1 Central unit 07 KR 91

Central unit with max. 28 kB user program

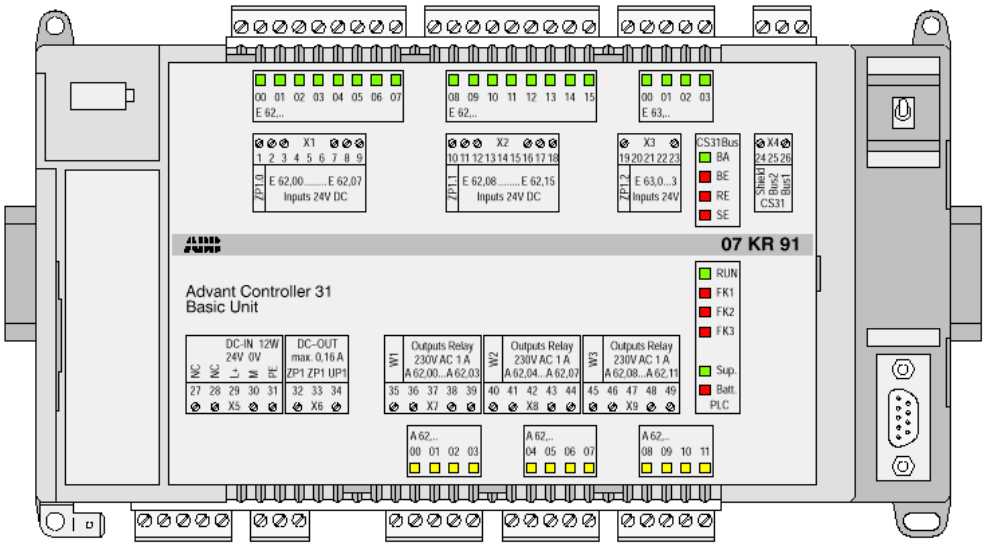

Fig. 1-1: Basic Unit 07 KR 91

Contents

1.6 Technical data 07 KR 91

In general, the technical system data listed under “System data and system configuration” in chapter 1 of volume 2 of the Advant Controller 31 system description are valid for all modules and basic units. Additional data or data which are different from the system data are listed below.

1.6.1 General data

Number of digital inputs	20
Number of digital relay outputs	12
I/O expansion via CS31 system bus by up to	744 digital inputs 496 digital outputs 96 analog input channels 48 analog output channels max. 31 remote modules altogether
Number of serial interfaces	1 (for programming or connection to man-machine communication)
Number of parallel interfaces (only 07 KR 91 **R353**)	1 special interface for connection of a communication processor (for networking with other bus systems)
Integrated memories, **07 KR 91 R303 / R353:**	Flash EPROM 32 kB (30 kB programm) RAM 256 kB (30 kB program with online programming)
Resolution of the integrated real-time clock	1 second
Data of the integrated high-speed hardware counter counting range counting frequency	 –32768...+32767 (16 bits) max. 10 kHz
Processing time, binary operation 65 % bits, 35 % words	typ. 0.4...0.6 ms/kB program typ. 0.7 ms/kB program
Number of software timers delay time of the timers	any (max. 80 simultaneously active) 5 ms...24.8 days
Number of up/down counter SW blocks	any
Number of bit flags Number of word flags Number of double word flags	4096 4096 512
Diagnosis	cycle time monitoring, battery monitoring, detection of syntax errors and checksum monitoring
Indication of operating statuses and errors	42 LEDs altogether
Conductor cross section for all removable connectors	 max. 2.5 mm^2 or max. 2 x 1,5 mm^2

1.6.2 Power supply 07 KR 91 R303

Mains voltage (rated value)	115 V AC
or	230 V AC
Power dissipation	max. 20 W

1.6.3 Power supply 07 KR 91 R353

Rated supply voltage	24 V DC
Current consumption	max. 0.4 A plus output current through terminal 34 (output voltage for the supply of the digital inputs)
Protection against reversed terminal connection	yes

1.6.4 24 V output voltage for the supply of inputs

Rated voltage	24 V DC
Load capability	max. 160 mA
Protection against overload	with a PTC resistor

1.6.5 Lithium battery

Battery for back-up of RAM contents	Battery module 07 LE 90
Lifetime at 25° C	1.5 years (typ. 3 years)

