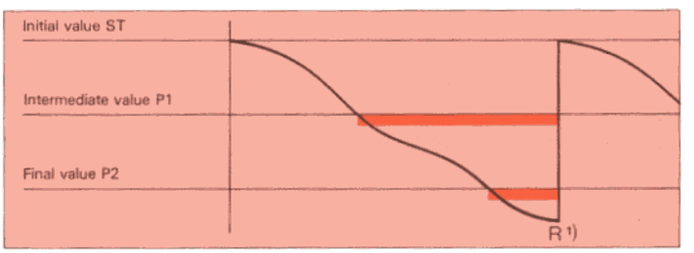
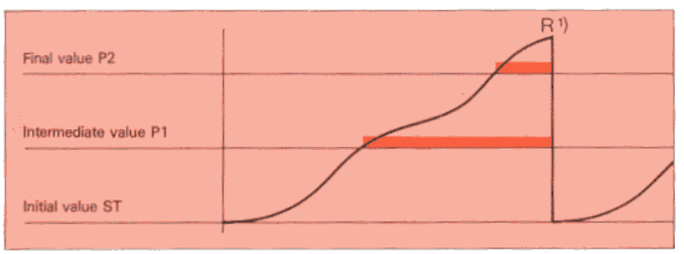
Function as a negative counter (ST > P2)





DIL-switch*) position

7	6	5	4	3	2	1
		2)			2)	2)

Counting input: C2

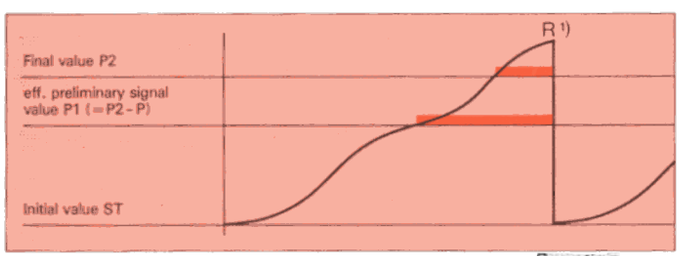
DIL-switch position

7	6	5	4	3	2	1
		2)			2)	2)

Counting input: C1

Preselection counter with preliminary signal

Function as a positive counter (ST < P2)

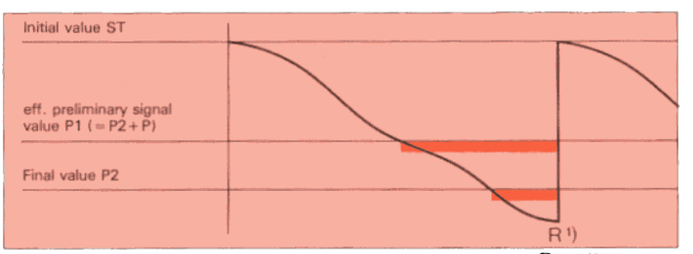


DIL-switch position

7	6	5	4	3	2	1
		2)			2)	2)

Counting input: C2

Function as a negative counter (ST > P2)



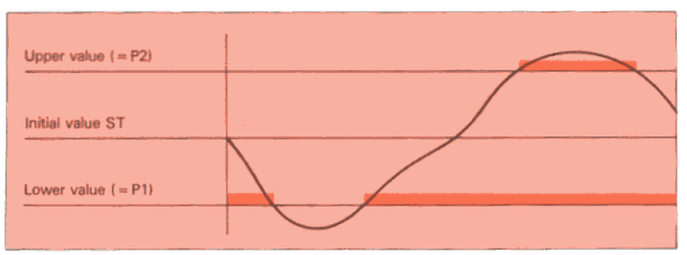
DIL-switch position

7	6	5	4	3	2	1
		2)			2)	2)

Counting input: C1

Differential counter

Function as a positive counter (ST < P2)



DIL-switch position

7	6	5	4	3	2	1
		2)			2)	2)

Counting inputs: C1 C2

DIL-switch position

7	6	5	4	3	2	1
		2)			2)	2)

Counting inputs: C1 C2

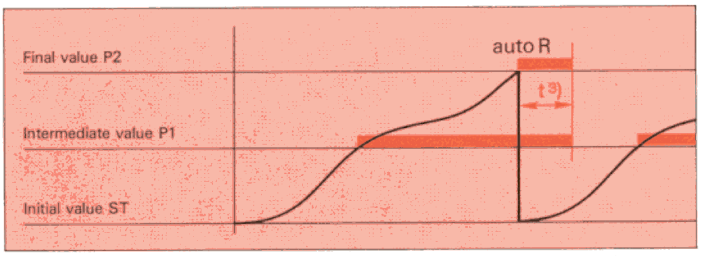
Counting inputs (phase-lag)

Counting value curve
Operational state of output P1 or P2

CKN

Preselection counter with two levels and automatic reset

Function as a positive counter (ST < P2)

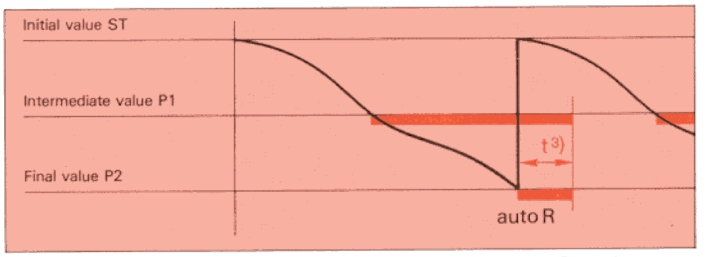


DIL-switch position

7	6	5	4	3	2	1
		2)			2)	2)

Counting input: C2

Function as a negative counter (ST > P2)



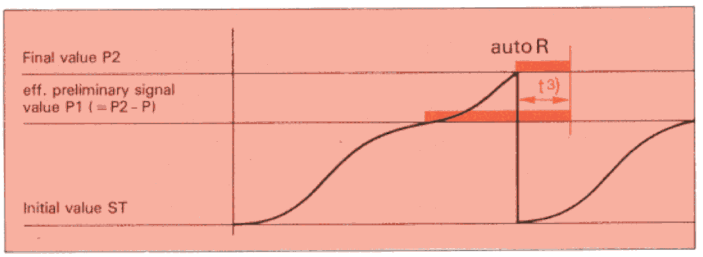
DIL-switch position

7	6	5	4	3	2	1
		2)			2)	2)

Counting input: C1

Preselection counter with preliminary signal and automatic reset

Function as a positive counter (ST < P2)

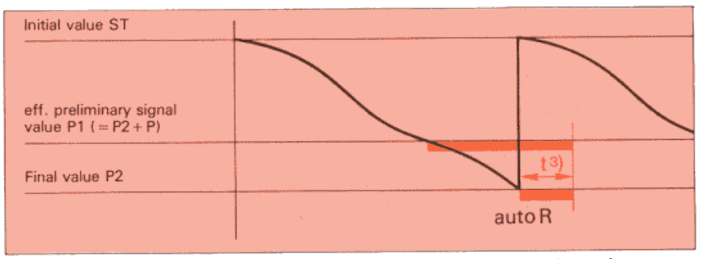


DIL-switch position

7	6	5	4	3	2	1
		2)			2)	2)

Counting input: C2

Function as a negative counter (ST > P2)



