




# Automation System Advant Controller 31

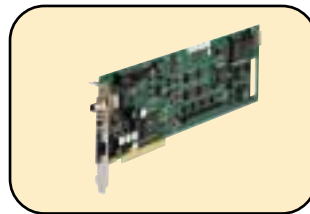
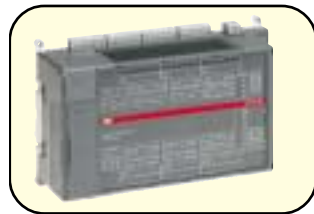
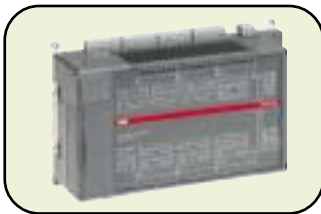
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**ABB**

# CPU's

AC31			
Details	07 CT/CR 41	07 KT/KR 51	07 KT 95
CS31 system bus	No	Yes	Yes
Program memory	32 kByte	32 kByte	480 kByte
Size	Flash EPROM and RAM	Flash EPROM and RAM	Flash EPROM and RAM
Memory			Smart Media Card (Flash, 2 MByte).
Plug-in memory			For data storage and for the reload of controller-program
Power Supply	24V DC/230V AC	24V DC/230V AC	24V DC
Dimensions (W x H x D) in mm	120x93x84	120x93x84	240x140x85
Serial Ports	1	1	2
Number of inputs and outputs	8 DI and 6 DO	8 DI and 6 DO	12 DI and 8 DO
Integrated DI/DO	110 overall	>1000 overall	1012 overall
DI/DO maximum	-	-	4 AI and 2 AO
Integrated AI/AO	48 AI/12 AO	544 AI/136 AO	228 AI/226 AO
AI/AO maximum	Replaceable battery	Replaceable battery	Replaceable battery
Data puffering (selectable)	Yes	Yes	Yes
Real-time clock	907 AC 1131	907 AC 1131	907 AC 1131
Programming system	COM 1	COM 1	COM 1 or COM 2
Programming interface	time and priority driven tasks	time and priority driven tasks	time and priority driven tasks
Program execution	any	any	any
Subroutines	Password	Password	Password
User program protection	2016	2016	8192
Addressable range	2016	2016	8192
Flags (Bit)	64	64	1024
Words (16 Bit)	-	-	256 kB
Double Words (32 Bit)	Unlimited	Unlimited	Unlimited
Globale und local variables	Unlimited	Unlimited	Unlimited
Timers	1 (7kHz) or 2 (7kHz) with sensor-input	1 (7kHz) or 2 (7kHz) with sensor-input	1 to 2 (different operating modes, max. 50 kHz)
Counters	Protocols: MODBUS, Controllers	Protocols: MODBUS, Controllers	Protocols such as MODBUS, RCOM, AF100
High-Speed Counters (digital in- and outputs used as counter inputs)	ASCII-communication	ASCII-communication	PI und PID Controllers
Special functions	Detachable terminal blocks with screw-type terminals or snap-on clamps	Detachable terminal blocks with screw-type terminals or snap-on clamps	Detachable terminal blocks with screw-type terminals
Connections	With and without top-hat rail	With and without top-hat rail	With and without top-hat rail
Mounting			



<b>07 KT 96</b>
Yes
480 kByte Flash EPROM and RAM
Smart Media Card (Flash, 2 MByte) For data storage and and for the reload of controller-program
24V DC
240x140x85
2
24 DI and 16 DO 1032 overall -
224 AI/224 AO
Replaceable battery
Yes
907 AC 1131
COM 1 or COM 2
time and priority driven tasks
any
Password
8192
8192
1024
256 kB
Unlimited
Unlimited
1 to 2 (different operating modes, max. 50 kHz)
Protocols: MODBUS, RCOM, AF100 PI and PID Controller 32 Bit arithmetic
Detachable terminal blocks with screw-type terminals
With and without top-hat rail

<b>07 KT 97</b>
Yes
480 kByte Flash EPROM and RAM
Smart Media Card (Flash, 2 MByte) For data storage and and for the reload of controller-program
24V DC
240x140x85
2
24 DI, 16 DO and 8 DC 1024 overall 8 AI and 4 AO 232 AI/228 AO
Replaceable battery
Yes
907 AC 1131
COM 1 or COM 2 or optional ARCNET
time and priority driven tasks
any
Password
8192
8192
1024
256 kB
Unlimited
Unlimited
1 to 2 (different operating modes, max. 50 kHz)
Protocols: MODBUS RCOM and AF100, Profibus DP and ARCNET, PI and PID Controller 32 Bit arithmetic
Detachable terminal blocks with screw-type terminals
With and without top-hat rail

