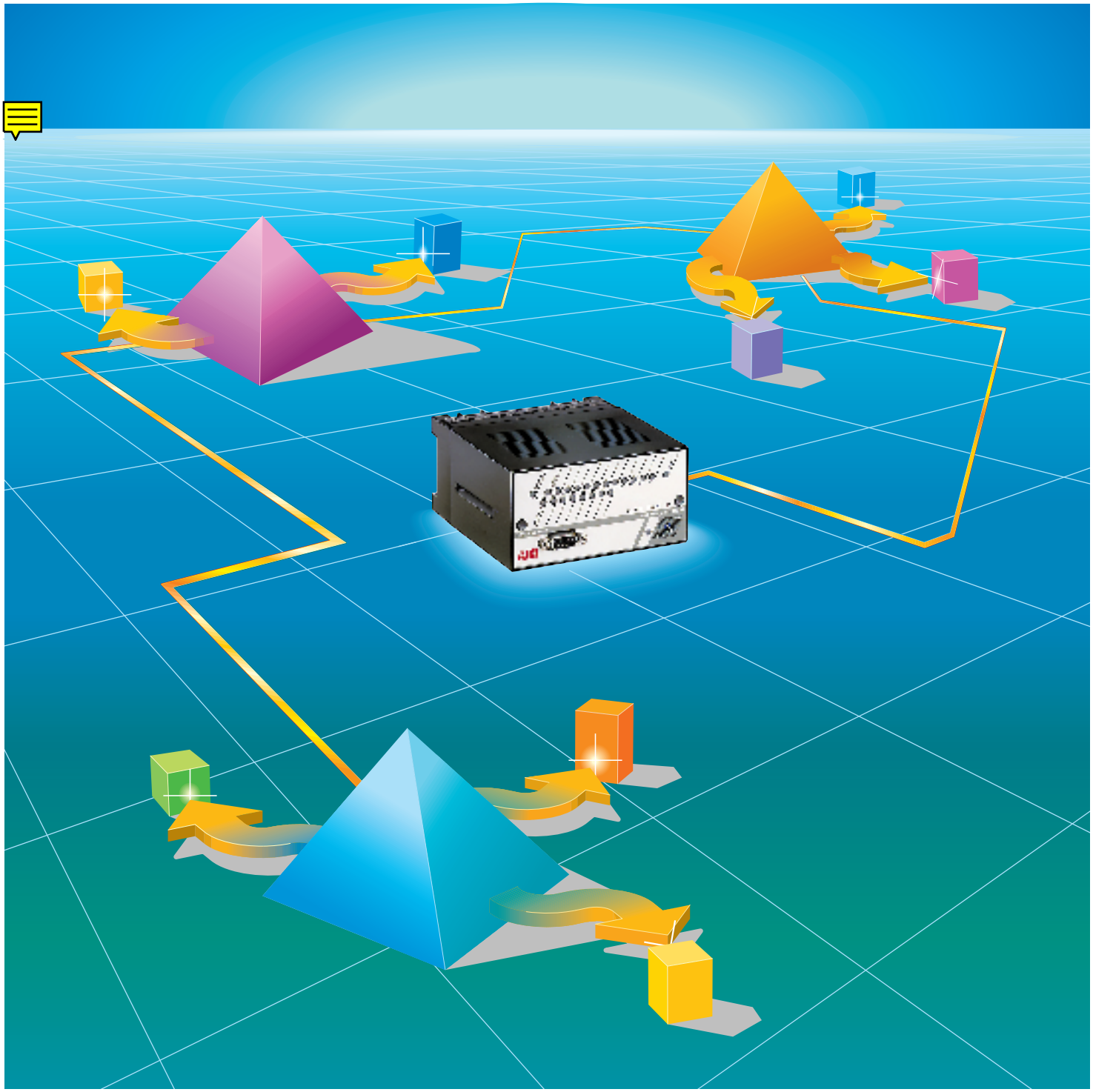
ABB Procontic CS 31

Intelligent decentralized automation system

FPTN 440 004 R2001 - d



2.7 ABB Procontic CS 31 equipment

Central processing units - CPU

Type	Description	Order code
07 KR 31	CPU - 2 K word user memory (EEPROM), twelve 24 VDC inputs Eight 2A relay outputs Programmable RS 232 port RS 485 system bus real time clock high speed counter 10 kHz high order functions PI data handling, etc... Master/Slave MODBUS built-in	
	24 VDC power supply	**FPR 360 0227 R1202**
	120 VAC power supply	**FPR 360 0227 R0204**
	230 VAC power supply	**FPR 360 0227 R0206**
07 KT 31	CPU - 2 K word user program (EEPROM), twelve 24 VDC inputs Eight 24 VDC/0.5A transistor outputs Programmable RS 232 port RS 485 system bus real time clock high speed counter 10 kHz high order functions PI data handling, etc... Master/Slave MODBUS built-in	
	24 VDC power supply	**FPR 360 0228 R1202**
	120 VAC power supply	**FPR 360 0228 R0204**
	230 VAC power supply	**FPR 360 0228 R0206**
07 KR 91	CPU - 7 K FLASH EPROM, twenty 24 VDC inputs Twelve 2A relay outputs Programmable RS 232 port RS 485 system bus real time clock high speed counter 10 kHz high order functions PID data handling, etc...	
	24 VDC power supply	**GJR 525 0000 R0252**
	120 or 230 VAC power supply	**GJR 525 0000 R0202**
07 KT 92	CPU - 14 K FLASH EPROM, twelve 24 VDC inputs Eight 24 VDC/ 0.5A transistor outputs 4 analogue inputs 12 bits resolution 2 analogue output 12 bits resolution 2 programmable RS 232 port RS 485 system bus real time clock high speed counter 50 kHz high order functions PID data handling, etc...	
	24 VDC power supply	**GJR 525 0500 R0202**
07 KT 92	CPU - 14 K FLASH EPROM, twelve 24 VDC inputs Eight 24 VDC/ 0.5A transistor outputs 4 analogue inputs 12 bits resolution 2 analogue output 12 bits resolution 2 programmable RS 232 port RS 485 system bus real time clock high speed counter 50 kHz high order functions PID data handling, etc... ARCNET built-in	
	24 VDC power supply	**GJR 525 0500 R0262**