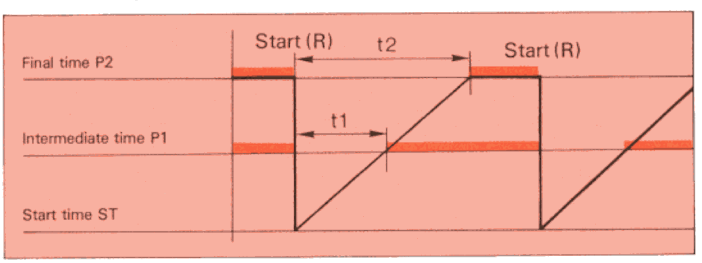
DIL-switch position

7	6	5	4	3	2	1
		2)			2)	2)

Counting input: C1

Timer with delayed operation

Function as a positive counter (ST < P2)

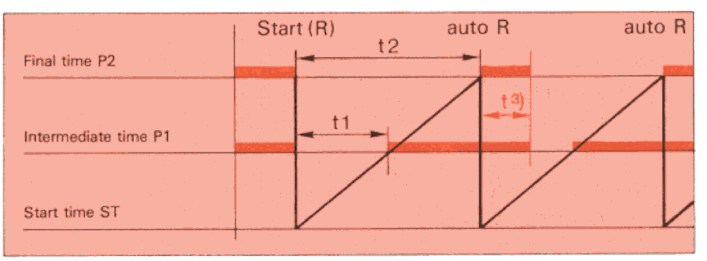


DIL-switch position

7	6	5	4	3	2	1
					2)	2)

Timer as an impulser

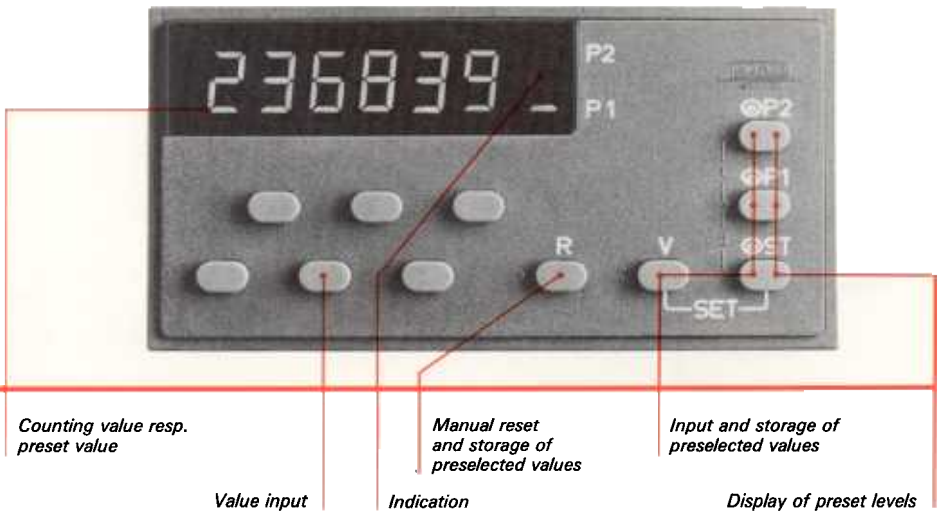
Function as a positive counter (ST < P2)



DIL-switch position

7	6	5	4	3	2	1
					2)	2)

Operation



The following push-buttons are provided on the front panel for operating the counter:

- Push-buttons ST/P1/P2 for determining the preset level.
- Push-button «V» for the keying-in (as a push-button combination «SET») also for storing the preselected values without loss of the counting value.
- Push-button «R» for manual reset, also for storing the preselected values with simultaneous reset to the initial value ST.
- One push-button per decade for keying-in the preset values.

Keying-in the preset values

- Simultaneous, brief actuation of one of the push-button combination «SET»: The current preset value and possible locking (decimal point in display element «Indication») is displayed; the «Indication» flashes; all other functions are blocked.
- The preset value is keyed-in by brief or continuous pressure on the push-buttons per decade.
- When the counter is placed in the «SET» function, it is only necessary to actuate the appropriate push-button(s) in order to change from one preset level to another.
- Storing the preselected values and establishing the ready-to-operate state: Actuation of push-button «V» (without loss of counting value) or of push-button «R» (simultaneous reset to initial value ST). The state of the outputs is dependent on counting value and the values P1 and P2. See page 8 for details.

Display by keying-in the preset values

«SET» push-button combination	Indication	Preset level	Range of preset value
V + ST			
(V+) P1		Effective intermediate value P1[1]	-99,999...999,999
		Preliminary signal P[1]	0001...9999
(V+) P2		Final value P2	-99,999...999,999
(V+) ST + P1		Divisor d	0001...9999
(V+) P1 + P2		Pulse length t	0.1...9.9s

[1]) Whether P1 or P is dependent on the position of the DIL-switch 3, for details, see «Programming», page 5
[2]) For details, see «Programming», page 5

Display of DIL-switch positionings

By the brief actuation of push-buttons V + ST + P2 the DIL-switch programming is displayed; all other functions being blocked. In order to render this indication possible when push-button «V» is locked, a connection has to be established between the «PROG» input and «Vs».

Display / DIL-switch 7 6 5 4 3 2 1 — Position — Position

For description of the functions, see «Programming», page 5.

Display of the preset values

By actuating the relevant push-button(s) the preset values will be displayed without any functions being influenced. By actuating push-button P1, the effective intermediate value will be displayed, independent of the programming (the preliminary signal value P is only displayed in the function SET).

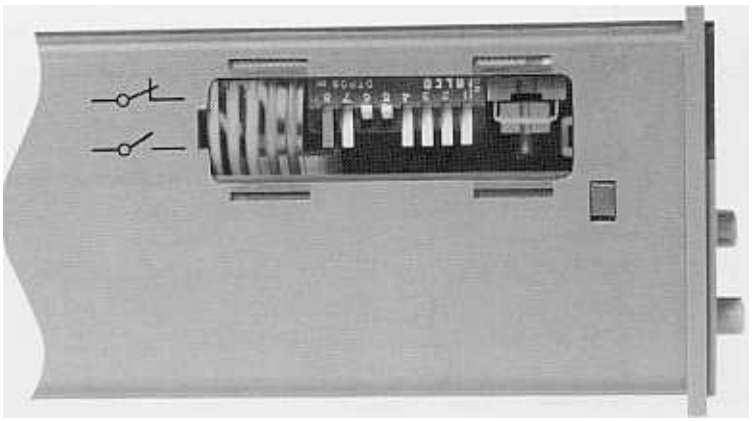
Display in the «Indication» element

When the counter is in its operating state the «Indication» element serves for displaying the operational state of outputs P1 and P2, also for displaying the exceeding of the counting capacity (overflow).

Output P1 in operational state (output P2 in rest state)

Output P2 in operational state (output P1 in rest state)

Over-flow display (counter counts on, commencing from zero; outputs P1 and P2 are in operational state)



Programming

The following functions are user-programmable, following which they can no longer be altered from the front of the counter.

- Operating mode of the counting inputs
- Maximum counting frequency
- Position of the LED decimal point
- Type of intermediate value (P1 or P)
- Automatic reset
- Locking of push-button «V» (SET function no longer possible solely from the front of the counter)
- Individual locking of preset values
- Locking of push-button «R» (without manual reset)

This measure largely excludes incorrect operation by the user. If for instance, push-buttons «V» and «R» are locked, it is not possible for other functions to be influenced solely from the front of the counter.

Programming by DIL-switches

Positionings can be displayed after installation. See «Operation», page 4.