<b>07 SL 97</b>
Yes
480 kByte Flash EPROM und RAM
Smart Media Card (Flash) For data storage and and for the reload of controller-program
24V DC
Fullsize PCI-Karte
1
- 992 overall -
224 AI/224 AO
Replaceable battery
Yes
907 AC 1131
COM 1 or ARCNET
time and priority driven tasks
any
Password
8192
8192
1024
256 kB
Unlimited
Unlimited
Protocols: ARCNET, integrated MODBUS , Profibus DP or DeviceNet as opt. KP, PI- and PID-Controller, 32 Bit arithmetic, ASCII- communication
in the PCI-Slot (fullsize)

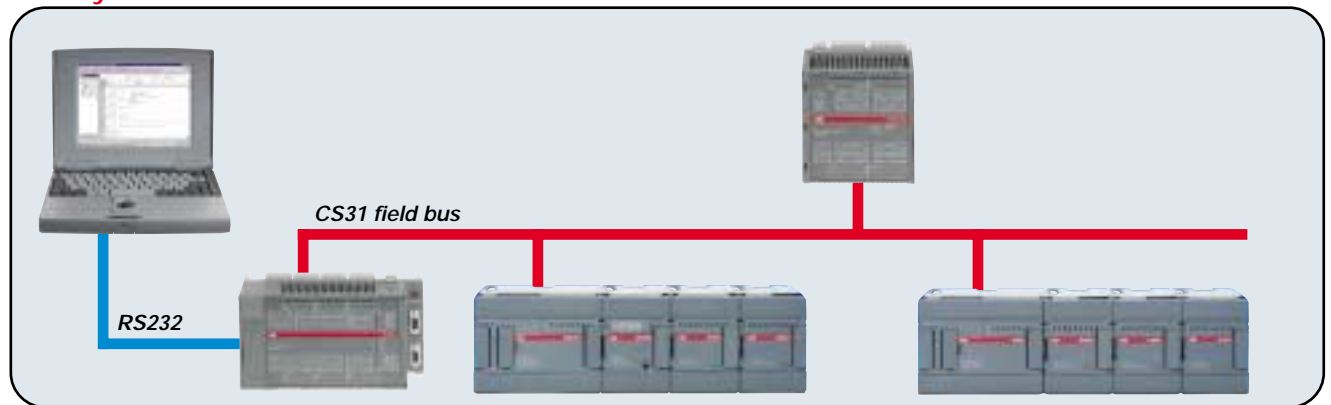
<b>07 KT 98</b>
Yes
1000 kByte Flash EPROM und RAM
Smart Media Card (Flash) For data storage and and for the reload of controller-program
24V DC
240x140x85
2
24 DI, 16 DO und 8 DC 1040 overall 8 AI und 4 AO 232 AI/224 AO
Replaceable battery
Yes
907 AC 1131
COM 1/2 or ARCNET
time and priority driven tasks
any
Password
8192
8192
1024
1 MB
Unlimited
Unlimited
1 to 2 (different operating modes, max. 50 kHz)
Protocols: ARCNET, MODBUS, AF100* PI- and PID-Controller 32 Bit arithmetic, ASCII-communication Floating point arithmetic *in preparation
Detachable terminal blocks with screw-type terminals
With and without top-hat rail

# AC31 – Technical Features

## General system data

Operating conditions	Operating temperature	0 °C to + 55 °C
	Storage temperature	- 25 °C to + 75 °C
	Transport temperature	- 25 °C to + 75 °C
	Relative humidity, no condensation	50...95%
	Atmospheric pressure, operation	≥ 800 hPa    ≥ 2000m
Mechanical data	Enclosure	IP 20
	Housing	to UL 94
	Vibration resistance	to IEC 68-2-6: 1g (Series 40/50), 4g (Series 90)
	Shock resistance	to IEC 68-2-27
Power supply	24 V DC	19.2 ... 30 V DC (- 15 % ... + 20 %)
Air gaps and creepage distances		IEC 664 und DIN VDE 0160
Insulation test		IEC 1131-2
Electromagnetic compatibility	Electrostatic discharge	IEC 1000-4-2 (Level 3)
	<b>Radiated electromagnetic fields</b>	
	Immunity tests	IEC 1000-4-3 (Level 3)
	Transient noise voltages (burst)	IEC 1000-4-4
	Capacitance immunity	IEC 1000-4-5
	Radio-frequency noise power	IEC 1000-4-6

