution	See table on the next page
Output code	See table on the next page
Linearity	+/- 0.5 LSB
Outputs	RS422 SSI
Output current max.	20 mA / each channel
Output current typ.	-
Short-circuit proof output?	Yes
Output level high	-0.9 VxUb
Output level low	0.5 V
Electrical lifetime	100000 h
Turn-on time	1 s

Sense of rotation

- Rising code values in case of a clockwise turn of the shaft (cw), falling values in case of a counter-clockwise turn (ccw) with a view to the shaft.

Order number	Article designation	Resolution	Output code	Shaft	Flange
V2606	TA58-4096-GSE-IE	4096	Gray	10 mm	Clamping flange
V2608	SA58-4096-GSC-IER	4096	Gray	6 mm	Synchro flange
V2609	TA58-1024-GSE-IE	1024	Gray	10 mm	Clamping flange
V2610	TA58-4096-GSE-IER	4096	Gray	10 mm	Clamping flange
V2611	TA58-8192-GSE-IE	8192	Gray	10 mm	Clamping flange

Order code

X A 5 8 - X X X X - G S X - X

Series
S = Synchro flange
T = Clamping flange

Resolution
1024, 4096, 8192

Code type
G = Gray

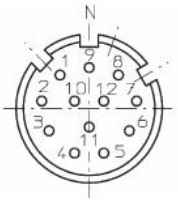
Interface and supply voltage
S = SSI 10 - 30 V

Connection
IE = 12-pole round plug axial (SSI)
IER = 12-pole round plug radial (SSI)

Shaft
E = Shaft 10 mm with T-flange (clamping flange)
C = Shaft 6 mm with S-flange (synchro flange)

View of the mating face pin contact:

SSI - 12-pole connector



The pin assignment for the parallel version can be found on page 28.

Pin assignment SSI with 12-pole connector

Pin	1	2	3	4	5	6	7	8	9	10	11	12	PH[1]
Signal	0 V	+UB	+T	-T	+D	-D	---	complement	---	---	---	---	shield
Color	blue	red	yellow	green	white	brown		n. c.					

[1] PH = Shield is applied to the connector's housing

Outputs that are not used have to be isolated before startup.

The assignment of the colors is exlclusively valid for cables produced by Deutschmann Automation.
The following pre-assembled cables are available:

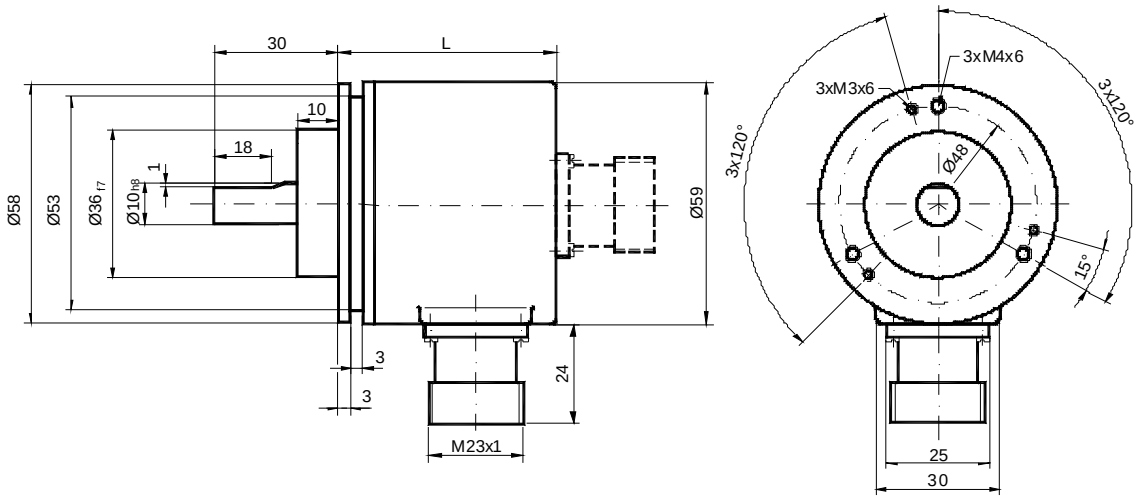
Order number	Article designation	Explanation
V2810-xx	K-ES-08-R12B-xx-00-12	for encoders serial up to 13 bit, bus cable 4 x 2 x 0.25, 12-pole round plug, socket, length x m, other side open, to pin assignment plan 12
V2382-xx	K-ES-08-R12B-xx-AE-12	for encoders serial up to 13 bit, bus cable 4 x 2 x 0.25, 12-pole round plug, socket, length x m, other side wire end sleeves to pin assignment plan 12