DIL-switch	(8)	7	6	5	4	3	2	1
Function		Operating mode of counting inputs C1 and C2		Max. counting frequency	Automatic reset	Type of intermediate value	Push-button «R»	Push-button «V»
⌐	⚠	see page 7		50i/s[3])	with auto R	preliminary signal P[4])	without manual reset	without manual function SET
⌐	[1])	see page 7		1000i/s[2])	without auto R	effective intermediate value P1	with manual reset	with manual function SET

[1]) **Warning! This DIL-switch has in any case to remain in its ⌐ position!** The position ⌐ is used during manufacture for a 100% functional test. In case of erroneous switching: each preset value (ST, P1 or P, P2, d, t) has to be keyed-in again.

[2]) When using electronic impulse generators

[3]) When using electromechanical impulse generators or in the case of severe electrical interference

[4]) For details, see «Type of intermediate value», page 6

Individual locking of preset values or altering a locked preset value

By this type of locking the «V» push-button retains its SET function. In the case of a locked preset value, the push-buttons per decade are inoperative. To lock one or more preset values, or to alter a locked preset value, proceed as follows:

- Fit jumper between «PROG» input and «Vs».
- The initial value ST is displayed; «Indication» element flashes.
- Select preset level by pressing the appropriate push-button(s) (eg. ◎ ST + ◎ P1 for the divisor).
- In the case of locked preset value (decimal point in «Indication» element): Press push-button «V»; decimal point extinguished; preset value is unlocked.
- Key-in the preset value.
- Press push-button «V»; this locks this value and the decimal point appears in the «Indication» element.
- To lock further preset values: Select preset level — key-in preset value — press push-button «V».
- Remove jumper from between «PROG» input and «Vs»; the preset values are stored, without loss of counting value.

Keying-in preset values with locked push-button «V»

By establishing a connection between the «PROG» input and «Vs» (eg. with a keyswitch) the counter is placed in the SET function. Further procedure as described under «Operation», see page 4.

Input of LED decimal point

The fixed, preselected LED decimal point is valid for the initial value ST, intermediate value P1 or preliminary signal P, final value P2 and for the counting value.

Procedure:

- Fit jumper between «PROG» input and «Vs».
- Initial value ST is displayed; «Indication» element flashes.
- Decimal point can be positioned by moving it from right to left by brief actuation of push-button «R».
- Remove jumper from between «PROG» input and «Vs».

Technical data

Basic mode of function

The CKN is a preselection counter with two control levels:

ST is the initial value at which counting starts following reset.

P2 is the final value at which output P2 assumes the operational state. The counter counts on until reset.

P1 is an intermediate value at which output P1 assumes the operational state (for details, see «Type of intermediate value»).

By means of a reset, a new counting cycle commences and outputs P1 and P2 assume the initial state.

The counting function is determined by the position of the initial value ST in comparison to the final value P2:

Positive counter: Initial value ST< final value P2
Negative counter: Initial value ST> final value P2

The programming and the wiring of the inputs C1/C2 determines whether the incoming counting impulses are added (⎍↑) or subtracted (⎍↓).

Type of intermediate value

The type of intermediate value is programmed by the positioning of DIL-switch 3:

—o/— as an effective, independent intermediate value P1

—o/L as a relative, dependent preliminary signal value

This relative preliminary signal value being the result of the preselected values P (preliminary signal) and P2 (final value). Following a key-in or an alteration of P or P2, the counter automatically calculates the effective preliminary signal value P1:

P1 = P2 − P, in the positive counter function
P1 = P2 + P, in the negative counter function

In the operational state, the calculated, effective preliminary signal value P1 is always displayed by pressing push-button ◎ P1.

Division of the counting impulses

The counting impulses acquired by the counter are stored in an intermediate storage. Only when the preselected divisor value d is reached, does the displayed counting value move on. The contents of the intermediate storage cannot be displayed, but will be stored in the case of a power supply failure. For keying-in the divisor d, see «Operation», page 4.

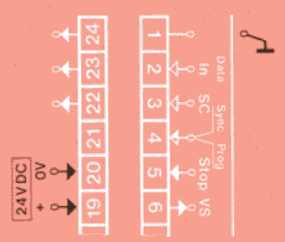
General data

Count	
Counting capacity	-99,999...999,999 by dividing the counting impulses max. -999,990,000...9,999,990,000 If the counting capacity is exceeded, this is displayed in the «Indication» element (see page 4 «Operation» for details)
Counting direction	up, down or up and down
Counting frequency max.	50 i/s or 1000 i/s
Display	LED 7-segment display, red, 9 × 4.5 mm - 6 elements for numerical values; with pre-zero suppression, identification of negative values; fixed LED decimal point programmable .9, .99, .999 or .9999 - 1 «Indication» element: display of the operational state of outputs; display of the exceeding of counting capacity; marking of preset levels; marking of locked preset values - Display of DIL-switch positionings
Preselection	The following values can be preselected: - Initial value ST: -99,999...999,999 - Intermediate value as an effective value P1: -99,999...999,999, or as a preliminary signal P: 1...9999 (effective value of P1 dependent on final value P2 and basic mode of function) - Final value P2: -99,999...999,999 - Divisor d: 1...9999 - Pulse length t with automatic reset: 0.1...9.9 s Individual or all preset values can be locked by programming
Reset	To initial value ST: manual, electrical or automatic (without manual reset by programming)
Data storage	In the event of interrupted power supply, an internal retentive memory (EAROM) stores all the operating data and preset values without the need for an auxiliary voltage supply. Duration of storage: min. 12 months at +50 °C
Data transfer	Three inputs and one output permit linked operation, eg. with a programmable controller: - Read-out and write-in of counting and preset values, including divisor d and pulse length t - Lock or unlock each preset value - Inputting or altering of the decimal point - Text display
Mounting	Flush-mounting, fixing by two clamping springs or front frame and screws, any mounting position (see page 15 for dimension drawings)
Connections	Screw-terminals (M3, for wires from min. 0.75 ⏀ to max. 2 × 1.5 ⏀) in combination with tags (2.8 × 0.8 mm) for push-on connectors or for soldering
Immunity to interference	2.5 kV at inputs and outputs, according to IEC 255-4, test procedure E5, class III
	Operation: -10 °C to +50 °C; keeping in stock: -25 °C to +65 °C
	Climate type G according to DIN 40040
	Operational reliability 2 g; mechanical strength 2 g; according to IEC 68-2-6, test FC in 3 planes at 10...500 Hz
Protection class (front)	IP 40 according to DIN 40050
	350 g (DC) resp. 650 g (AC)

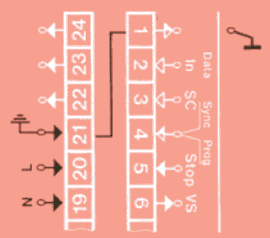
CKN

Main supply connection diagrams

DC



AC



Resetting

By means of a manual or electrical reset

- the counter is brought to its initial value ST and the intermediate storage «Divisor» is set to zero,
- outputs P1 and P2 revert to their initial state (for details see «State of the outputs», page 8).
- Counting impulses are not accepted for the duration of the reset.

In the case of automatic reset (DIL-switch 4: ⌐t⌐), on reaching final value P2

- the counter is brought to the initial value ST, and
- output P2 reverts to the operational state for the period of the pulse length t.
- The counter remains in its operating state; this means that there is no loss of counting impulses.
- After expiry of pulse length t, outputs P1 and P2 revert to their initial state (for details see «State of the outputs», page 8).