Central processing units - CPU (cont.)

Type	Description	Order code
07 KT 93	CPU - 14 K flash EPROM, twenty four 24 VDC inputs Sixteen 24 VDC/ 0.5A transistor outputs 2 programmable RS 232 port RS 485 system bus real time clock high speed counter 10 kHz high order functions PID data handling, etc... 24 VDC power supply	**GJR 525 1300 R0101**
07 KT 93	CPU - 14 K flash EPROM, twenty four 24 VDC inputs Sixteen 24 VDC/ 0.5A transistor outputs 2 programmable RS 232 port RS 485 system bus real time clock high speed counter 10 kHz high order functions PID data handling, etc... ARCNET built-in 24 VDC power supply	**GJR 525 1300 R0171**

Plug-in base

Type	Description	Order code
ECZ	Plug-in base for I/O units 07 KR 31/07 KT 31 DIN rail or screw fixing	**FPR 370 0001 R0001**

Analogue input units

Type	Description	Order code
ICSE 08 A6	Eight analogue inputs 0 ...+ 10V, 0 ...20mA, 4 ...20mA 8 bits resolution	
	24 VDC power supply	**FPR 334 5601 R1012**
	120 VAC power supply	**FPR 334 5601 R0014**
	230 VAC power supply	**FPR 334 5601 R0016**
ICST 08 A8	Eight analogue inputs PT100 8 bits resolution range of temperature : -50 °C ... +150 °C (-58 °F ... +302 °F)	
	24 VDC power supply	**FPR 333 5801 R1012**
	120 VAC power supply	**FPR 333 5801 R0014**
	230 VAC power supply	**FPR 333 5801 R0016**
ICST 08 A9	Eight analogue inputs PT100 8 bits resolution range of temperature : 0 °C ... +300 °C (-32 °F ... +572 °F)	
	24 VDC power supply	**FPR 333 5901 R1012**
	120 VAC power supply	**FPR 333 5901 R0014**
	230 VAC power supply	**FPR 333 5901 R0016**
ICSE 08 B5	Eight analogue inputs -10V ...+10V, -20 ...+20mA, 4 ...20mA 12 bits resolution	
	24 VDC power supply	**FPR 334 6501 R1012**
	120 VAC power supply	**FPR 334 6501 R0014**
	230 VAC power supply	**FPR 334 6501 R0016**
ICDT 08 B5	Eight analogue inputs -10V ...+10 V, -5 ...+5 V, -500... + 500 mV, -50 ...+50 mV 0...20 mA, 4 ...20 mA 12 bits resolution configurable for temperature sensors or as voltage inputs	
	24 VDC power supply	**GJR 525 1666 R1001**