xx = cable length in meters

Drawings

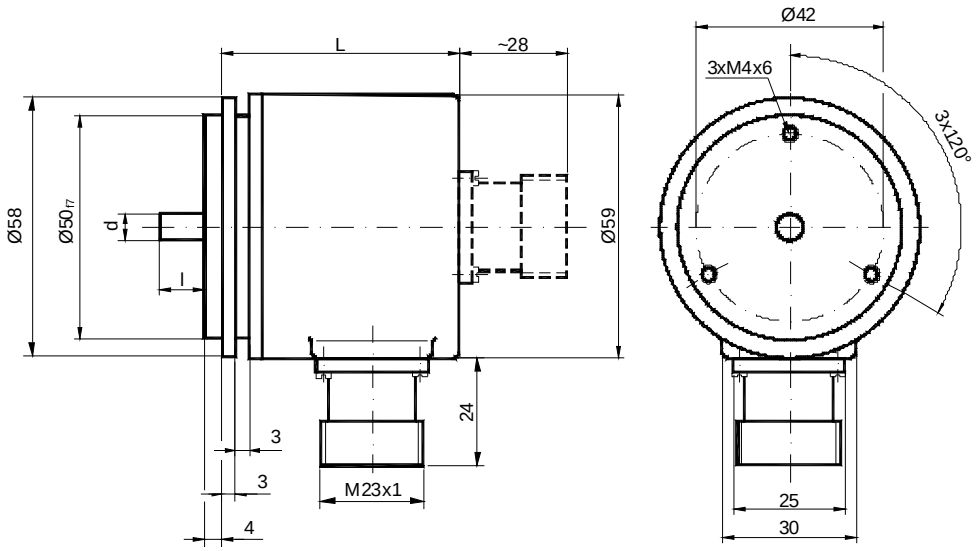
Shaft version type XA58-xxxx-GSX-X-X

Clamping flange



Clamping flange	L axial/radial
Version C10	53

Synchro flange



Synchro flange	d / mm	l / mm	L axial/radial
Version S06	6_{16}	10	53

Absolute encoders, singleturn
Shaft version parallel

- Up to a resolution of 13 bit in integrative technology*
- Paralle interface
- Housing Ø 58 mm
- Shaft Ø 6 mm or 10 mm
- Max. IP67
- Electronic temperature and ageing compensation
- Short-circuit proof outputs

*Integration of all components because of an innovative assembly priciple and the use of an opto-asic on one printed circuit board only, at a resolution of up to 13 bit.

Mechanical characteristics

	Resolution: all except for 1000	Resolution: 1000
Housing diameter	58 mm	58 mm
Shaft diameter	S06: 6 mm / C10: 10 mm	10mm
Flange types (housing fastening)	Claming flange / synchro flange	Clamping flange
Protection class shaft input verified according to EN60529	IP67	IP66
Protection class housing verified according to EN60529	IP67	IP65
Shaft load axial	40 N	40 N
Shaft load radial	60 N	110 N
Max. number of revolutions (temporarily)	12000 rev./min.	12000 rev./min.
Max. number of revolutions (permanent operation)	10000 rev./min.	3000 rev./min.
Starting torque	0.01 Ncm	5 Ncm
Moment of inertia	3.8 x 10^{-6} kgm²	30 kgm²
Vibration resistance (DIN EN 60068-2-6)	100 m/s² (10...2000 Hz)	10 m/s² (10...100 Hz)
Shock resistance (DIN EN 60068-2-27)	1000 m/s² (6 ms)	100 m/s² (6 ms)
Continuous shock resistance (DIN EN 60028-2-29)	1000 m/s² (16 ms)	10 m/s² (16 ms)
Operating temperature	-40...+100°C	-40...+85°C
Storage temperature	-40...+100°C	-40...+85°C
Weight	350 g	200 g

Electrical characteristics

	Resolution: all except for 1000	Resolution: 1000
Supply voltage	10 - 30 VDC	10 - 30 VDC
Current consumption max.	200 mA	100 mA (with load)
Current consumption typ.	130 mA	70 mA (without load)
Pulse frequency	500 kHz	100...2000 kHz
Step frequency	1000 kHz	200 kHz
Resolution	See table on the next page	1000
Output code	Gray, Gray excess (see table on the next page)	Gray excess
Linearity	+/- 0.5 LSB	+/- 0.5 LSB
Outputs	Push-pull	Push-pull
Output current max.	30 mA / each channel	20 mA / each channel
Output current typ.	10 mA / each channel	-
Short-circuit proof output?	Yes	Yes
Output level high	$\geq$ Ub-2.2 V (30 mA)	-0.9 VxUb
Output level low	$\leq$ 1.6 V (30 mA)	0.5 V
Electrical lifetime	100000 h	100000 h
Turn-on time	0.1 s	1 s

Sense of rotation

- Rising code values in case of a clockwise turn of the shaft (cw), falling values in case of a counter-clockwise turn (ccw) with a view to the shaft.

Order number	Article designation	Resolution	Output code	Shaft	Flange
V2400	TA58-0360-GYE-ID	360 steps	Gray excess	10 mm	Clamping flange
V2401	TA58-1000-GYE-ID	1000 steps	Gray excess	10 mm	Clamping flange
V2402	TA58-1024-GYE-ID	1024 steps or 10 bit	Gray	10 mm	Clamping flange
V2403	TA58-4096-GYE-ID	4096 steps or 12 bit	Gray	10 mm	Clamping flange
V2405	TA58-0360-GYE-IDR	360 steps	Gray excess	10 mm	Clamping flange
V2406	TA58-1000-GYE-IDR	1000 steps	Gray excess	10 mm	Clamping flange
V2408	TA58-4096-GYE-IDR	4096 steps or 12 bit	Gray	10 mm	Clamping flange
V2410	SA58-0360-GYC-ID	360 steps	Gray excess	6 mm	Synchro flange
V2415	SA58-0360-GYC-IDR	360 steps	Gray excess	6 mm	Synchro flange
V2418	SA58-4096-GYC-IDR	4096 steps or 12 bit	Gray	6 mm	Synchro flange

Order code

X A 5 8 - X X X X - G Y X - X - X

Series
S = Synchro flange
T = Clamping flange

Resolution
0360, 1000, 1024, 4096, 8192

Code type
G = Gray (& Gray excess)

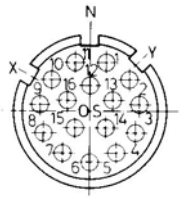
Interface and supply voltage
Y = Push-pull 10 - 30 V (absolute parallel)

Shaft
E = Shaft 10 mm with T-flange (clamping flange)
C = Shaft 6 mm with S-flange (synchro flange)

Connection
ID = 16-pole round plug axial (parallel)
IDR = 16-pole round plug radial (parallel)

Options
Z = Supply voltage 5 V
(protection class IP65)

View of the mating face pin contact:
16-pole connector



The pin assignment for the SSI version can be found on page 25.

Pin assignment with 16-pole connector

Pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	PH[1]
Signal	$2^0=1$	$2^1=2$	$2^2=4$	$2^3=8$	$2^4=16$	$2^5=32$	$2^6=64$	$2^7=128$	$2^8=256$	$2^9=512$	$2^{10}=1024$	$2^{11}=2048$	---	complement	+UB	0 Volt	
Color	white	brown	green	yellow	gray	pink	purple	gray/pink	white/green	brown/green	white/yellow	yellow/brown	n. c.	n. c.	red	blue+black	

[1] PH = Connector housing

Unused outputs have to be isolated prior to commissioning.