## Bus system



Communication	Serial
Interface specifications	RS 485 (shielded twisted pair)
Transmission speed	187.5 kbaud
Protocol	CS31 (Master Slave)
Transmission integrity check	CRC8
Number of AC31 devices on the bus	31 max.
Maximum length	500 m or 2000 m (with repeaters)
Bus redundancy	with bus repeater
Refresh time	2 ms min. oder 12 ms typical for 31 AC31 I/O devices on the bus

# Programmable Controllers

## Ordering Data



07 CR 41

### Programmable Contollers Series 40

Expansible with 6 I/O devices, up to 110 I/O  
Digital inputs 24 V DC - Digital outputs relay 250 V AC, 2 A / transistor 24 V DC, 0,5 A  
serial port RS232 for programing and communication ASCII, MODBUS

Integrated inputs	Integrated outputs	Program memory online changes		Supply-voltage	Type	Order No.	Weight kg
		with	without				
8 digital	6 relay	16 kb	32 kb	24 V DC	07 CR 41	1SBP 26 0020 R 1001	0,355
8 digital	6 relay	16 kb	32 kb	120/230 V AC	07 CR 41	1SBP 26 0021 R 1001	0,800
8 digital	6 transistor	16 kb	32 kb	24 V DC	07 CT 41	1SBP 26 0022 R 1001	0,355



07 KR 51

### Programmable Contollers Series 50

Expansible with 6 I/O devices, distributed expansibility up to approx. 1000 I/O, integrated CS31 bus  
Digital inputs 24 V DC - Digital outputs relay 250 V AC, 2 A / transistor 24 V DC, 0,5 A  
serial port RS232 or RS485 for programming and communication ASCII, MODBUS  
real-time clock

Integrated inputs	Integrated outputs	Program memory online changes		Supply-voltage	Type	Order No.	Weight kg
		with	without				
8 digital	6 relay	16 kb	32 kb	24 V DC	07 KR 51	1SBP 26 0010 R 1001	0,355
8 digital	6 relay	16 kb	32 kb	120/230 V AC	07 KR 51	1SBP 26 0011 R 1001	0,800
8 digital	6 transistor	16 kb	32 kb	24 V DC	07 KT 51	1SBP 26 0012 R 1001	0,355

### Programmable Controllers Series 90

Distributed expansibility up to approx. 1000 I/O, with RAM and FLASH-EPROM  
real-time clock, interface to CS31 field bus, online program modification, bit and word processing, electrically isolated;  
digital inputs 24 V DC, digital outputs transistor (T) 24 V DC, 0,5 A; analogue inputs, resolution 12 Bit  
0...10 V, 0...5 V and 0...20 mA on 07 KT 95, +/- 10 V, 0...20 mA, 4...20 mA, +/-5 V, -50 °C...+400 °C and -30 °C...+70 °C on 07 KT 97/98 (can also be used as digital I/O);  
analogue outputs, resolution 12 Bit, +/-10 V on 07 KT 95,  
+/-10 V, 0...20 mA and 4...20 mA on 07 KT 97/98 (I/O number 07 KT 97/98 identical with 07 KT 97).  
Power Supply 24 V DC. 2 serial ports, both configurable for programming

Integrated inputs	Integrated outputs	Counter inputs	Program memory	Type	Order No.	Weight kg
12 DI, 4 AI	8 DO, T, 2 AO	2	480 kB	07 KT 95	GJR 525 2800 R 0100	1,3
24 DI	16 DO, T	2	480 kB	07 KT 96	GJR 525 2900 R 0100	1,3
24 DI, 8 DC, 8 AI	16 DO, T, 4 AO	2	480 kB	07 KT 97	GJR 525 3000 R 0100	1,3

### Programmable Controllers Series 90 with integrated communication processors

Description	Type	Order No.	Weight, kg
07 KT 97 with ARCNET networking	07 KT 97-ARCNET	GJR 525 3000 R 0160	1,3
07 KT 97 with Profibus DP	07 KT 97-Profibus	GJR 525 3000 R 0120	1,3
07 KT 97 with ARCNET and Profibus DP	07 KT 97-ARCNET-Profibus	GJR 525 3000 R 0162	1,3
07 KT 98 with ARCNET	07 KT 98-ARCNET	GJR 525 3100 R 0160	1,3

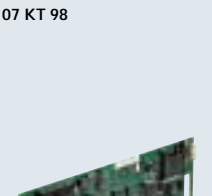
### Programmable Contoller as PC-Card (PCI fullsize)

distributed expansibility up to approx. 1000 I/O, with RAM and FLASH-EPROM, real-time clock, interface to CS31 field bus, online program modification, bit and word processing, own power supply 24 V DC, 1 serial port, configurable for programming/communication, integrated ARCNET connection, PC operating system Windows NT. Optional Smart Media Card for data storage and backup of user defined controller program (ref. accessories).

