# 1 Central unit 07 KR 91

Central unit with max. 28 kB user program

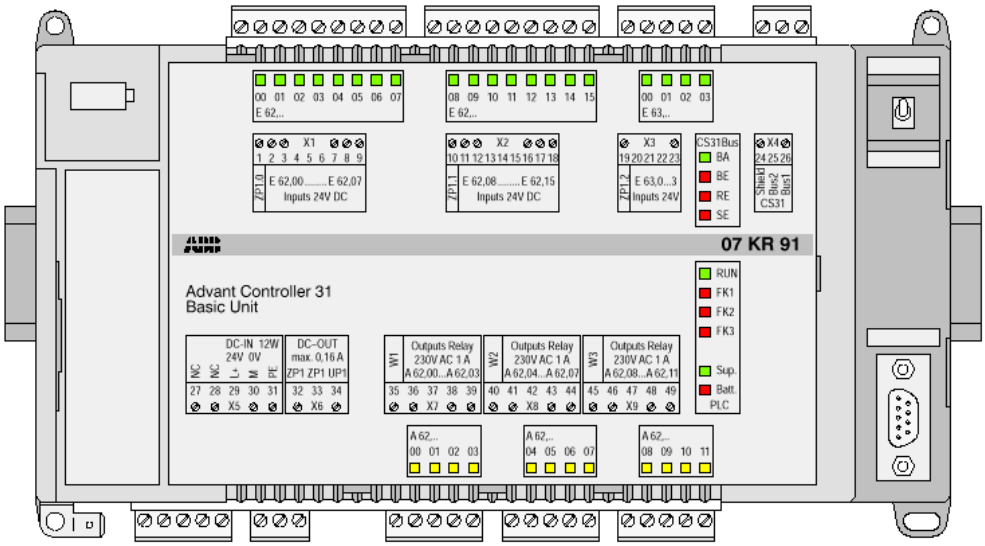


Fig. 1-1: Basic Unit 07 KR 91

## Contents

## 1.1 Brief description

The basic unit 07 KR 91 works either as

- bus master in the decentralized automation system Advant Controller 31 or as
- slave (remote processor) in the decentralized automation system Advant Controller 31 or as
- stand-alone basic unit.

The module is provided in two versions with supply voltages of 24 V DC and 115/ 230 V AC:

**07 KR 91 R303:** (same functions as R202)

The device has a 115/230 V AC power supply voltage. It provides a 24 V output voltage for the supply of its own digital inputs.

**07 KR 91 R353:** (same functions as R252)

The device has a 24 V DC power supply voltage. It is provided with an additional interface for connecting communication modules (e.g. 07 KP 90).

Both versions have the following main features:

### 1.1.1 Main features

Both module versions feature:

- 20 digital inputs
- 12 digital relay outputs
- 1 counting input for counting frequencies up to 10 kHz
- 1 CS31 system bus interface for system expansion.
- Serial interface COM1
  - is set as programming interface
  - can be set as an ASCII interface for connecting peripheral devices (e.g. MMC devices)
- Real-time clock
- LEDs for displaying the digital input and output signals as well as operating conditions and error messages
- Detachable screw-type terminal blocks
- Fastening by screws or by snapping the device onto a DIN rail
- Lithium battery 07 LE 90 can be put into the battery compartment in order to
  - store and back-up the user program in the RAM
  - store and back-up data which is additionally contained in the RAM, e.g. the status of flags
  - back-up the time and date (real-time clock)
- RUN/STOP switch for starting and aborting the program execution
- Extensive diagnosis functions
  - Self-diagnosis of the basic unit
  - Diagnosis of the CS31 system bus and the connected modules

### 1.1.2 Project planning / start-up

The following has to be observed for project planning and start-up:

- Programming
  is performed using AC31 programming software, which can be run on commercially available IBM compatible PCs (see documentation for the programming system 907 PC 331)
- The processor processes the user program contained in the RAM. It is loaded into the RAM via the serial interface COM1 and can also be changed there. An additional save command is used to save the program in the Flash EPROM.

  Note: In the course of the following operations
  - Power 'ON'
  - RUN/STOP switch from STOP —> RUN
  - Program start-up with programming system
  - Cold start of the PLC

  the RAM is overwritten by the contents of the Flash EPROM, if a user program is contained in the Flash EPROM.
- On-line program modification

  The two existing RAMs allow a quick modification of the user program to be performed without interrupting the operation (see programming system 907 PC 331).
- Change-over between the application modes
  - Stand-alone basic unit
  - Bus master basic unit and
  - Slave basic unit

  The basic unit is set to "Stand-alone" upon delivery. Changing the application mode is carried out in the following three steps:

  1. Change the system constant KW 00,00 in the PLC, see chapter A7.3 (Appendix), System constants.
  2. Save the user program in the Flash EPROM.
  3. Activate new application mode by:
     - calling up the menu item of "Enable PLC mode" in the ABB programming and test system or
     - performing a warm start or
     - performing a cold start.

- Setting the cycle time
  see chapter A1 (Appendix), Processing times
- Addressing when remote modules are connected see chapter A2 (Appendix), Addressing
- Back-up of data areas, i.e. saving of data during power OFF/ON, is only feasible with built-in battery. The following data can be backed, completely or partly:

  – Binary flags
  – Word flags
  – Double word flags
  – Step chains
  – Historical values

  In order to back-up certain data, they have to be excluded from initialization to 0.
- Initialization of data areas

  During program start, that data areas are initialized to 0 partly or completely, that are defined by system constants, see chapter A7.3 (Appendix), System constants.

  If no battery is effective or if the system constants are in their default values (factory settings), all of the above mentioned data areas are completely set to 0 after power OFF/ON.
- Reactions on errors of error class 3

  The user can configure whether or not the user program is to be aborted automatically, if an class 3 error occurs, see chapter A7.3 (Appendix), System constants.
- Starting-up the AC31 system after power ON

  The user can enter a number of n remote modules in KW 00,09. The user program starts only, i.e. it handles process inputs and outputs only, if at least n remote modules have been adopted into the CS31 system bus cycle, see chapter A7.3 (Appendix), System constants.