In the case of an interruption in the power supply during the period of pulse length t, only the state of the outputs is stored, not the already expired time. After reinstatement of the supply, time t runs again at its full length.

Electrical data

Main supply

Supply voltage	DC: **24 VDC;** residual ripple max. 5%; voltage tolerance -15%/+20%; AC: 24VAC, 48VAC, 110VAC, **220...240VAC;** 50/60Hz; voltage tolerance -15%/+10%
Power consumption	approx. 5W (DC) resp. 11VA (AC)
Insulation voltage	1.5 kVAC (24...48VAC) resp. 2.5 kVAC (110...240 VAC) across the main supply terminals and the inputs according to VDE 435
Protective measures	
Surge voltage strength	1kV 1/50 μs (DC) resp. 5kV 1/50 μs (AC) according to IEC, publication 60
Polarity reversal	integrated diode (pole reversal-resistant)
Over-voltages	short-circuit protection by integrated fuse-link (AC)
	recommended protection measures

Counting and reset inputs

Impulse generator types

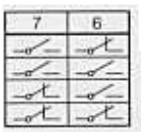
- Contacts, NPN electronic sensors, incremental shaft encoders (input mode pull-up)
- Contacts, PNP or NAMUR electronic sensors, voltage pulses, incremental shaft encoders (input mode pull-down)

The input mode is selectable by means of a wire jumper. For details see «Data summary for inputs C and R», pages 10/11.

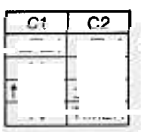
Operating mode of counting inputs

The operating mode of the counting inputs C1 and C2 is defined by DIL-switches 7 and 6:

DIL-switches



Counting inputs



Comments

The counting impulses can also arrive simultaneously
↓C1 = 0V ↑C1 = Vs
↓C2 before C1 ↑C1 before C2
↓C1 = 0V ↑C1 = Vs (for details see «Timer», page 9)

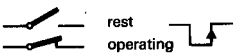
Impulse data

	Count 50i/s	1000i/s	Reset
Impulse length	**min. 10ms**	**min. 0.5ms**	**min. 10ms**
Impulse interval	**min. 10ms**	**min. 0.5ms**	**min. 10ms**

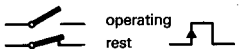
For counting, the positive signal edge is active. Whether this is situated at the beginning or end of the counting impulse can be determined by the type of impulse generator and the input mode.

Example: Contact as impulse generator, input mode pull-up

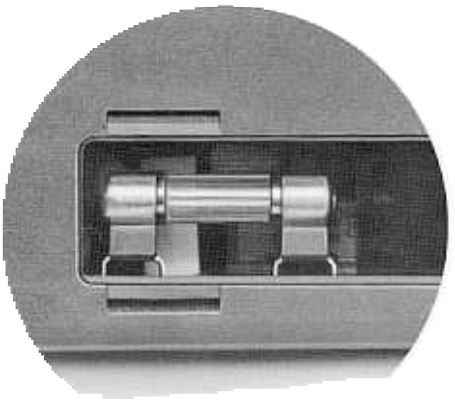
Contact normally open (NOC)



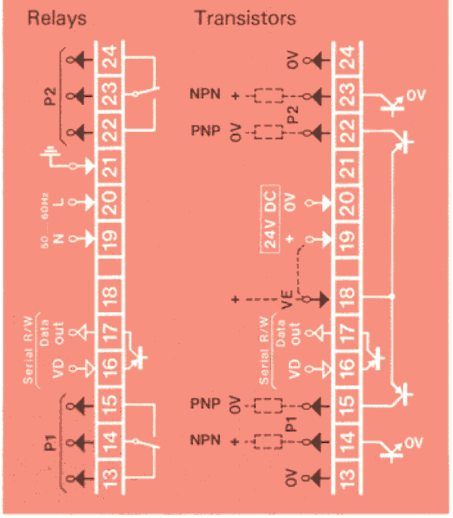
Contact normally closed (NCC)



Input voltage	See «Data summary for inputs C and R», pages 10/11
	2.2 kΩ (DC) resp. 4.7 kΩ (AC)
	RC filter for high frequencies, digital filter for low frequencies (eg. contact-bounce). Schmitt trigger with hysteresis of 5V (DC) resp. 2.5V (AC)
Over-voltages	integrated diodes
Interference	see immunity to interference under «General data»



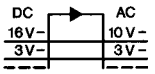
Output connection diagrams



Sensor supply Vs	Voltage DC: 23VDC (-15%/+20%) AC: 12VDC (-10%/+ 5%) Current max. 80mA Basically the sensor supply is sufficient for all functions, rendering no additional voltage source necessary. SAIA®Proximity Switches, voltage range «G» (NPN/PNP, 3-wire) and «N» (NAMUR, 2-wire) are compatible with the CKN inputs.
Connection diagrams	see «Data summary for inputs C and R», pages 10/11

STOP input (terminal connection no. 5)

By driving the «Stop» input, eg. by means of the sensor supply «Vs» and a contact or PNP proximity switch, both counting inputs are blocked. This enables the counting or timing run to be intentionally interrupted at any time.

Input voltage/ Input signal	
Input delay	max. 12ms

PROG input (terminal connection no. 4)

This input provides for the following functions:

- SET function (in particular with push-button «V» locked)
- Positioning the LED decimal point
- Individual locking of preset values

For details see «Programming», page 5

Data in, SC, Sync inputs

These inputs are for data transmission, eg. with a programmable controller. For details see «Data transfer», pages 12–14.

Outputs

Type of outputs

DC: relays (changeover contacts) or PNP transistors (for control) and NPN transistors (for signalling)
AC: relays (changeover contacts)

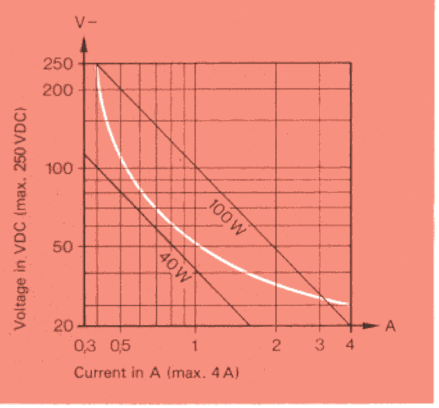
Note: The version using transistors is to be given preference where electronic circuits are being controlled.

State of the outputs

Positive counter (ST < P2)				Negative counter (ST > P2)			
Output P1		Output P2		Output P1		Output P2	
Rest	Operating	Rest	Operating	Rest	Operating	Rest	Operating
$n_c < P1$	$n_c \geq P1$	$n_c < P2$	$n_c \geq P2$	$n_c > P1$	$n_c \leq P1$	$n_c > P2$	$n_c \leq P2$

- n_c = counting value
- If initial value ST equals final value P2, then outputs P1 and P2 are always in the operational state.
- By means of a reset, outputs P1 and P2 are brought to the initial state, corresponding to initial value ST compared to values P1 and P2.
- During operation the operational states are displayed in the «Indication» element (see «Operation», page 4).
- Where the maximum counting capacity is exceeded (over-flow), outputs P1 and P2 assume the operational state.