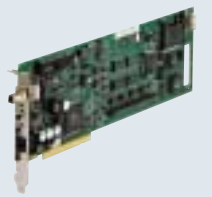
Description	Program memory	Type	Order No.	Weight, kg
07 SL 97 with ARCNET networking	480 kB	07 SL 97-ARCNET	GJR 525 3400 R 0160	1,0
07 SL 97 with ARCNET and Profibus DP	480 kB	07 SL 97-ARCNET-Profibus	GJR 525 3400 R 0162	1,0
07 KT 97 with ARCNET and DeviceNet	480 kB	07 SL 97-ARCNET-DeviceNet	GJR 525 3400 R 0165	1,0



07 KT 97



07 KT 98



07 SL 97

# Input/output devices

## Ordering data



ICMK 14 F1

### Expandable digital I/O bus modules (for Series 50 and 90)

Expandable with 6 I/O devices, up to approx. 100 I/O, (6 digital or 4 digital and 2 analogue)  
 Digital inputs 24 V DC - digital outputs relay 250 V AC, 2 A / transistor 24 V DC, 0.5 A  
 Integrated CS31 bus connection

Integrated inputs	Integrated outputs	Supply voltage	Type	Order No.	Weight kg
8 digital	6 relay	24 V DC	ICMK 14 F1	1SBP 26 0050 R1001	0,355
8 digital	6 relay	120/230 V AC	ICMK 14 F1	1SBP 26 0051 R1001	0,800
8 digital	6 transistor	24 V DC	ICMK 14 N1	1SBP 26 0052 R1001	0,355



XI 16 E1

### Digital I/O devices (for programmable controllers Series 40, 50 und I/O bus modules)

Power supply via programmable controllers and I/O bus modules

Integrated inputs and outputs	Type	Order No.	Weight kg
16 inputs 24 V DC	XI 16 E1	1SBP 26 0100 R1001	0,220
16 outputs 24 V DC, 0.5 A transistor	XO 16 N1	1SBP 26 0105 R1001	0,220
8 outputs 250 V AC, 2 A relay	XO 08 R1	1SBP 26 0101 R1001	0,220
8 configurable inputs/outputs 24 V DC – 24 V DC, 0.5 A	XC 08 L1	1SBP 26 0102 R1001	0,220
4 inputs 24 V DC and 4 outputs 250 V AC, 2 A relay	XK 08 F1	1SBP 26 0104 R1001	0,220



XM 06 B5

### Analogue I/O devices (for programmable controllers Series 40, 50 and I/O bus modules)

Power supply via programmable controllers and I/O bus modules

Integrated inputs and outputs	Type	Order No.	Weight kg
4 inputs, -/+ 10 V, -/+ 20 mA, 4...20 mA, Pt100, Pt1000 2 outputs, -/+ 10 V, 0... 20 mA, 4...20 mA	XM 06 B5	1SBP 26 0103 R1001	0,220
8 inputs, -/+ 10 V, -/+ 20 mA, 4...20 mA, Pt100, Pt1000	XE 08 B5	1SBP 26 0106 R1001	0,220



07 DC 92

### Distributed digital I/O devices (for Series 50 und 90)

Supply voltage 24 V DC, integrated CS31 bus connection

Integrated inputs and outputs	Type	Order No.	Weight kg
32 inputs 24 V DC	07 DI 92	GJR 525 2400 R0101	0,450
16 inputs, 8 outputs, 8 configurable inputs/outputs, 24 V DC, 0.5 A	07 DC 91	GJR 525 1400 R0202	0,450
32 configurable inputs/outputs 24 V DC, 0.5 A	07 DC 92	GJR 525 2200 R0101	0,450



07 AC 91

### Distributed analogue I/O devices (for Series 50 und 90)

Supply voltage 24 V DC, integrated CS31 bus connection

Integrated inputs and outputs	Type	Order No.	Weight kg
8 inputs 12-bit, -/+ 50 mV, -/+ 500 mV, -/+ 10 V, 0...20 mA, 4...20 mA, Pt100, Pt1000, thermocouple	07 AI 91	GJR 525 1600 R0202	0,450
16 configurable channels as input and output 1.) 16 channels can be set in pairs 0...10 V 0...20 mA, 4...20 mA, 8-bit 2.) 8 inputs and 8 outputs, -/+ 10 V, 0...20 mA, 4...20 mA, 12-bit	07 AC 91	GJR 525 2300 R0101	0,450