Analogue output unit

ICSA 04 B5	Four analogue outputs -10V ...+10V, 0 ...+20mA, 4 ...20mA 12 bits resolution	
	24 VDC power supply	**FPR 334 1501 R1042**
	120 VAC power supply	**FPR 334 1501 R0044**
	230 VAC power supply	**FPR 334 1501 R0046**

Analogue input/output units

ICSM 06 A6	Input/output unit, four inputs for 0 ...+ 10V, 0...20mA, 4...20mA signals 8 bits resolution, non-isolated two outputs for -10V ...+10V, 0...20mA, 4 ...20mA signals 8 bits resolution, non-isolated	
	24 VDC power supply	**FPR 335 0601 R1062**
	120 VAC power supply	**FPR 335 0601 R0064**
	230 VAC power supply	**FPR 335 0601 R0066**

5.3.1 ICSA 04 B5 Analog Output remote unit

4 outputs, 12 bits

The analog output remote unit can be used for ± 10 V, ± 12.5 V, 0 … 20 mA or 4 … 20 mA.

The wiring on the plug-in base ECZ is used to select the current or voltage input.

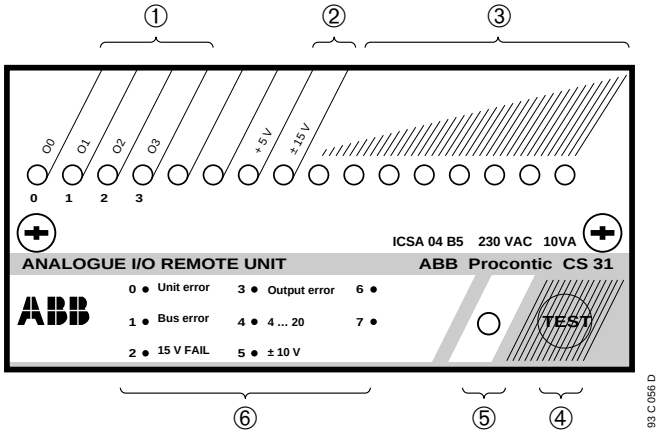
The unit is configured by the dip switches in the rear of the unit. The configuration by the central unit is not necessary.

Description of the unit front :

- Four yellow output status led's «O0» to «O3» ..... ①
- Two inactive led's
- Two green power supply led's «+ 5 V», «± 15 V» ..... ②

- Eight yellow led's to display the signal value of outputs③
- «TEST» push-button ..... ④
- Red error led ..... ⑤
- List of error codes ..... ⑥

The unit has to be mounted on a plug-in base ECZ.