The color assignment is exclusively valid for cables produced by Deutschmann Automation.
The following pre-assembled cables are available:

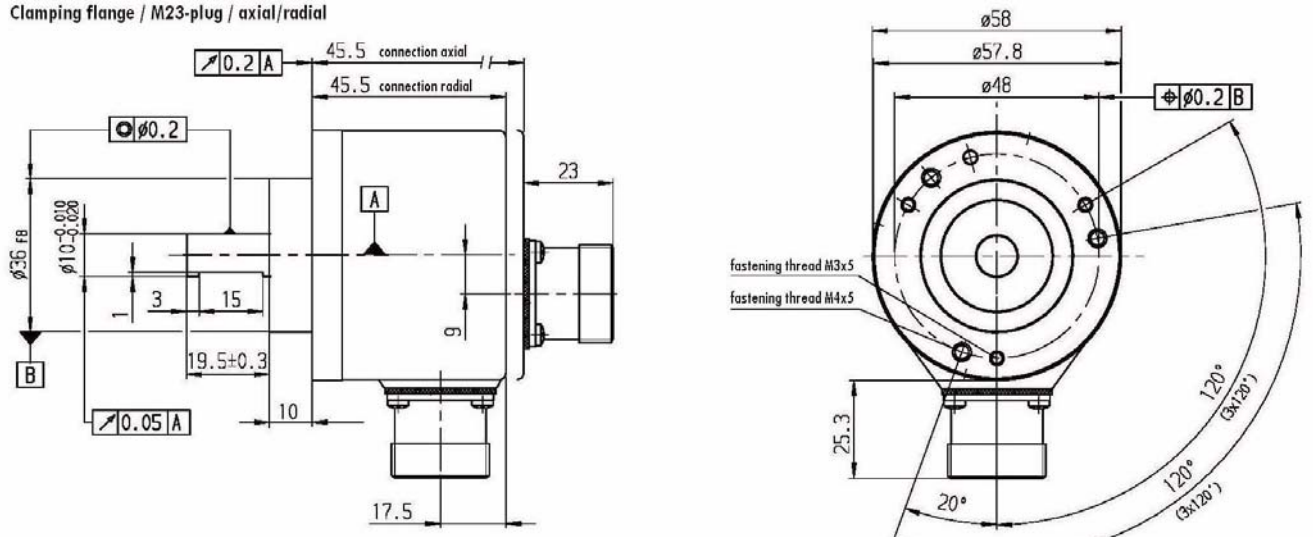
Order number	Article designation	Explanation
V2105-xx	K-EP-01-R16B-xx-00	For encoders parallel up to 12 bit, cable type 16 x 0.14 mm², 16-pole round plug socket, length x m, other end open
V2106-xx	K-EP-01-R16B-xx-AE	For encoders parallel up to 12 bit, cable type 16 x 0.14 mm², 16-pole round plug socket, length x m, other end wire end sleeves
V2108-xx	K-EP-03-R16BZ-xx-00	For encoders parallel up to 12 bit, cable type 16 x 0.34 mm², 16-pole round plug socket with traction relief, length x m, other end open
V3503-xx	K-EP-01-R16BW-xx-00	For encoders parallel up to 12 bit, cable type 16 x 0.14 mm², 16-pole round plug socket angled, length x m, other end open

xx = cable length in meters

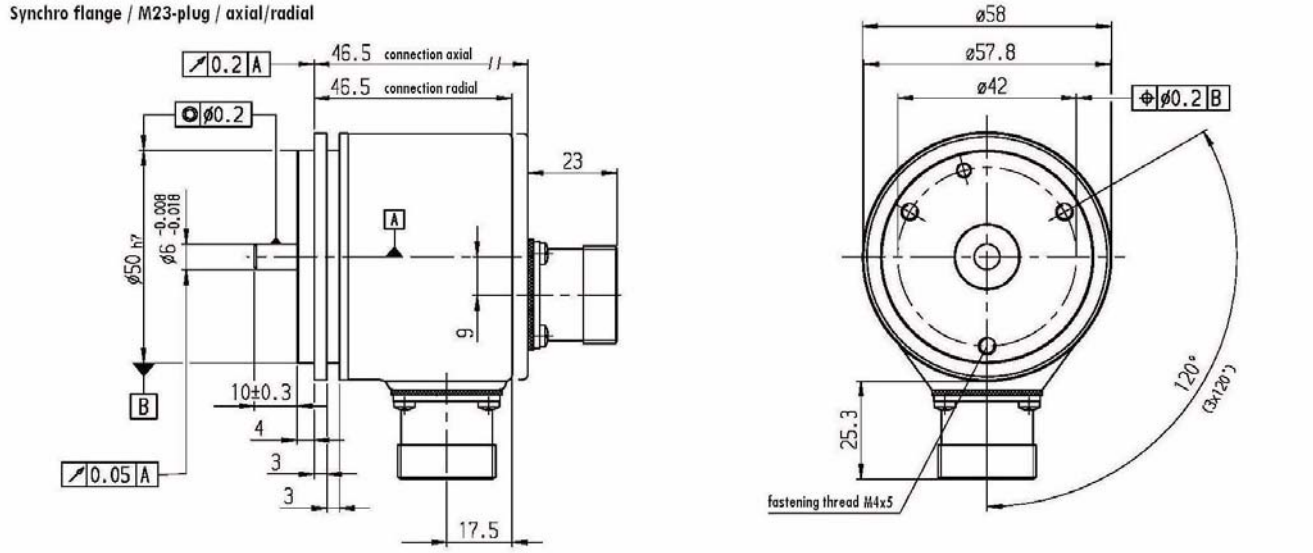
Drawings

Shaft version type XA58-xxxx-GYE-X-X (except for resolution of 1000)

