Chapter 20

ICMK-CS31 remote unit

ICMK-CS31 remote unit

This chapter wants to describe the general characteristics and operating conditions of ICMK-CS31 remote unit on CS31 system bus.

1.1 Presentation

The ICMK-CS31 with its appropriated extensions is used to replace the 30 series CS31 remote units and it is able to replace them with same behaviour and above all without user program modification, only new wiring will be necessary.

Warning: The ICMK-CS31 will not be able to replace all case of application, depending on configuration and central unit types used. It is very important before all modification on the application or un-cabling of the remote units, to check and record all configuration, electrical connections and dip-switches on ECZ plug in base and also dip-switches on the rear of analog remote units and to check in this documentation all restriction by type of remote unit.

1.1.1 General set-up rules

The ICMK-CS31 is product based on ICMK14F1 remote unit from AC31 series.

The ICMK-CS31 remote unit incorporate specific binary inputs used for configuration in order to adapt it to 30 series CS31 remote units must be replaced.

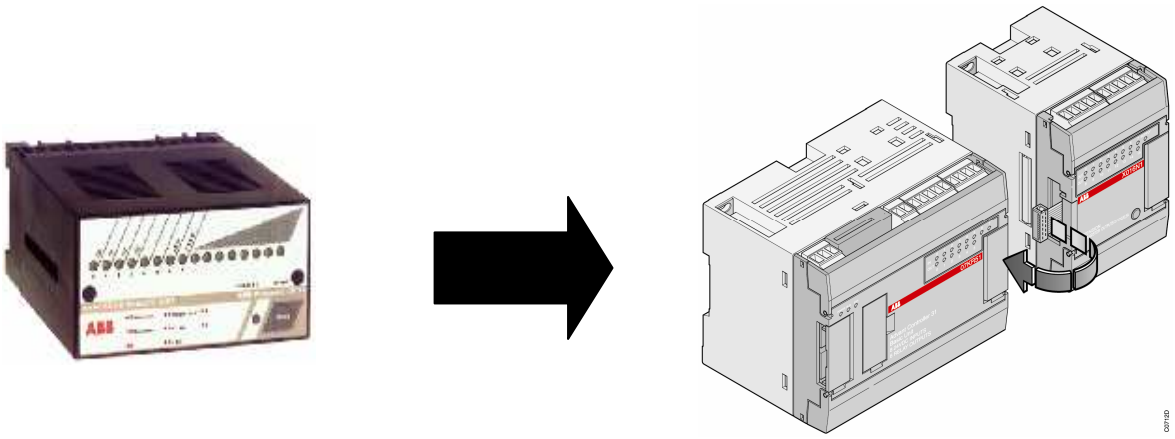
There are no outputs available on ICMK-CS31.

The ICMK-CS31 remote unit is connected on CS31 system bus and used a CS31 protocol.

The ICMK-CS31 remote unit will have the same CS31 address that the 30 series CS31 remote unit must be replaced on CS31 bus.

The extensions used with the ICMK-CS31 remote unit are the same that with AC31 series.

Warning: Take care with dimension of new configuration ICMK-CS31 remote unit + extensions, because it takes up more space than 30 series CS31 remote unit must be replaced. (see part Dimension)