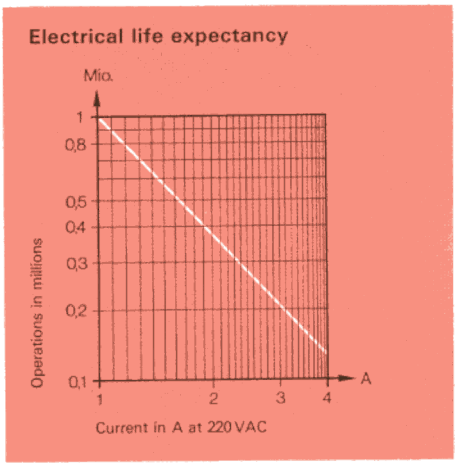
Breaking capacity — direct current



Relay outputs

Breaking capacity	Direct current:	see adjacent graph, $P_{max.}$ (resistive) 120W
	Alternating current:	4A/250VAC (AC1, resistive load), $P_{max.}$ 1000VA 1A/250VAC (AC11, inductive load) according to VDE 0660, section 1 and 2
Insulation voltage		2.5kV across contacts and coil

CKN



Life expectancy	mechanical: 20 million operations electrical: see adjacent graph With an inductive load spark suppression is imperative for protecting the contacts.	
Transistor outputs Voltage Current	Open collector PNP VE = 10...45 VDC max. 500 mA	Open collector NPN Collector = up to 45 VDC max. 100 mA
	This output is for data transmission, eg. with a programmable controller. For details see «Data transfer», pages 12-14.	

Function as a digital timer

By setting DIL-switches 6/7 to the position ⌐‾⌐ the CKN is programmed as a timer. The frequency of the quartz in the microcomputer being transformed into a time-base of 0.1 s.

Timing function	Delayed operation or as an impulser (by automatic reset, DIL-switch 4 ⌐‾⌐), standstill on supply failure	
Time ranges	0.0...99,999.9 s	(divisor d = 0001)
	0...999,999 s	(divisor d = 0010)
	0.00...9,999.99 min	(divisor d = 0006)
	0.0...99,999.9 min	(divisor d = 0060)
	0...999,999 min	(divisor d = 0600)
	0.000...999.999 h	(divisor d = 0036)
	0.00...9,999.99 h	(divisor d = 0360)
	0.0...99,999.9 h	(divisor d = 3600)
Timing process	- up as a positive counter, ie. display of the elapsed time (ST < P2, C1 = Vs) - down as a negative counter, ie. display of the remaining time (ST > P2, C1 = 0V) The display or the timing process is brought to a standstill after final value P2 is reached.	
Start of timing process	Manual by releasing push-button R and electrically by means of input R (for details see «Resetting» and «Counting and reset inputs»)	
Interruption of the timing process	Electrically (for details see «STOP input», page 8)	

All other technical data, operation, programming, connection diagrams etc. are as for the «Counter» function.

Data storage

In the event of an interruption in the main supply > 5 ms the following data are stored:

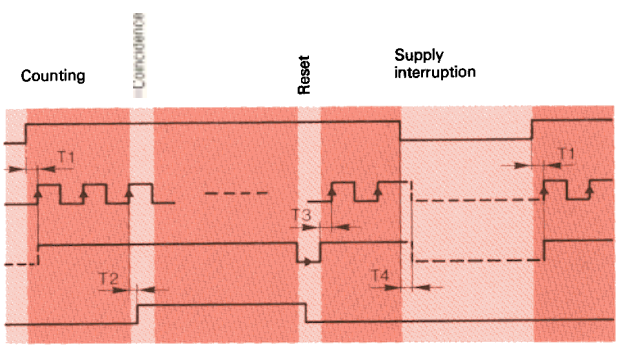
The preset values
- initial value ST
- intermediate value P1 or preliminary signal P
- final value P2
- divisor d
- pulse length t
- individual locking of preset values
- decimal point

The operating data
- the counting value
- the contents of the intermediate storage (divisor)
- the state of the outputs

During the supply interruption, outputs which are in the operational state assume the rest state, displays are extinguished and impulses are not taken into account.

Guaranteed data storage duration:
min. 12 months at +50 °C

Delay times



T1	Delay between switching on main supply and the ready-to-operate state of the counter	approx. 150 ms
T2	Delay between counting input and the operational state of coincidence output P1 or P2	50 i/s, relays: max. 16 ms 1000 i/s, transistors: max. 1.4 ms
T3	Delay between reset input (positive signal edge) and acquisition of the counting impulses or start of the timing process	max. 10 ms
T4	Delay between switching off the main supply and the cancellation of the counter ready-to-operate state (counting or reset impulses are taken into account)	approx. 50 ms

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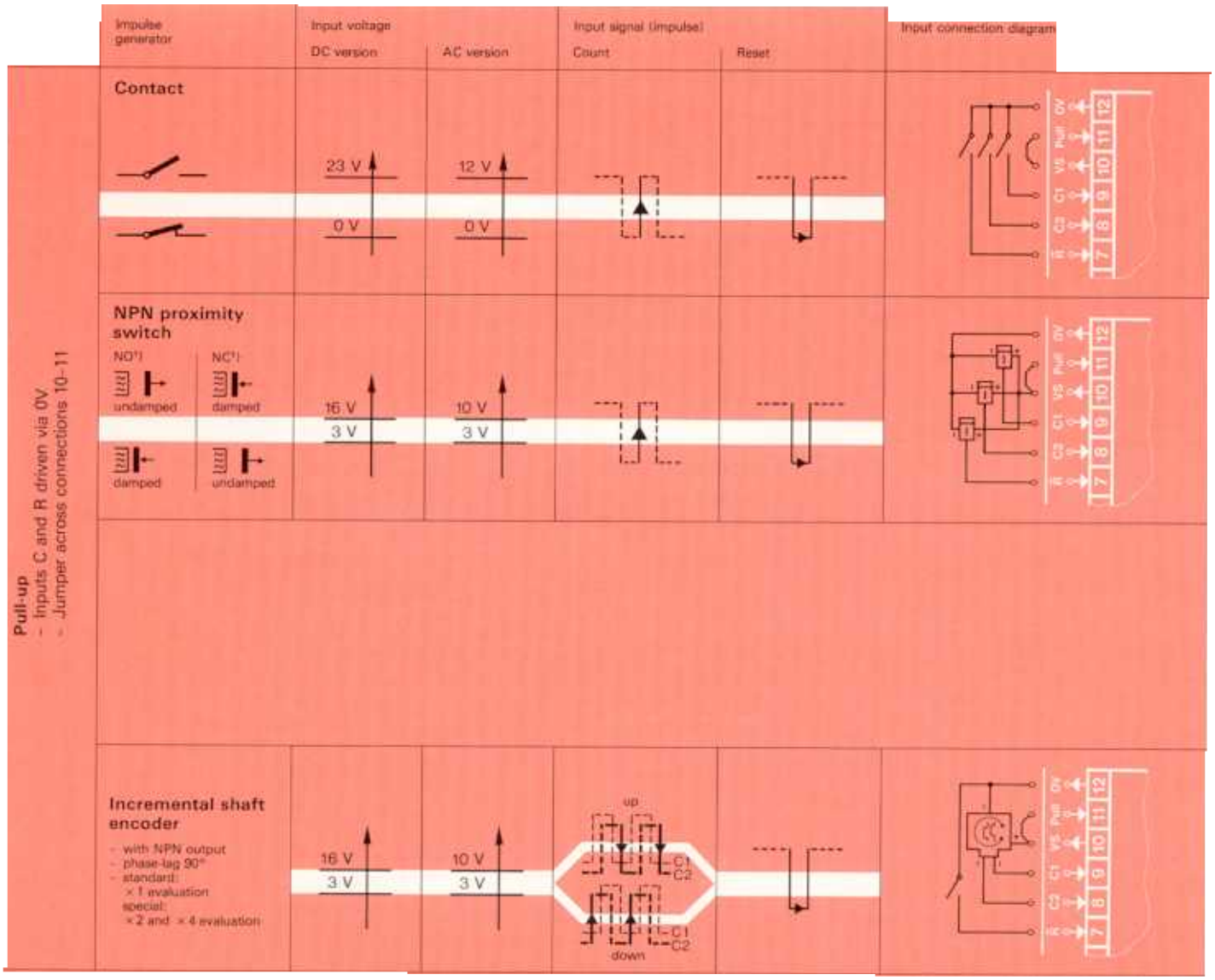
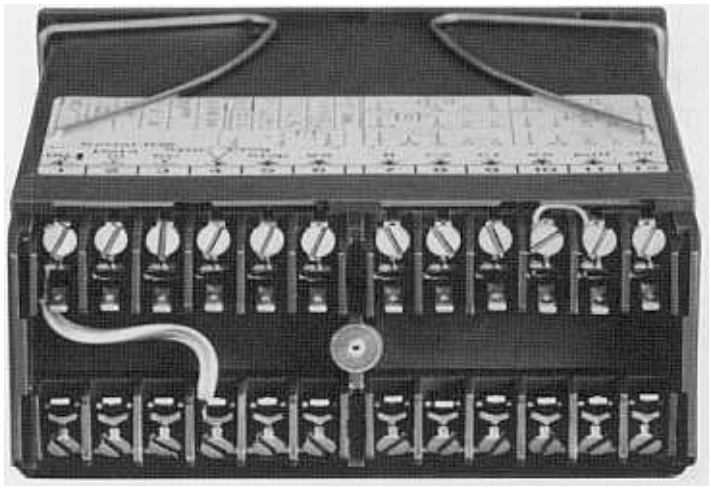
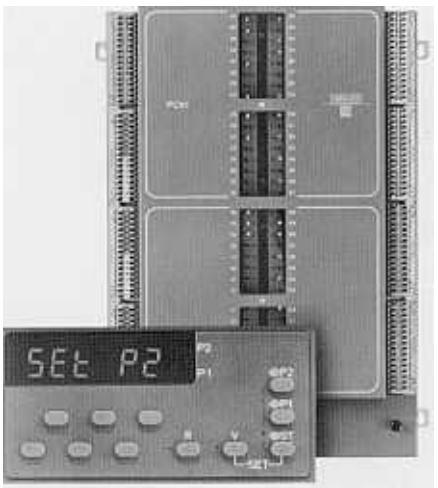