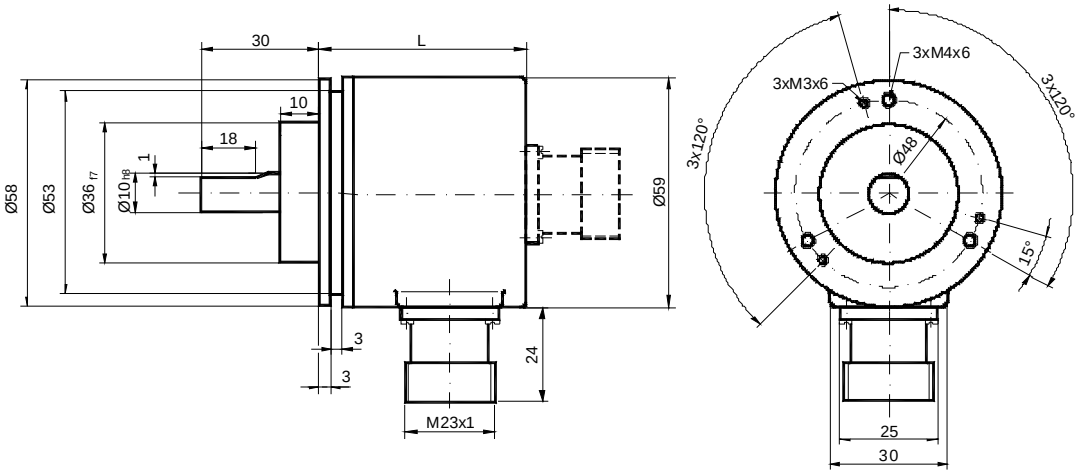
Clamping flange / M23-plug / axial/radial



Synchro flange / M23-plug / axial/radial



Shaft version type TA58-1000-GYE-X



Clamping flange	L axial/radial
Version C10	53

Structure of order codes for cables

K -EP -01 -R16B -10 -AE -00

Number of the pin assignment plan (to be supplemented by DA)

End B

00	open
AE	wire end sleeves
D25S	25pol. D-Sub pin
D9S	9pole D-Sub pin
D9B	9pole D-Sub socket
SSTn	screw-type connector n-poles (enter value)

Cable length in m

End A

D25B	25-pole D-Sub-socket
D9B	9-pole D-Sub-socket
D9S	9-pole D-Sub-pin
R12B	round plug 12-pole socket
R16B	round plug 16-pole socket
R16BZ	rund plug 16-pole socket with traction relief
R17B	round plug 17-pole socket
R28B	round plug 28-pole socket
R28BA	round plug 28-pole socket with acivated bus termination
SSTn	screw-type connector n-poles (enter value)

Cable type

01	16-pole x 0.14 mm^2
03	16-pole x 0.34 mm^2
04	bus cable 2 x 2 x 0.22 mm^2
05	serial cable 3 x 0.14 mm^2 (for RS232)
07	2 x 20-pole x 0.14 mm^2 (for ROTARNOCK)
08	bus cable 4 x 2 x 0.25 mm^2 for SSI-encoders each m

EP	encoder parallel
ES	encoder serial SSI
N2	cam control with RS232-interface
N4	cam control with RS485-interface
NR	cam control ROTARNOCK (at a 40-pole cable)

Identification for an assembled cable

Standard cables

Encoder cables XA58-xxxx-GSE-xx (absolute encoder SSI)

Article number	Article designation	Explanation
V2382-xx	K-ES-08-R12B-xx-AE-12	For encoders serial up to 13 bit, bus cable 4 x 2 x 0.25 mm^2, 12-pole round plug socket, length x m, other end wire end sleeves, to pin assignment plan 12
V2810-xx	K-ES-08-R12B-xx-00-12	For encoders serial up to 13 bit, bus cable 4 x 2 x 0.25 mm^2, 12-pole round plug socket, length x m, other end open, to pin assignment plan 12

Encoder cables XA58-xxxx-GYE-xx (absolute encoder parallel)

Article number	Article designation	Explanation
V2105-xx	K-EP-01-R16B-xx-00	For encoders parallel up to 12 bit, cable type 16 x 0.14 mm^2, 16-pole round plug socket, length x m, other end open
V2106-xx	K-EP-01-R16B-xx-AE	For encoders parallel up to 12 bit, cable type 16 x 0.14 mm^2, 16-pole round plug socket, length x m, other end wire end sleeves
V2107-xx	K-EP-01-R16B-xx-D25S	For encoders parallel up to 12 bit, cable type 16 x 0.14 mm^2, 16-pole round plug socket, length x m, other end 25-pole D-SUB-pin with metalized hood Note: The version V2107-0,2 serves as adapter cable, in case a TA65 is replaced by a TA58.
V2108-xx	K-EP-03-R16BZ-xx-00	For encoders parallel up to 12 bit, cable type 16 x 0.34 mm^2, 16-pole round plug socket with traction relief, length x m, other end open

ROTARNOCK-cables (TN65-xxxx...)

Article number	Article designation	Explanation
V2123-xx	K-NR-07-D25B-xx-00	For ROTARNOCK, cable type 20 x 2 x 0.14 mm^2, 25-pole D-SUB socket with metalized hood, length x m, other end open
V2342-xx	K-NR-07-D25B-xx-AE	For ROTARNOCK, cable type 20 x 2 x 0.14 mm^2, 25-pole D-SUB socket with metalized hood, length x m, other end wire end sleeves
V2123-xx	K-NR-07-D25B-xx-D25S	For ROTARNOCK, cable type 20 x 2 x 0.14 mm^2, 25-pole D-SUB socket with metalized hood, length x m, other end 25-pole D-SUB pin with metalized hood
V2222-xx	K-NR-07-R28B-xx-00	For ROTARNOCK, cable type 20 x 2 x 0.14 mm^2, 28-pole round plug socket, length x m, other end open
V2183-xx	K-NR-07-R28B-xx-AE	For ROTARNOCK, cable type 20 x 2 x 0.14 mm^2, 28-pole round plug socket, legth x m, other end wire end sleeves

ROTARNOCK-programming cables (TN65-xxxx...)