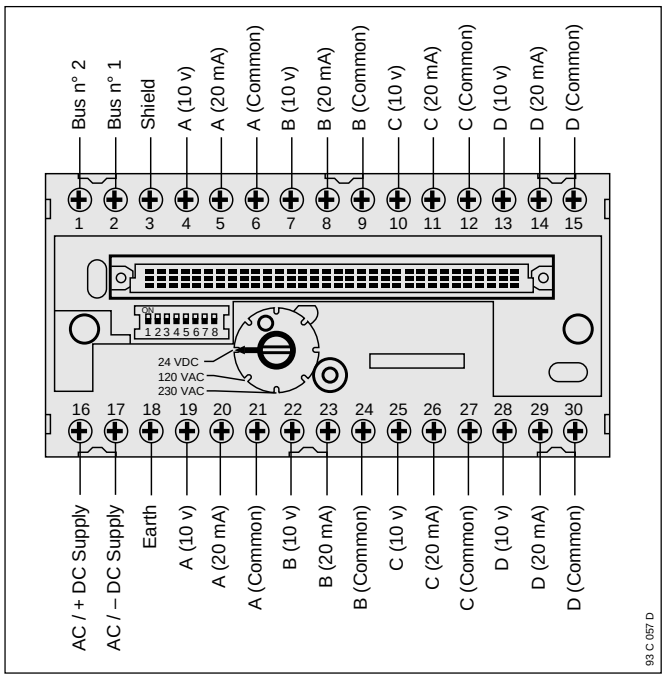
4 analog outputs per unit

TECHNICAL CHARACTERISTICS

Power supply	24 VDC	230 VAC/120 VAC
Number of outputs per unit	4	4
Power supply isolation	no	yes (1500 VAC)
Outputs opto-isolated	no	no
Power supply outputs 10 VDC (± 1 %)	no	no
Maximum power consumption	0.2 A	10 VA
Maximum power dissipation	4.8 W	8 W
Order number : FPR 334 1501	R1042	R0046/R0044
Weight (kg)	0.25	0.43

OUTPUT SPECIFICATIONS				
Nominal range	± 10 V	± 12.5 V	0 … 20 mA	4 … 20 mA
Resolution : 12 bits	± 1 LSB (± 5 mV)	± 1 LSB (± 6 mV)	± 1 LSB (± 10 µA)	± 1 LSB (± 8 µA)
Linearity error	± 1 LSB (± 5 mV)	± 1 LSB (± 6 mV)	± 1 LSB (± 4.8 µA)	± 1 LSB (± 4 µA)
Error of maximum value	± 0.3 %	± 0.5 %	± 0.5 %	± 0.5 %
Temperature coefficient	100 ppm/K	100 ppm/K	100 ppm/K	100 ppm/K
Maximum load current	± 2 mA	± 2 mA	–	–
Resistance of the load circuit	–	–	500	500

• Electrical connection



The commons are internally connected.

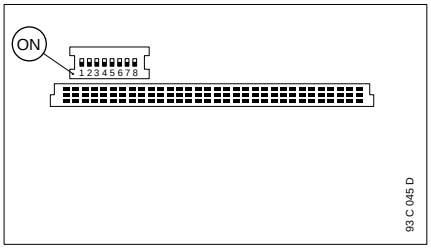
NOTE : Channels 19 to 30 are the same as 4 to 15.

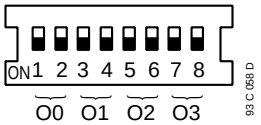
The wires for analogue outputs must be shielded and the shield has to be connected to the earth on the side of the remote unit.

• Initialization

The selection between current or voltage output is dependent upon the dip switches in the rear of the unit. Two switches for one channel :

N° 1 : channel 00
N° 2 : channel 00
N° 3 : channel 01
N° 4 : channel 01
N° 5 : channel 02
N° 6 : channel 02
N° 7 : channel 03
N° 8 : channel 03





The factory default setting is ± 10V.

Possible configuration

dip switch	output current	output voltage
OFF ON 	0 … 16 mA*	± 10 V
OFF ON 	4 … 20 mA	± 10 V
OFF ON 	4 … 25 mA*	± 12.5 V
OFF ON 	0 … 20 mA	± 12.5 V

* For this special format the output conversion tables are not allowed.

The unit initializes itself after power on.
The error led goes out after initialization.
The value of the analog output O0 is displayed on the 8 led's on the right and the led's "+ 5 and ± 15" are illuminated.