1.1.2 Cabling of CS31 bus

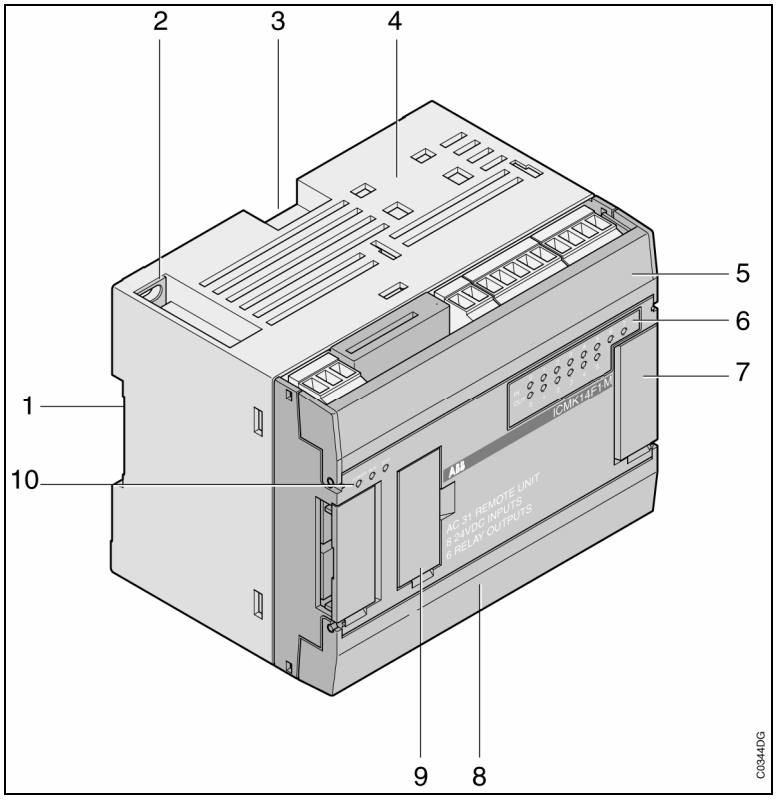
The CS 31 bus is a RS 485 serial interface and consists of a shielded twisted pair.

The ICMK-CS31 remote unit may be connected at any point of the bus:

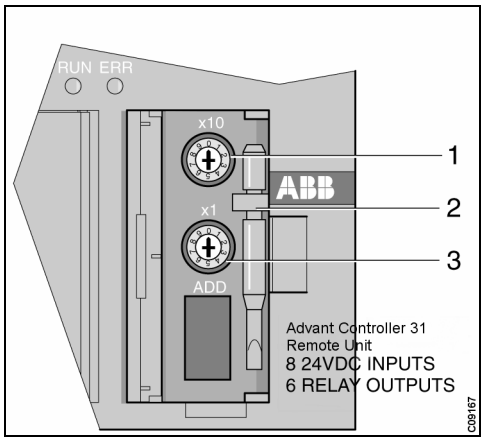
- Bus 1 on bus 1
- Bus 2 on bus 2
- Shielding (preferably braided) on terminal 3 of terminal block

The bus should be terminated with a 120 Ω 1/4 W resistance connected to the bus extremities.

ICMK-CS31 remote unit



The front of the unit



Enlargement of item 9 without cover

1.1.3 The front (see Figure)

1 - Location for the DIN rail
2 - Plate fixture with unit earthing
3 - Lock for DIN rail mounting
4 - Location for external dual connector
5 - Location for the cabling connectors:
    - of 24 V d.c. output power for the inputs
      (available only for the remote units with 120 / 230 V a.c. power)
    - of the inputs used for configuration of ICMK-CS31
6 - Visualization set for the status of the 8 inputs / 6 outputs
7 - Location of the connector for the connection of input/output extensions
8 - Location of the cabling connectors:
    - for the power supply
9 - Location of the addressing rotate selectors (see enlargement)
10 - Unit status visualization area:
    - POWER: power on
    - RUN: Blinking indicates the valid message received
    - ERR: On indicates error(s) present and blinking indicates configuration action

Enlargement of item 9 without cover (see Figure)

1 - Rotate switch for addressing, reserved for decade selection
2 - Screwdriver for settings adjustments
3 - Rotate switch for addressing, reserved for unit selection

1.2 General operating conditions

The ICMK-CS31 remote unit is developed according to the European EC directives, the main national and international IEC 1131-1 and IEC 1131-2 standards and the EN61131-2 product standard concerning automation devices.

Ambient conditions		
- Temperature:		
operation:	horizontal	0℃ to + 55℃
	vertical	0℃ to + 40℃
storage		- 40℃ to + 75℃
transport		- 25℃ to + 75℃
- Humidity:		DIN 40040 class F without condensation
annual average		≤ 75%
up to 30 days per year		95%
occasionally		85%
- Atmospheric pressure:		DIN 40050
operation		≥ 800 hPA (≤ 2000 m)
storage		≥ 600 hPA (≤ 3500 m)
Mechanical data		
- Protection index		IP20
- Unit		UL V2
- Vibration stress		CEI68-2-6 test Fc
- Shock stress		CEI68-2-27 test Ea
Tolerances for mains voltages		
- 24 V d.c.		19.2 to 30 V (- 20%, + 25%)
- 120 V a.c. (50 / 60 Hz)		97.75 to 126.5 V (- 18,5%, + 5,5%)
- 230 V a.c. (50 / 60 Hz)		195.5 to 253 V (- 15%, + 10%)