Article number	Article designation	Explanation
V3467	Programming cable for ROTARNOCK - 232/PB	2.0 m including 24V power supply, end A: 9-pole D-SUB socket with metalized hood, end B: 25-pole D-SUB socket with metalized hood + 2-pole screw-type connector
V3480	Programming cable for ROTARNOCK (DICNET®)	2.0 m including 24V power supply, end A: 25-pole D-SUB socket with metalized hood, end B: 25-pole D-SUB socket with metalized hood + 2-pole screw-type connector + DICNET®adapter
V3483	Programming cable for ROTARNOCK (DICNET®) IP65	2.0 m including 24V power supply, end A: 25-pole D-SUB socket, end B: 28-pole round plug + 2-pole screw-type connector + DICNET®adapter
V3655	Programming cable for ROTARNOCK - PB IP65	2.0 m including 24V power supply, end A: 9-pole D-SUB socket with metalized hood, end B: 16-pole round plug socket + 2-pole screw-type connector

Dynamic switching accelerator SPEEDY

Switching on and off magnetic controlled connect elements lead to delays that consist of two components:

- Delay time for setting up and removing the magnetic field
- Delay time for overcoming mechanical inertia

To reduce this delay time SPEEDY makes it possible to achieve an overexcitation of the magnetic field by an overvoltage pulse of 100 V, adjustable from 1 ms to 10 ms and with it to overcome the mechanical inertia much faster. When switching off, the delay time for the removal of the magnetic field is also reduced considerably due to a negative free-wheeling voltage.

The status of the inputs and outputs as well as of the supply voltages are displayed via integrated LEDs. SPEEDY has different switching modes available that can be adjusted from the outside. Following please find a more detailed description:

The switching modes of SPEEDY

Setting the switching modes

The switching modes described below are selected through a rotary code switch. The following assignment applies here:

Please note, that every change of the inputs is directly evaluated in the first 8 switch positions. This mode makes sense if the inputs are connected with the outputs of a control and a distortion-free reaction from SPEEDY is required.

In case the interference suppression is on, the input signals are being filtered, that results in a delay (runtime input -> output) of approx. 1 ms.

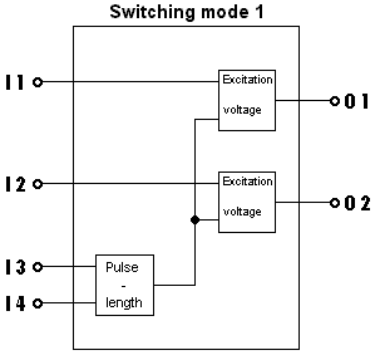
This operating mode makes sense if the inputs are being switched by a relay or if very strong failures are on the input lines.

Rotary switch indication	Switching mode	Input interference suppression
0	1	Off
1	2	Off
2	3	Off
3	4	Off
4	5 (1 ms)	Off
5	5 (2 ms)	Off
6	5 (5 ms)	Off
7	5 (10 ms)	Off
8	1	Active
9	2	Active
A	3	Active
B	4	Active
C	5 (1 ms)	Active
D	5 (2 ms)	Active
E	5 (5 ms)	Active
F	5 (10 ms)	Active

Switching mode 1

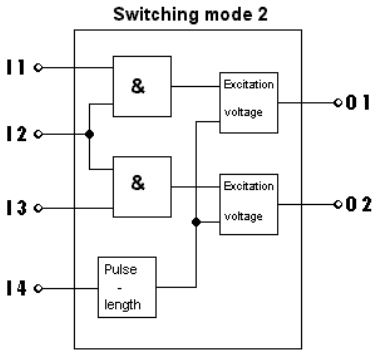
In switching mode 1 the input 1 is wired to the output 1 and the input 2 is wired to the output 2. The duration of the overexcitation pulse is set at the inputs 3 and 4.

Input 3	Input 4	Pulse
0 VDC	0 VDC	1 ms
+24 VDC	0 VDC	2 ms
0 VDC	+24 VDC	5 ms
+24 VDC	+24 VDC	10 ms



Switching mode 2

In switching mode 2 the input 1 is wired to the output 1 and the input 2 is wired to the output 2. Input 3 is an enabling input. The inputs 1 and 2 are ineffective without a signal at input 3. The duration of the overexcitation pulse is set at input 4.

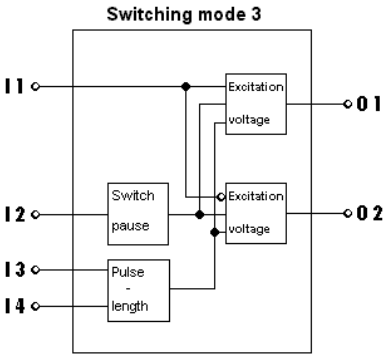


Input 1	Input 2	Input 3	Output 1	Output 2
0 VDC	0 VDC	0 VDC	0 VDC	0 VDC
+24 VDC	0 VDC	0 VDC	0 VDC	0 VDC
0 VDC	+24 VDC	0 VDC	0 VDC	0 VDC
+24 VDC	+24 VDC	0 VDC	0 VDC	0 VDC
0 VDC	0 VDC	+24 VDC	0 VDC	0 VDC
+24 VDC	0 VDC	+24 VDC	+24 VDC	0 VDC
0 VDC	+24 VDC	+24 VDC	0 VDC	+24 VDC
+24 VDC	+24 VDC	+24 VDC	+24 VDC	+24 VDC

Input 4	Pulse
0 VDC	2ms
+24 VDC	5ms

Switching mode 3

The switching mode 3 was especially developed for double magnet coils (-driving elements). Output 2 is wired if the input 1 does not have a signal. In case input 1 receives a signal, then output 2 is switched off first, followed by a pause**. Then the output 1 is switched on. If the signal is removed from input 1 it happens the other way round. The output 1 is switched off first, followed by a pause**. Only then the output 2 is switched on again. Input 2 determines the duration of the pause**. The duration of the overexcitation pulse is set at the inputs 3 and 4.