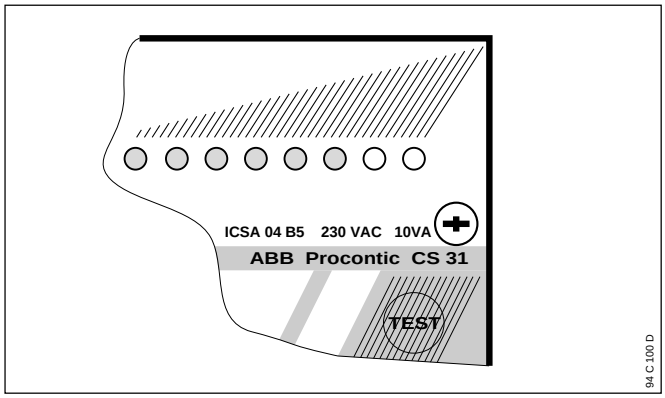
• Utilization

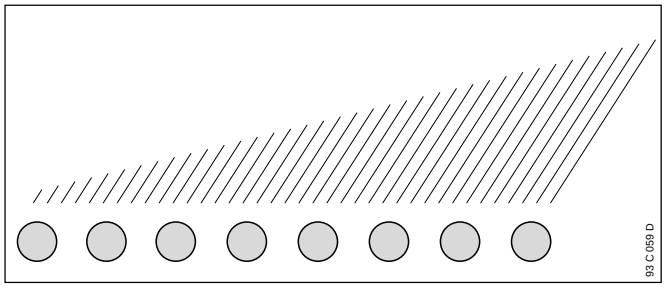
VARIABLES USED IN THE CENTRAL UNIT

CENTRAL UNITS		07 KR 31, 07 KR 91, 07 KT 92, 07 KT 93		UCZA/UCZB		PCZB
Address xx on the plug-in base ECZ		00 … 05		even 00 … 14		1 … 8
Switch N° 8 on the plug-in base		OFF	ON	OFF	ON	OFF
Output	A	AWxx, 00	AWxx, 08	AAxx, 00	AAxx, 08	OAx0
	B	AWxx, 01	AWxx, 09	AAxx, 01	AAxx, 09	OAx1
	C	AWxx, 02	AWxx, 10	AAxx, 02	AAxx, 10	OAx2
	D	AWxx, 03	AWxx, 11	AAxx, 03	AAxx, 11	OAx3

In the case of UCZA/UCZB, the addresses 08 … 14 are only allowed with the SCZ unit.
For the PC board 07 CM 90 and the coupler boards 07 CS 61 or 35 CS 91, refer to their own description.

The value of the output selected by pressing the **"TEST"** button can be displayed on the 8 leds on the right. These 8 led's have the following meaning :





no led ON ○○○○○○○○	4 led's ON ●●●●○○○○	8 led's ON ●●●●●●●●	Configuration
– 10 V	0 V	+ 10 V	± 10 V
– 12.5 V	0 V	+ 12.5 V	± 12.5 V
-	0 mA	20 mA	0 … 20 mA
-	0 mA	16 mA	0 … 16 mA
-	4 mA	20 mA	4 … 20 mA
-	4 mA	25 mA	4 … 25 mA

Each channel can be displayed by pressing the **"TEST"** button.

The channel O0 is always displayed after initialization until otherwise selected.

Fault indication:

Led 0 : **«Unit error»**
Led 1 : **«Bus error»**
Led 2 : **«15 V Fail»**
Led 3 : **«Output error»**

The configuration of each channel is indicated by the led's 4 and 5.

Led 4 : **«4 … 20»**
Current configuration 4 … 20 mA or ± 12.5 V

Led 4 **«OFF»** :
Channel 0 … 20 mA or ± 10 V, depends upon the dip switches in the rear of the unit.

Led 4 **«ON»** :
Channel 4 … 20 mA or ± 12.5 V, depends upon the dip switches in the rear of the unit.

Led 5 **«± 10 V»** :
± 10 V configuration.

Led 5 **«OFF»** :
Current or ± 12.5 V configuration.

Led 5 **«ON»** :
Channel ± 10 V.

If an error occurs, (see chapter 9, volume 2 **«In case of failure»**).

NOTE : The 4 … 20 mA configuration with an handheld programming unit TCZ or CS 31configuration functions (see chapter 2, volume 2 «**Central Unit**») is necessary for detecting error (open circuit detection),