Creepage distances and clearances	IEC 664 and DIN VDE0160
Insulation test	IEC 1131-2
Electromagnetic compatibility	
Immunity tests against:	
- Electrostatic discharge	IEC 1000-4-2 (level 3)
- Radiated fields	IEC 1000-4-3 (level 3)
- Fast transient bursts	IEC 1000-4-4 (level 3)
- High energy pulse	IEC 1000-4-5
- Conducted high frequencies	IEC 1000-4-6 (level 3)
Voltage drops and short power cutoffs	
- D.C. power supply	Duration of the power cutoffs: ≤ 10 ms Time between 2 voltage drops: ≥ 1 s
- A.C. power supply	Duration of the power cutoffs: ≤ 20 ms Time between 2 voltage drops: ≥ 1 s
Clearance	IEC 664-664A DIN VDE 0160
Dielectric test	IEC 1131-2
Mountings	
- DIN rail	35 mm
- Screw fittings	4 mm diameter screw (M4)
Connections	
- Connectors	Removable terminal blocks (2.5 mm²)
- Wires section for:	
Earth	Rigid or multi-conductor wire AWG 14 (1.95 mm²)
Inputs	Rigid or multi-conductor wire AWG 18 (0.96 mm²) to AWG 14 (1.95 mm²)
Outputs	Rigid or multi-conductor wire AWG 14 (1.95 mm²)
Power supply	Rigid or multi-conductor wire AWG 14 (1.95 mm²)
Bus	Twisted pair AWG 24 (0.22 mm²) to AWG 18 (0.8 mm²)
- Screws tightening torque	0.5 Nm (given as an indication only)
Serial interface	
- For CS31 System bus	RS 485

1.3 Technical specifications

Products	Description	References
ICMK-CS31-24VDC	With 8 isolated inputs 24 V d.c used for configuration of ICMK-CS31 24 V d.c. power supply.	1SBP260056R1001
ICMK-CS31-120/230VAC	With 8 isolated inputs 24 V d.c used for configuration of ICMK-CS31 120 / 230 V a.c. power supply.	1SBP260057R1001

	ICMK-CS31 **24 V d.c.**	**ICMK-CS31** **120 / 230 V a.c.**
Width x Height x Depth (in mm)	120 x 93 x 84	120 x 93 x 84
Weight	400 g	800 g
Power supply		
- Mains voltage:		
Nominal value	24 V d.c.	120 / 230 V a.c.
Admissible range	19.2 to 30 V	97.75 to126.5 V 195.5 to 253 V
- Consumption:		
Unit alone (typical)	80 mA	30 mA
Maximum configuration (typical)	400 mA	100 mA
- Polarity reversal protection	yes	-
- 24 V d.c. isolated power for inputs:	no	yes
Range of voltage value	-	19.2 to 30 V
Max. Output current	-	400 mA
Short circuit protection	-	yes
- Dissipation	5 W	10 W
Incorporated binary inputs		
- Number of inputs for configuration	8	8
- Isolation of the inputs / electronic	1500 V a.c.	1500 V a.c.
- Input types	PNP and NPN	PNP and NPN
- Input voltage:		
Nominal value	24 V d.c.	24 V d.c.
Signal at 0 (IEC 1131-2)	0 to + 5 V	0 to + 5 V
Signal at 1 (IEC 1131-2)	+ 15 to + 30 V	+ 15 to + 30 V
- Input current at 24 V d.c.:		
Inputs Ixx.02 to Ixx.07	7 mA	7 mA
Inputs Ixx.00 and Ixx.01	9 mA	9 mA
- Minimum filtering time	5 ms	5 ms
- Cable length:		
unshielded	300 m	300 m
shielded	500 m	500 m