Input 1	Output 1	Output 2
0 VDC	0 VDC	+24 VDC
+24 VDC	+24 VDC	0 VDC

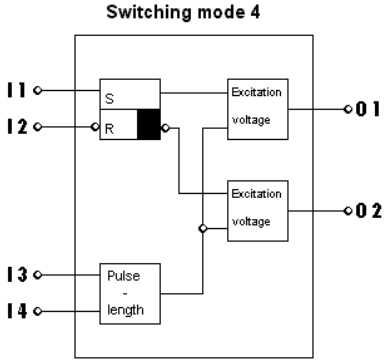
Input 2	Pause**
0 VDC	Pulse x 2
+24 VDC	Pulse x 1

Input 3	Input 4	Pulse
0 VDC	0 VDC	1ms
+24 VDC	0 VDC	2ms
0 VDC	+24 VDC	5ms
+24 VDC	+24 VDC	10ms

**Pause: Period between switching off the magnet coil 1 and switching on the magnet coil 2 or the other way round. It results from the overexcitation time (pulse) multiplied by 2 or 1.

Switching mode 4

The switching mode 4 includes an RS-flip-flop logic (-RESET/SET logic). If input 2 (-RESET) is supplied with 24 V after switch-on, then output 2 is wired. If input 1 (SET) is also supplied with 24 V, then output 1 is wired and output 2 is is switched off. If the signal at input 1 (SET) disappears, then this state at the outputs remains stable. Provided that the signal at the input 2 (-RESET) is taken away now (0 VDC), then the output 1 is switched off and the output 2 is switched on. This switching state also remains stable if the input 2 receives a signal (+24 VDC) again. The input 2 (-RESET) has a higher priority compared to input 1 (SET); which means: if input 1 has a signal (+24 VDC) and input 2 does not have a signal (0 VDC), then output 2 is wired and output 1 is switched off. The duration of the overexcitation pulse is set at the inputs 3 and 4 (clamps 3 and 4).

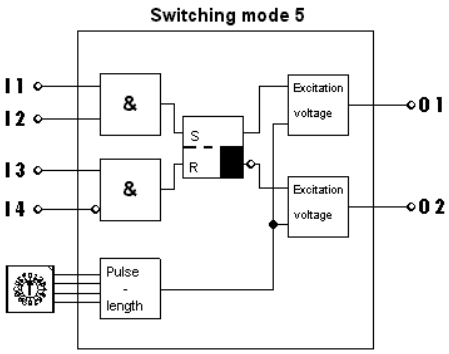


Input 1	Input 2	Output 1	Output 2
0 VDC	0 VDC	0 VDC	+24 VDC
+24 VDC	0 VDC	0 VDC	+24 VDC
0 VDC	+24 VDC	Unchanged	Unchanged
+24 VDC	+24 VDC	+24 VDC	0 VDC

Input 3	Input 4	Pulse
0 VDC	0 VDC	1ms
+24 VDC	0 VDC	2ms
0 VDC	+24 VDC	5ms
+24 VDC	+24 VDC	10ms

Switching mode 5

The switching mode 5 also includes an RS-flip-flop, that is set via the inputs 1 and 2 and that is reset via the inputs 3 and 4 (compare description in switching mode 4).
The pulse length is set through the rotary code switch. The following assignment applies for it:



Rotary switch display	Pulse
4 or C	1ms
5 or D	2ms
6 or E	5ms
7 or F	10ms

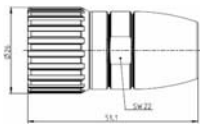
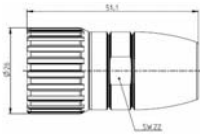
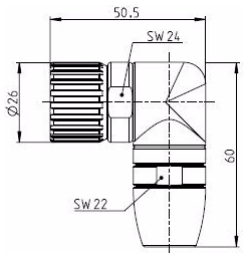
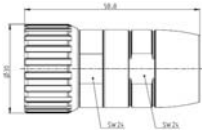
Input 1	Input 2	Input 3	Input 4	Output 1	Output 2
0 VDC	0 VDC	0 VDC	0 VDC	Unchanged	Unchanged
+24 VDC	0 VDC	0 VDC	0 VDC	Unchanged	Unchanged
0 VDC	+24 VDC	0 VDC	0 VDC	Unchanged	Unchanged
+24 VDC	+24 VDC	0 VDC	0 VDC	+24 VDC	0 VDC
0 VDC	0 VDC	+24 VDC	0 VDC	0 VDC	+24 VDC
+24 VDC	0 VDC	+24 VDC	0 VDC	0 VDC	+24 VDC
+24 VDC	+24 VDC	+24 VDC	0 VDC	0 VDC	+24 VDC
+24 VDC	+24 VDC	+24 VDC	0 VDC	0 VDC	+24 VDC
0 VDC	0 VDC	0 VDC	+24 VDC	Unchanged	Unchanged
+24 VDC	0 VDC	0 VDC	+24 VDC	Unchanged	Unchanged
0 VDC	+24 VDC	0 VDC	+24 VDC	Unchanged	Unchanged
+24 VDC	+24 VDC	0 VDC	+24 VDC	+24 VDC	+24 VDC
0 VDC	0 VDC	+24 VDC	+24 VDC	Unchanged	Unchanged
+24 VDC	0 VDC	+24 VDC	+24 VDC	Unchanged	Unchanged
0 VDC	+24 VDC	+24 VDC	+24 VDC	Unchanged	Unchanged
+24 VDC	+24 VDC	+24 VDC	+24 VDC	+24 VDC	0 VDC