¹) NO = normally-open/NC = normally-close



Input mode	Impulse generator	Input voltage DC version	Input voltage AC version	Input signal (impulse) Count	Input signal (impulse) Reset	Input connection diagram[1]
Pull-down[1] - Inputs C and R driven via Vs - Jumper across connections 11-12	**Contact**	23 V 0 V	12 V 0 V			
	PNP proximity switch NO[4] damped / undamped NC[4] undamped / damped	16 V 3 V	10 V 3 V			
	NAMUR proximity switch undamped damped	15 V 4 V	9 V 4 V			
	Incremental shaft encoder - with PNP output - phase-lag 90° - standard: ×1 evaluation special: ×2 and ×4 evaluation	16 V 3 V	10 V 3 V	up: C1, C2 down: C1, C2		
	Voltage pulses[3] ie. when using an external sensor supply	30 V 16 V 3 V −30 V	50 V 10 V 3 V −50 V		[2]	

[1] Important: With input mode pull-down, input R must either be driven or connected to Vs in order to bring the reset to its rest state.
[2] In order that a voltage supply interruption does not cause a reset, the voltage must be maintained at input R for 80 ms.
[3] The impulse converter supplied as an accessory (order No. CJ-820) is to be used to carry out trouble-free electrical resetting with a voltage pulse.
[4] NO = normally-open/NC = normally-closed.



Data transfer

Three inputs and one output on the CKN counter facilitate a serial data transfer. By means of these the following data can be inputted and outputted:

- Read and write of counting and preset values, including divisor d and pulse length t.
- Locking and unlocking of preset values.
- The input or alteration of the decimal point.
- Display of texts.

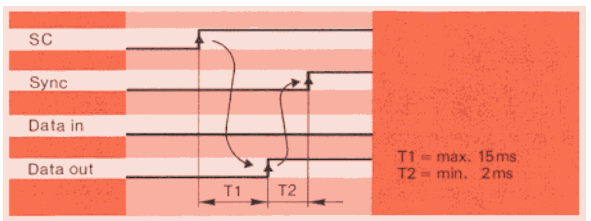
This permits the decentralised execution of particular counting and control functions in linked operation, eg. with a programmable controller (PC). These are just a few ot the many possibilities:

- Operating with several preset levels (after a preset value is reached, the next value is inputted by the PC).
- Absolutely accurate positioning with incremental shaft encoders (after reaching final value P2, the effective counting value COUNT is inputted as new initial value ST).
- Display of messages for the user (the user being required to acknowledge by pressing push-button «V»).
- Establishing a dialogue PC→CKN→user→CKN→PC (eg. the PC inquires the input of one or more preset values; user inputs these values into the PC via CKN; during the process, the writing of the values into CKN by PC, the CKN push-buttons being simultaneously locked).

Data transfer takes place in telegram form, the telegram having four constituent parts; the call, the instruction, the data and the end. By means of this telegram the PC as «master» informs the counter, which acts as a «slave», what is to be transferred, when and how.

CALL

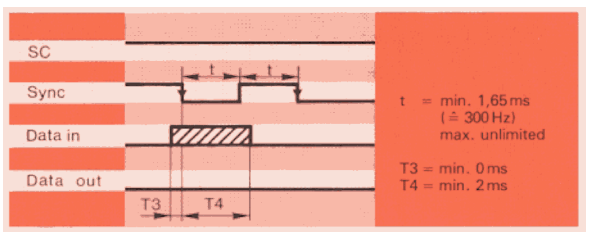
Following CALL the CKN is in its «Data transfer» function. All other functions are blocked and all decimal points on the display are illuminated.



INSTR

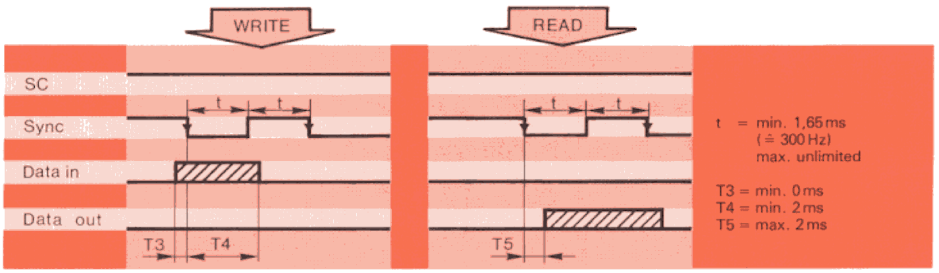
In the 5 bit instruction code via the «Data in» input, the CKN is informed:

- what it has to perform: accept data (WRITE), output data (READ) or display texts (TEXT) and
- where this is to be performed: counting value (COUNT), initial value (ST) etc.



