ABB ABB Series Service Manual

07 KT 98

1. Description

ABB 07KT98 GJR5253100R0260 07 KT 98 Advant Controller 31 Basic Unit

3. Product Information

ABB 07KT98 GJR5253100R0260 07 KT 98 Advant Controller 31 Basic Unit

Functionality of the basic unit 07 KT 98

User program 1 MB

User data 1 MB + 256 kB RETAIN + 128 kB (Flash EPROM)

Digital inputs 24 in 3 groups of 8 each, electrically isolated

Digital outputs 16 transistor outputs in 2 groups of 8 each, electrically isolated

Digital inputs/outputs 8 in 1 group, electrically isolated

Analog inputs 8 in 1 group, individually configurable to 0...10 V, 0...5 V, +10 V, +5 V, 0...20 mA,

4...20 mA, Pt100 (2-wire or 3-wire), differential inputs, digital inputs

Analog outputs 4 in 1 group, individually configurable to 0...10 V, 0...20 mA, 4...20 mA

Serial interfaces COM1, COM 2 as MODBUS interfaces, for programming and test functions and

as freely programmable interfaces

Parallel interfaces for

connection of couplers 07 KP 90 (RCOM), 07 KP 93 (2 x MODBUS), 07 MK 92 (freely programmable)

System bus interface CS31

Integrated couplers see next page

High-speed counter integrated, many functions configurable

Real-time clock integrated

SmartMedia Card memory medium for operating system, user program and user data

LED displays for signal conditions, operating statuses and error messages

Power supply voltage 24 V DC

Data backup with lithium battery 07 LE 90

Programming software 907 AC 1131 as of V 4.1 (07 KT 98 with ARCNET interface)

907 AC 1131 as of V 4.2.1 (07 KT 98 with PROFIBUS-DP interface)

The basic unit 07 KT 98 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 basic unit is powered by 24 V DC.

2.2.1.1 Main features

• 24 digital inputs with LED displays

• 16 digital transistor outputs with LED displays

• 8 digital inputs/outputs with LED displays

• 8 individually configurable analog inputs 0...10 V,

0...5 V, ±10 V, ±5 V, 0...20 mA, 4...20 mA, differential

inputs, Pt100 (2-wire or 3-wire), the analog inputs are

also individually configurable as digital inputs

• 4 individually configurable analog outputs ±10 V,

0...20 mA, 4...20 mA

• 2 counters for counting frequencies up to 50 kHz, configurable in 7 different operating modes

• 1 CS31 system bus interface for system expansion

• 1 interface for connecting communication modules

(e.g. 07 KP 90)

• 2 serial interfaces COM1, COM2

– as MODBUS interfaces and

– for programming and test functions

– as freely programmable interfaces

• Real-time clock

• LEDs for displaying operating conditions and error

messages

• Detachable screw-type terminal blocks

• Fastening by screws or by snapping the device onto a

DIN rail

• The lithium battery 07 LE 90 can be put into the

battery compartment in order to

– store and backup data which is additionally

contained in the RAM, e.g. the status of

flags (RETAIN)

– backup 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

• Integrated Flash EPROM for storing program and data

• Exchangeable SmartMedia Card 07 MC 90 for user

data or for updating the operating system or PLC program

2.2.1.2 Project planning / start-up

The following has to be observed for project planning and

start-up:

• Programming

is performed with AC31 programming software, which

can be run on commercially available IBM compatible

PCs (see documentation of the programming system

907 AC 1131).

• Online program modification

A quick modification of the user program is possible

without interrupting the operation (see programming

system 907 AC 1131).

• Possible operating modes

– Stand-alone basic unit

– Bus master basic unit

– Slave basic unit

• Backup of data areas,

i.e. saving of data during power OFF/ON, is possible

with an integrated battery and/or

by storing them in the Flash EPROM.

Digital I/O: 24 Digital Inputs, 16 Digital Outputs, and 8 additional configurable Digital Inputs/Outputs.

Analog Inputs: 8 channels.

Pt100 Support: Yes.

Digital Configuration: Yes, analog inputs are configurable as digital inputs.

Analog Outputs: 4 channels.

20 mA Support: Yes.

Terminals 20 to 27: Assigned to E 63,08 to E 63,15.

Performance: Significantly faster processing time, typically 0.07 ms for 1 kB of program (65% bits, 35% words).

Order Number: GJR5 2531 00 R

Communication: Includes CS 31 - Field bus.

Memory:

Program Memory: 1000 kByte Flash EPROM and RAM.

Plug-in Memory: Smart Media Card (Flash) for data storage and reloading the SPS-program.

Data Memory: 8192 bits, 8192 words (16 bit), and 1024 double words (32 bit).

Variables: 1 MB Variables + 256 k RETAIN.

Performance: Significantly faster cycle time for 1 Kbyte at 0.07 ms.

Inputs/Outputs:

Integral I/O: 24 DI, 16 DO, and 8 DC.

Maximum DI/DO: 1040 in total.

Integral AI/AO: 8 AI and 4 AO.

Maximum AI/AO: 232 AI and 228 AO.

Execution & Control:

Programming System: 907AC1131.

Program Execution: Cyclic, time controlled Multitasking (20 Tasks).

Logic Components: Unrestricted Timers and Counters; 256 Sequencers (of 16 sequences).

Fast Counters: 1 to 2 (various operating modes, max. 50 kHz).

Special Functions: Protocols such as PDNet, ARCNET®, MODBUS®; PI and PID controllers; 32 bit arithmetic; ASCII communication; Floating Point Arithmetic.

Hardware Details: Password protection, exchangeable battery, real-time clock, withdrawable terminal blocks with screw terminals, and mounting with or without DIN rail.