Technical data

	SPEEDY 1A	SPEEDY 4A
Supply voltage	10...30 VDC, max. 1 W (no load)	10...30 VDC, max. 1 W (no load)
Current consumption	Max. 40mA (idle state) Max. 3A (in the moment of switching)	Max. 40mA (idle state) Max. 3A (in the moment of switching)
Inputs	4 Ri > 3.9K* UL = 0V - 3V, UH = 12V - 30V	4 Ri > 3.9K* UL = 0V - 3V, UH = 12V - 30V
Outputs	2 I_{out} < 1A continuous load U_{out}-stat > supply voltage - 1V U_{out}-pulse = 88V .. 100V or 44V .. 50V	2 I_{out} < 4A continuous load / 5A short-time (max. 1min.) U_{out}-stat > supply voltage - 1V U_{out}-pulse = 88V .. 100V oder 44V .. 50V
Programs	5 adjustable via rotary switch More customized programs on request	5 adjustable via rotary switch More customized programs on request
Pulse length	Adjustable 1 - 10ms	Adjustable 1 - 10ms
Switching delay	< 300µs (without input interference suppression)	< 300µs (without input interference suppression)
Recovery time	Max. 150ms at 1A-load and 10ms-pulse	Max. 150ms at 1A-load and 10ms-pulse
Housing	Plastic for EN-rail mounting (stackable) W x H x D: 25 x 79 x 90.5mm	Plastic for EN-rail mounting (stackable) W x H x D: 25 x 79 x 90.5mm
Conductor connection	Via plug-in terminal block up to 2.5 mm²	Via plug-in terminal block up to 2.5 mm²
Display	LED-status display of the inputs, outputs and supply voltage	LED-status display of the inputs, outputs and supply voltage

Order number	Article designation	
V3104	DSB SPEEDY-50V-1A	With 1A switching capacity
V1526	DSB SPEEDY-100V-1A	
V3105	DSB SPEEDY-50V-4A	With 4A switching capacity
V2313	DSB SPEEDY-100V-4A	

Accessories

Designation	Order no.
 12-pole cable connector with union nut EMC-version, protection class IP67, traction relief inside, socket, counterclockwise, for the use with SSI-encoders	V1706
16-pole cable connector with union nut EMC-version, protection class IP67, socket, standard version, for the use with encoders parallel-output or ROTARNOCK Fieldbus version 	V1700
 16-pole cable connector with union nut EMC-version, protection class IP67, socket, angled, for the use with encoders parallel-output or ROTARNOCK Fiedbus version	V2756
28-pole cable connector with union nut EMC-version, protection class IP67, traction relief inside, large cable inlet, socket, standard version, for the use with ROTARNOCK devices IP65 	V1703
5-pole connector M12, socket, inverse coding, Profibus/MPI input connector for ROTARNOCK	V3059E
5-pole connector M12, pin, inverse coding, Profibus/MPI output connector for ROTARNOCK	V3059A
Angle for mounting encoders with clamping flange (T-flange) and ROTARNOCK devices	V1480
Adapter flange for clamping for the use of encoders without groove	V1709
USB-RS232 converter 20 cm, tested with all Deutschmann software tools	V3654
On request we produce connection cables from encoder to cam control, cables for the series ROTARNOCK as well as serial cables for the connection to the PC. Ask your consultant. 	
 DICNET®-adapter for the connection from cam controls with RS485-DICNET®-interface to the COM-interface at the PC.	V2156
UNIGATE DICNET®-CANopen Gateway module for the connection of a cam control with RS485-interface to the Fieldbus. For more versions please contact your consultant. 	V2114
 UNIGATE DICNET®-DeviceNet Gateway module for the connection of a cam control with RS485-interface to the Fieldbus. For more versions please contact your consultant.	V2242
UNIGATE DICNET®-INTERBUS Gateway module for the connection of a cam control with RS485-interface to the Fieldbus. For more versions please contact your consultant. 	V2027 (8 byte) V3145 (32 byte)
 UNIGATE DICNET®-Profibus Gateway module for the connection of a cam control with RS485-interface to the Fieldbus. For more versions please contact your consultant.	V2079

Glossary

Dynamic cam / idle time compensation

The idle time compensation is the time that passes from setting a cam control output until the actual reaction of the connected device (e. g. opening a valve). Normally this idle time is constant. For a dynamic compensation of this idle time a cam control has to shift a programmed cam depending on the actual encoder speed, that means a valve that is supposed to be opened on position 100, for example must be opened at 1 m/s on position 95, at 2 m/s it must already be opened on position 90.

This function is called dynamic cam shifting or idle time compensation (ITC). Idle times can be programmed blockwise, which means a set idle time always applies to a block of 8 outputs or bitwise. For an idle time compensation with separate turn-on/turn-off time it is possible to select different turn-on and turn-off delay times.

DICNET®

DICNET® (Deutschmann-Industry-Controller-Net) is a multi-master Fieldbus. At the physical layer according to the ISO-OSI shift model it corresponds to the DIN 19254, part 1. That means a connection between all participants in the net is established with an RS485-two-wire line.

The physical arrangement is thus a bus system, at which the participants can be switched on and off as desired. At the maximum expansion stage 16 cam controls, 16 display units, 3 operation terminals and 1 PC can be connected at the same time. From the logic al poit of view it is a token ring, that means that always only the participant who has the access authorization (token) is allowed to send to the bus. In case he does not have any data for another participants, then he passes on the token to that neighbour, who was determined during a configuration phase.

Through this principle a determinstc bus cycle time is achieved, which means the time (worst-case) until a data packet can be sent is exactly calculable. In case a participant is turned on or off an automatic reconfiguration is made. The transmission baud rate is 312.5 kbaud at a length of 11 bit/byte. A maximum of 127 participants can be operated on one bus, whereas data packets with a maximum of 14 byte per cycle are being transmitted. An automatic check of the received information takes place as well as an error report in case of a twofold transmission error. The maximum expansion of the net must not exceed 500 m.