DATA

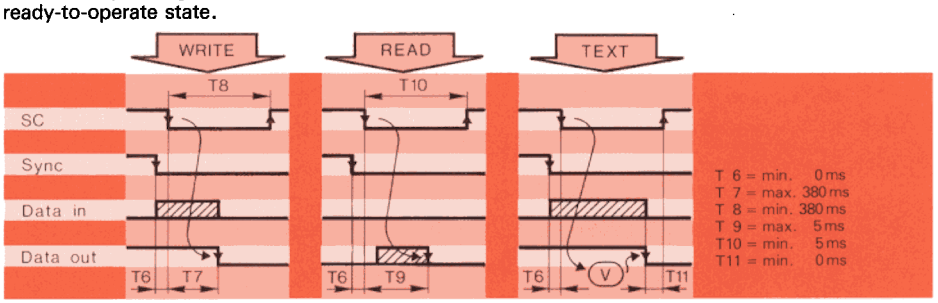
Now the data are transferred: locking/unlocking procedure (1 bit), numerical values in BCD code (4 bits per digit), texts by the On/Off of each individual LED segment (8 bits per LED element). The transmission rate (0...300 Hz) being defined by the PC via the «Sync» input.



If data input (WRITE) is interrupted, ie. input SC = Low, the CKN accepts the last completely transferred information (1 bit for locking, 4 bits for numerical values, 8 bits for texts). Unaltered information items remain unaltered.

END

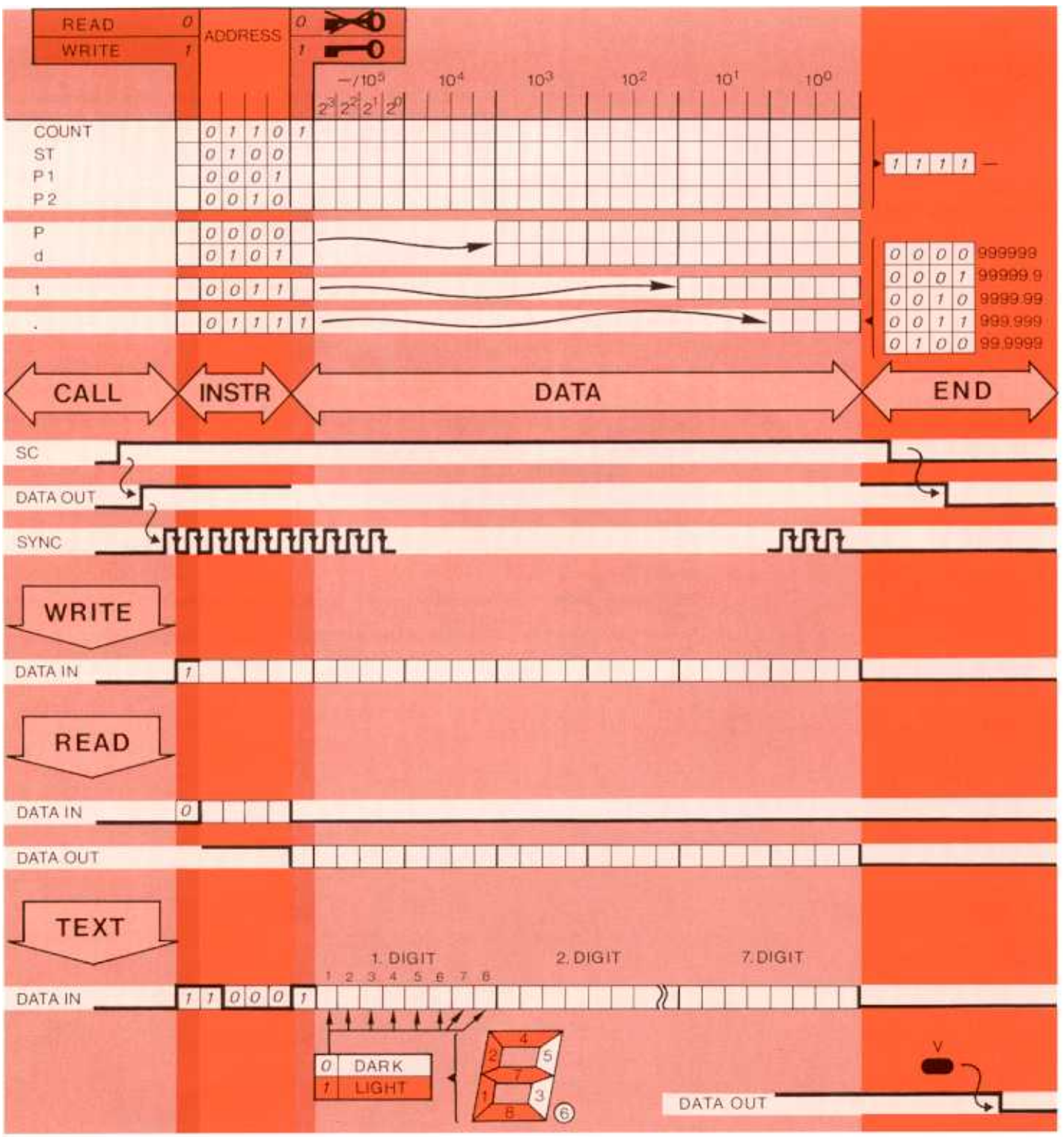
This terminates the telegram: the counting value appears in the display, the outputs revert to the state corresponding to the counting value compared to values P1 or P2, the CKN is once more in its ready-to-operate state.

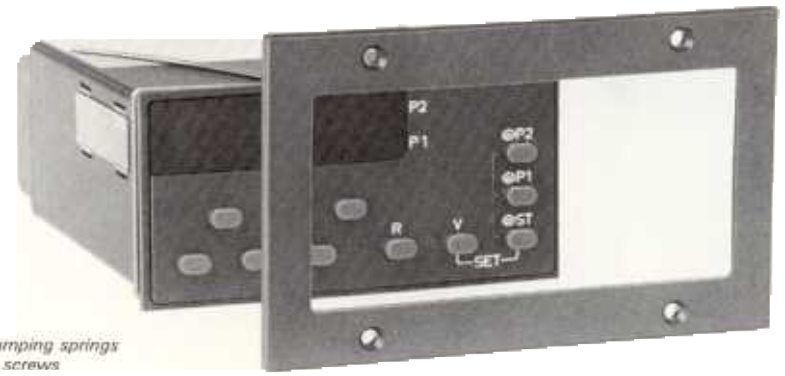


Additional telegrams

Where telegrams are to be transmitted one by one, the interruption of SC and delay times T8, T10 or T11 are to be taken into account before the next telegram is commenced with the new call.