1.6.6 Digital inputs

Number of channels per module	20
Distribution of channels into groups	2 groups of 8 channels each 1 group of 4 channels
Common reference potential	
for group 1 (8 channels)	ZP1.0 (channels 62,00...62,07)
for group 2 (8 channels)	ZP1.1 (channels 62,08...62,15)
for group 3 (4 channels)	ZP1.2 (channels 63,00...63,03)
Electrical isolation	between the groups, between groups and other circuitry (see also Figures 1-9 and 1-10)
Signal coupling of the input signals	with optocoupler
Input signal delay of	
channels E 62,00...63,03	typ. 7 ms
channels E 63,14 and 63,15	typ. 0.02 ms
for counter control	typ. 0.02 ms
Signalling of input statuses	one green LED per channel, the LEDs correspond functionally to the input signals
Input signal voltage	
signal 0	-30 V...+ 5 V
signal 1	+13 V...+ 30 V
ripple when signal 0	within -30 V...+ 5 V
when signal 1	within +13 V...+ 30 V
Input current per channel	
input voltage = +24 V	typ. 8.0 mA
input voltage = + 5 V	> 0.2 mA
input voltage = +13 V	> 2.0 mA
input voltage = +30 V	< 10.0 mA
Max. cable length unshielded	600 m
Max. cable length shielded	1000 m

4.6.5 Digital outputs

Number of channels per module	12 relay outputs
Distribution of channels into groups	3 groups of 4 channels each
Common supply voltage	
for group 1 (common 1)	W1 (channels 62,00...62,03)
for group 2 (common 2)	W2 (channels 62,04...62,07)
for group 3 (common 3)	W3 (channels 62,08...62,11)
Electrical isolation	between the groups, between groups and other circuitry (see also Figures 1-9 and 1-10)

Signalling of output statuses	one yellow LED per channel, the LEDs correspond functionally to the output signals
Switching voltage	12 V AC/DC...250 V AC/DC
Switching current per relay	
115/230 V AC, 50/60 Hz	cosφ = 1.0; Imax = 2 A
115/230 V AC, 50/60 Hz	cosφ = 0.4; Imax = 1 A
220 V DC	Imax = 0.2 A
24 V DC	Imax = 2.0 A
Total load per common potential (W1...W3)	max. 4 A
Leakage current per contact, contact open	max. 1 mA
Switching power	
in case of AC	max. 460 W
in case of AC	max. 50 W
Permissible lamp load	
in case of AC	max. 0.5 A, max. 100 W
in case of DC	max. 0.5 A, max. 25 W
Switching frequency	
with lamp load	max. 8 Hz (+30 %)
with inductive loads (full load)	max. 2 Hz
ON delay	≤ 10 ms
OFF delay	≤ 8 ms
Minimum switching power	2 W or 2 VA
Protection for relay contacts when switching inductive loads	
in case of AC	built-in varistor
in case of DC	a free-wheeling diode must be circuited in parallel to the load
Contact life time	
mechanical	> 4 x 10^7 cycles
230 V AC, 2 A (resistive load)	> 4 x 10^5 cycles

1.6.8 Connection of serial interface COM1

Interface standard		EIA RS-232
Programming with 907 PC 33		by means of IBM PC (or compatible)
Electrical isolation	07 KR 91 **R303**	versus mains, versus binary inputs and outputs, versus CS31 system bus interface (see also Fig. 1–9)
	07 KR 91 **R353**	versus binary inputs and outputs, versus CS31 system bus interface (see also Fig. 1–10)
Potential differences		In order to avoid potential differences between the 07 KR 91 basic unit and the peripheral device connected to the COM1 interface, this device is supplied from the switch cabinet socket (see also the earthing connections in Figures 1-9 and 1-10).
Pin configuration and description of the COM1 interface		see chapter 1.4.9

4.6.9 Connection to the CS31 system bus

Interface standard	EIA RS-485
Connection as a Master PLC	yes, transmitting and receiving area are configurable
as a Slave PLC	yes, see chapter “system constants”
Setting of the CS31 module address	yes, by system constant, stored in the Flash EPROM of the Slave PLC
Electrical isolation	versus supply voltage, inputs/outputs, versus COM1 interface (see also Figures 1-9 and 1-10)
Terminal assignment and description of the CS31 bus interface	see chapter 1.4.4

1.6.10 LED displays

LEDs for indication of:

– statuses of digital inputs	1 green LED per channel
– statuses of digital outputs	1 yellow LED per channel
– power supply exists	1 green LED
– battery	1 red LED
– program runs (RUN)	1 green LED
– error classes (FK1, FK2, FK3)	1 red LED per error class
– CS31 system bus runs (BA)	1 green LED
– bus specific errors (BE, RE, SE)	3 red LEDs

1.6.11 High-speed hardware counter

Data of the integrated high-speed hardware counter:

counting range	-32768...+32767 (16 Bit)
counting frequency	max. 10 kHz
used inputs	E 62,00 and E 62,01 (the signal delay of these inputs is set to 0.02 ms for the counter)
used outputs	A 62,00