Temperature ranges and humidity

All Deutschmann cam controls are specified for a storage temperature of -25°C to +70°C. The operating temperature without forced convection ranges from 0°C to +45°C, with forced convection from 0°C to +65°C. The maximum relative humidity can be 80%, non-condensing, in a non-corrosive atmosphere.

Shock and vibration

All our devices are tested for the following values:
Shock 15G/11 milliseconds I vibration 0.15mm/10..50 Hz, G/50..150 Hertz

Fieldbus connection

Basically all Deutschmann devices can be connected via a Gateway to the Fieldbuses common on the world market. Some types can also be supplied with integrated Fieldbus-interface.

Angle-/time-cams

In most applications the switch-on and switch-off points (cam) are set position-dependent. For certain applications, however, it is necessary that the switch-on point is set position-dependent and the switch-off point time-dependent. For devices with this function the time base may vary in the range from 1 millisecond to 32500 milliseconds.

Direction cam

The switch-on and switch-off points (cam) are normally switched regardless of the rotational direction. Through the function direction cam it is possible to define whether the a cam is to be activated in clockwise rotation or anti-clockwise rotation only or as it is the normal case in both directions.

Logic functions / shift register

Applications in which the cam control takes over PLC-tasks. Up to 16 inputs/outputs, markers and a shiftregister can be logically linked. With it simple PLC-task are passed on to the cam control. Advantage: faster cycle times, PLC does not have to carry out any peripheral work. The shift register can for instance be used for an easy sorting of good and bad end products (e. g. at bottling).

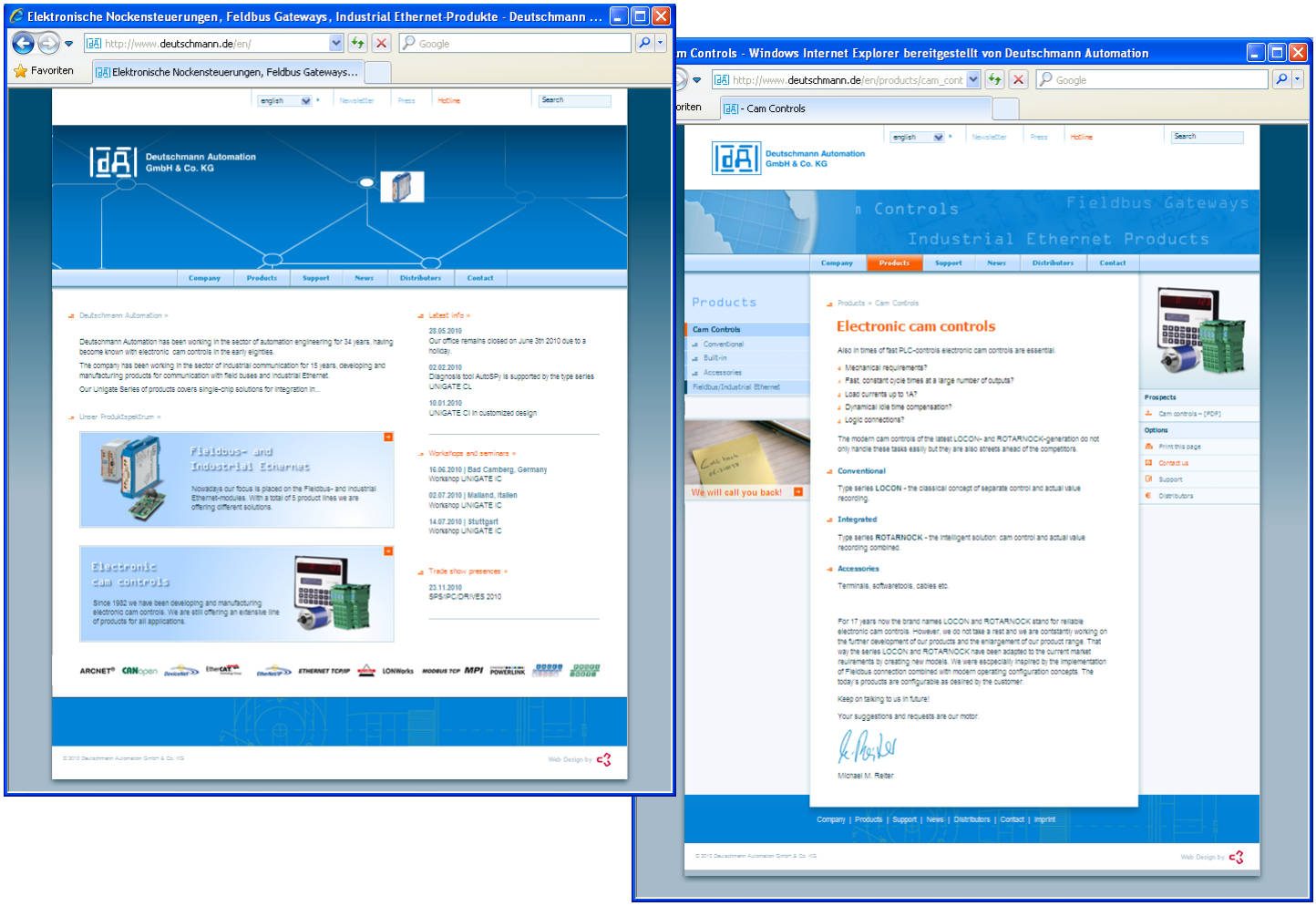
Encoder monitoring

Functions for the complete monitoring of encoder and cable. Every time the encoder is read in it is compared to the one before. In case of a deviation of +/-3 inc. an error message is shown. Additionally at the absolute encoders with a resolution of 360 or 1000 inf./rev. (Gray excess) an error message is shown at the undefined codes.

Lockable outputs

The function serves to lock machine-relevant outputs and only permit the change of product-relevant outputs.

More information or the mentioned tools can be found on our website at www.deutschmann.com



Efficiency, economy and maximum reliability make our products indispensible worldwide.

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- **From Hotline support via phone, Internet and e-mail to on-site service.**
- **From the technical product training to the extensive manual.**

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TNR NS_E/04/14