CKN

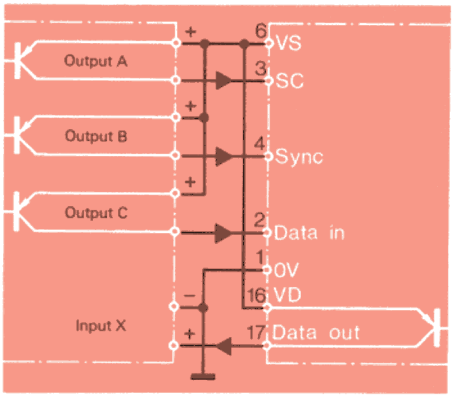

READ 0
WRITE 1
ADDRESS
0
1
−/10^5
10^4
10^3
10^2
10^1
10^0
2^3 2^2 2^1 2^0
COUNT
ST
P1
P2
P
d
t
.
0 0 0 0 999999
0 0 0 1 99999.9
0 0 1 0 9999.99
0 0 1 1 999.999
0 1 0 0 99.9999
CALL
INSTR
DATA
END
SC
DATA OUT
SYNC
WRITE
DATA IN
READ
DATA IN
DATA OUT
TEXT
1. DIGIT
2. DIGIT
7. DIGIT
1 2 3 4 5 6 7 8
DATA IN
0 DARK
1 LIGHT
DATA OUT
V



Fixing with two clamping springs or front frame and screws

Basic connection diagrams

Supply from Vs

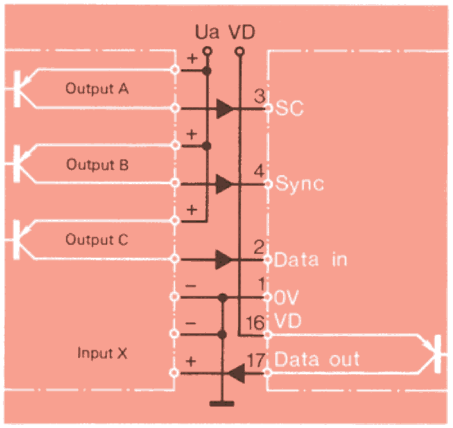


PC (master) *CKN (slave)*

Internal supply Vs:

Voltage *DC: 23 VDC (-15%/+20%)*
AC: 12 VDC (-10%/+ 5%)
Current *max. 80 mA*

External supply



PC (master) *CKN (slave)*

Output voltage Ua:
corresponding to CKN input voltage

Input voltage VD: 10...30 VDC
corresponding to PC input voltage

Electrical data

Inputs

Function of the inputs

- SC (Serial communication): places the counter in the «Data transfer» function and together with the «Data out» output defines the beginning and the end of a telegram.
- Sync (Synchronisation): defines the transmission rate
- Data in: instruction (INSTR) and data input (WRITE)

Input voltage	**Status**	**DC-version**	**AC-version**
	High = 1	16...30 VDC	
	Low = Ø	-30...3 VDC	
Input resistance	**2.2 kΩ (DC) resp. 4.7 kΩ (AC)**		
Input mode	**Pull-down (or source operation, respectively positive logic)**		
Transmission rate	0...300 Hz		

Output

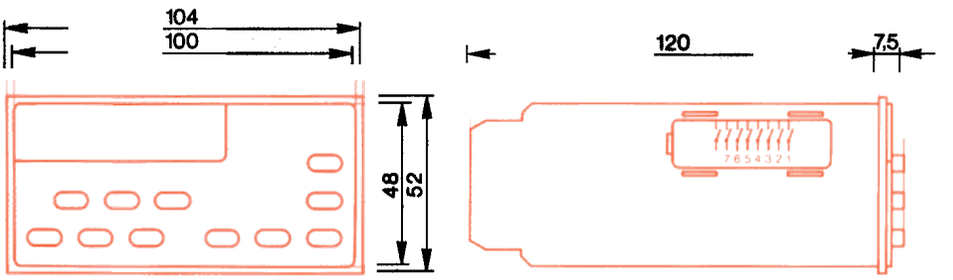
Function of the output	Data out: data output (READ) also acknowledge with call (ready-to-receive state) and termination (telegram end or confirmation of a text by push-button «V»)
Input voltage VD	**10...30 VDC**

Note:

The following SAIA®PC programmable controller output or input modules are compatible with the CKN:
Series PCA1: PCA1.A10, ...A30; PCA1.E10, ...E11; PCA1.B10, ...B90
Series PCA2: PCA2.A10, ...A40; PCA2.E10, ...E11

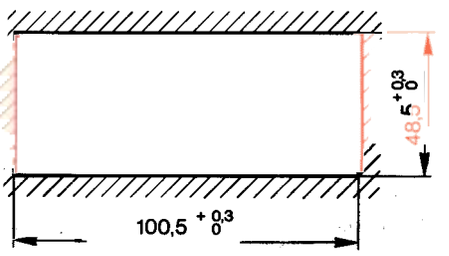
Dimension drawings

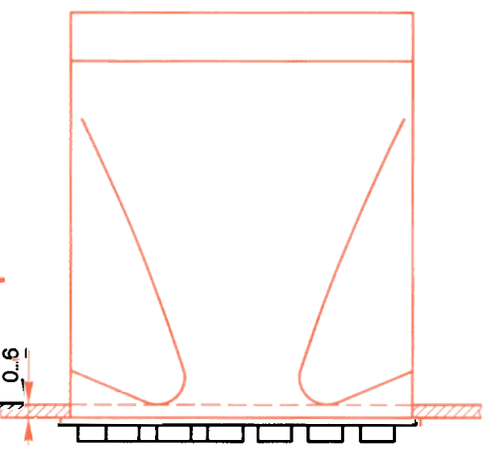
Dimensions



Cut-out for flush-mounting

Applicable to both methods of fixing





Fixing with clamping springs

Two clamping springs are supplied with the counter when mounting type «E» is quoted in the ordering details.

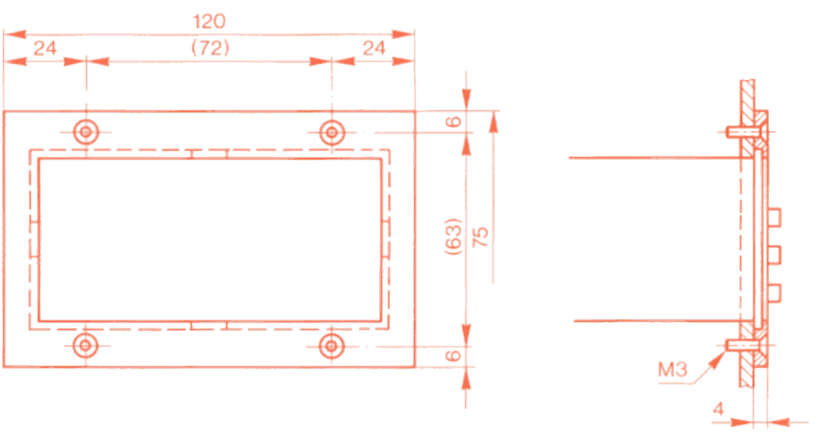
Additional clamping springs:
Order No. CJ506

Fixing with front frame

With four M3/90° countersunk screws.

The front frame is supplied with the counter when mounting type «B» is quoted in the ordering details.

Additional front frame:
Order No. CJ402



Industrial Components
and Controllers

Sodeco-Saia AG
CH-3280 Murten Switzerland
Phone 037/72 11 61, Telex 942 127
Telefax 037/71 44 43

Ordering details

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
C	K	N		2	2			N	0	D	0	

3 outputs relay
8 outputs transistors (only 24 VDC)

Supply voltage

M4	24 VDC
B4	24 VAC, 50/60 Hz
C1	48 VAC, 50/60 Hz
C8	110 VAC, 50/60 Hz
E1	**220...240 VAC, 50/60 Hz**

Type of mounting

B fixing with front frame 120 × 75 mm
E fixing with two clamping springs

Notes:
- The bold typeface denotes the standard versions.
- Special version on request: × 2 and × 4 evaluation of the input signals with phase lag.

Ordering can be by means of the above ASN-code or in plain language.

Example: Electronic Universal Preselection Counter CKN with transistor outputs, 24 VDC, mounting type B
or
CKN 822 M4 N0D0 B

A counter tailor-made for every counting application from the wide range of electromechanical and electronic SODECO® series .N. and .K. impulse counters.