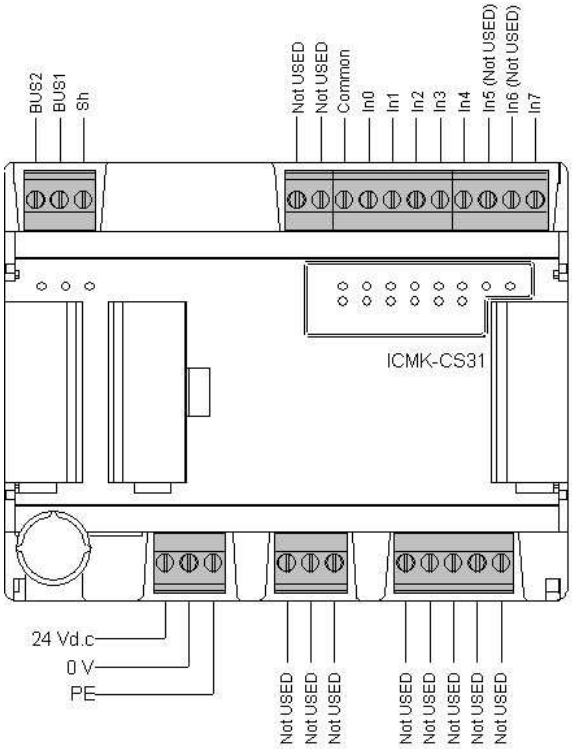
1.4 Configuration operation with ICMK-CS31 module

1.4.1 Configuration inputs setup on ICMK-CS31 remote unit

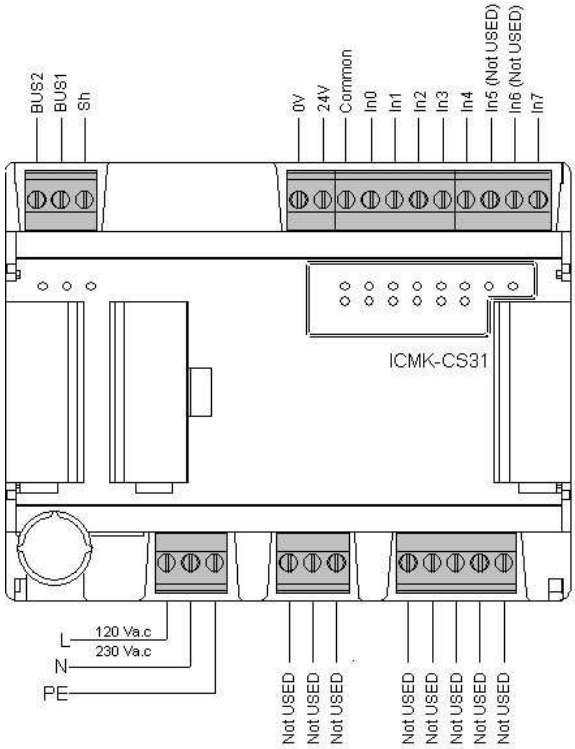
The inputs of ICMK-CS31 remote unit are used to define the different formats according to the extension type, in order to replace the 30 series CS31 remote units.

- **IN0** - Input 0: With binary module, used to limit the number of inputs. 0 up to 7
  With analog module, used to select the mode corresponding to CPU
  With temperature module, used to limit the value for ICST08A7
- **IN1** - Input 1: Used only to select the ICST08A7 and ICST08A8 remote units
- **IN2** - Input 2: Used only to select the ICST08A9 remote unit
- **IN3** - Input 3: With temperature module, used to select the mode
- **IN4** - Input 4: With analog module, used to limit the value at the positive value
  With temperature module, used to select 3 wires for sensor
- **IN5** - Input 5: Not used (reserved)
- **IN6** - Input 6: Not used (reserved)
- **IN7** - Input 7: Used to valid the highest zone of channels (xx.08 up to xx.15)

1.4.2 Electrical connection of ICMK-CS31 remote unit



ICMK-CS31-24VDC – 1SBP260056R1001



ICMK-CS31-120/230VAC – 1SBP260057R1001

1.5 Procedure of replacement of 30 series CS31 remote units

Warning: It is very important before all modification on the application or un-cabling of the remote units, to check and record all configuration, electrical connections and dip-switches on ECZ plug in base and also dip-switches on the rear of analog remote units.

1.5.1 Verification of hardware configuration on the existing ECZ plug in base: (for all remote units)

Before first of all, the most important will be to check and record the position of dip-switches of ECZ plug in base, all remote unit series 30 are mounted on ECZ plug in base.

Dip switches are used for different function:

