

**ABB Procontic T200**  
Programmable Controller

**Communication processor  
MODBUS 07 MK 62** **8.3**

**PDnet** **8.4**

**Software 907 IR 60** **8.7**

**Functional description  
07 KT 60** **8.8**

**Software 907 KP 64** **8.9**



# Communication processor MODBUS 07 MK 62

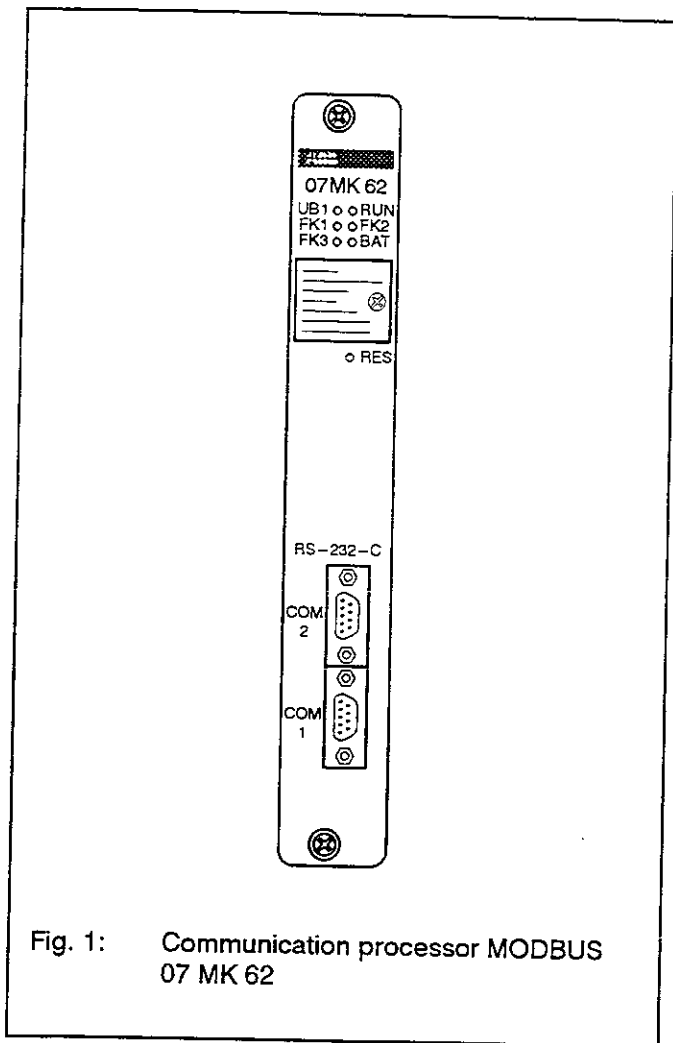


Fig. 1: Communication processor MODBUS 07 MK 62

## General Information

The 07 MK 62 communication processor is a preprocessor of the ABB Procontic T200 programmable control system. It has two serial interfaces which work independent of each other. They are both configurable and electrically isolated.

As a **preprocessor**, the communication processor 07 MK 62 can communicate as a master or as a slave on the MODBUS, independently of the T200 central unit.

## Module Description

The communication processor has a metal housing with a front panel including the display elements, the two 9-pole D-plugs (female) for the MODBUS interfaces and the reset pushbutton (RES).

6 LEDs on the front panel display operating and error conditions (see Fig. 2).

## Project Planning

The 07 MK 62 communication processor MODBUS can only be placed in basic subracks of the ABB Procontic T200.

For the MODBUS processor, "EAW4" has to be entered in the configuration menu of the 907 PC 332 programming software.

## Our Helpline address

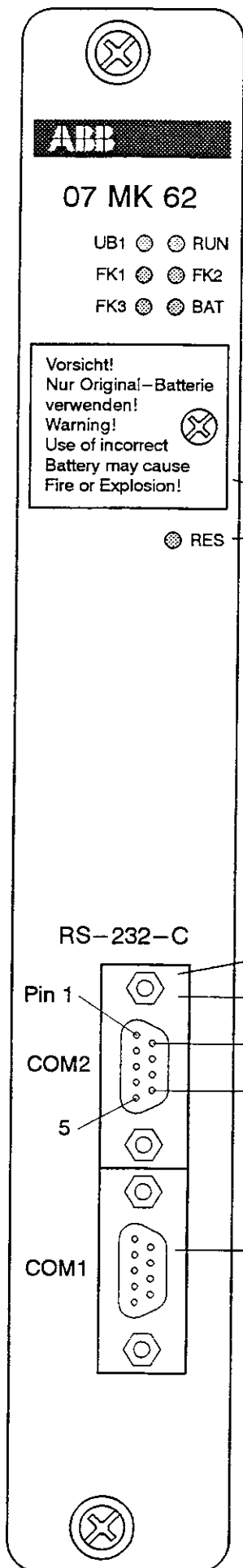
For information concerning the use of MODBUS please contact our Helpline as follows:

ABB Schalt- und Steuerungstechnik GmbH  
SST/MPE  
Eppelheimer Straße 82  
D-69123 Heidelberg

Telephone: +49 6221 777-444  
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**UB1 Power-ON display**

The green LED lights up, when the internal voltage (5V) is ON.

**RUN Operation display**

- a) OFF after system test
- b) permanently ON after initialization by MOD\_INIT

**FK1 COM1:** Turns ON, when a request was sent as a master or when a request was received as a slave. Remains on as long as the communication is still active.

**FK2 COM 2:** Turns ON, when a request was sent as a master or when a request was received as a slave. Remains on as long as the communication is still active.

**FK3** is equal to the output ERR of the CE MOD\_MAST and lights up, when an error has occurred during the communication.

**BAT Battery error**

The red LED lights up, when the battery is exhausted or missing.

**Battery compartment**

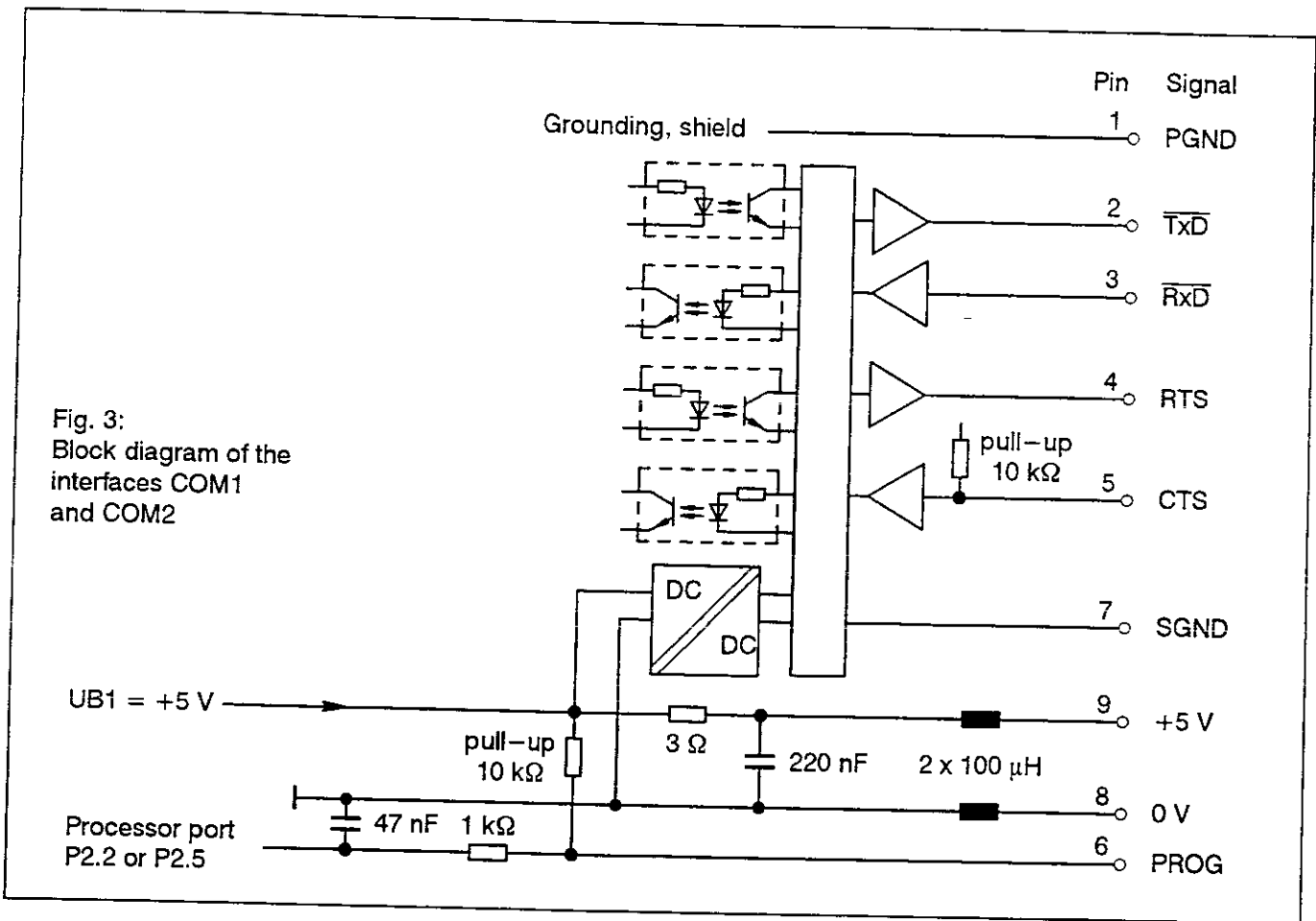
**RESET pushbutton,** manual reset of the 07 MK 62.

**COM2, COM1, EIA RS-232, 9-pole D-plug, female**

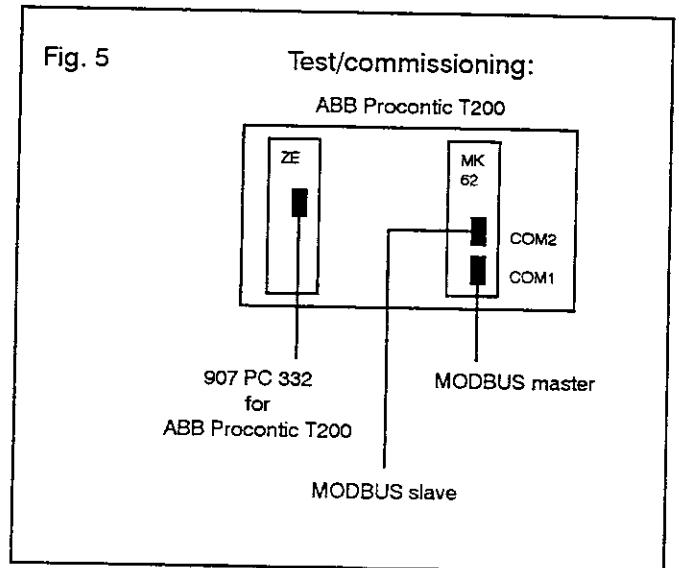
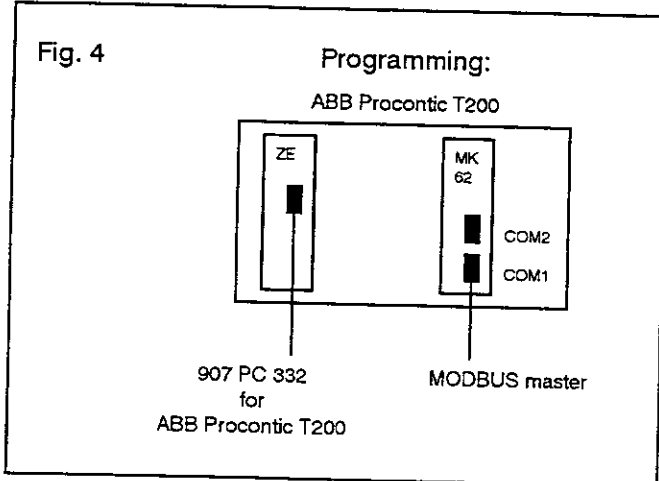
Pin	Signal name	Meaning	Remarks
G	PGND	Shield (Protective Ground)	Plug case
1	PGND	Shield (Protective Ground)	
2	$\overline{\text{TxD}}$	Transmit Data	
3	$\overline{\text{RxD}}$	Receive Data	
4	RTS	Request To Send	
5	CTS	Clear To Send	
7	SGND	Signal Ground	
6	PROG	Not connected	
8	0 V	0 V for UB1	
9	+5 V	UB1	

Note: The pins 6, 8 and 9 are not electrically isolated from UB1 (internal +5 V).

Fig. 2: Communication processor MODBUS 07 MK 62 with description of the display and operating elements as well as the interfaces



## Handling Examples



## Installation instructions for the software

- The programming software 907 PC 332 (version 9/94 or later) must have been installed first.
- In addition, you need the diskette "07 MK 62 MODBUS T200, CEs and FBs for MODBUS coupler T200 (order No. of the diskette GATS 110 144 R1).
- Please add the CEs MODT200 to the library. You find the CEs on the diskette (see above) in the directory A:\BIB. The menu item in 907 PC 332 is Library—>Read Manuf. Library. After installation you will find in your library list the CEs MOD\_INIT, MOD\_IN62 and MOD\_MAST.

- Please add the FBs No. 88 to 93 to the library. You find the FBs on the diskette in the directory A:\FBDAT. The menu item in 907 PC 332 is PLC—>Read FB.
- Read the I/O configuration of your T200 system. The 07 MK 62 must be entered as an EAW4 device.

### Example:

On the diskette, there is an example how to program MODBUS with T200. For more information about MODBUS see the CE documentation at the end of this description and in the operating manual 07 KR 31 / 07 KT 31.

## Reference addresses for the MODBUS master (see also CE MOD\_MAST)

The following table contains the reference addresses which have to be entered:

- a) Input DATA: a pointer in the PLC memory as MODBUS master for received and transmitted data
- b) Input ADDR: only if the slave is also an 07 MK 62

Flag address	MODBUS reference address	MODBUS function
MW'00,00 - 0383,01	2000H - 2237H	3, 4, 6, 16
MW 00,00 - 2815,15	5000H - FFFFH	3, 4, 6, 16
M'00,00 - 0283,31	2000H - 437FH	1, 2, 5, 15
M 00,00 - 0123,15	5000H - 57BFH	1, 2, 5, 15

## Technical Data

## 07 MK 62

### General data

Number of serial interfaces  
Indication of errors and operating conditions  
Number of required slots  
Ability of fitting in sub racks  
Slot,  
• = plug-in is possible (occupies 1 slot)

2, see Fig. 2  
6 LEDs, see Fig. 2  
1 I/O slot

BT			BE central			BE remote		
NG	ZE	I/O	NG	BV	I/O	NG	BV	I/O

Current consumption from internal voltages  
UB1 = 5 V DC  $\pm$  5 %  
UB4 = 24 V DC

max. 0.5 A  
no current consumption

Total power dissipation  
Back-up of internal flags  
Weight

max. 2.5 W  
with 07 LE 90 battery module  
ca. 900 g

### Common data of the serial interfaces

Interface standard  
Electrical isolation  
Interface connectors  
Transmission speed (Baud rate)  
Parity bit  
Number of start bits  
Number of stop bits

EIA RS-232  
yes, see also Fig. 3  
9-pole D-plugs, female, see Fig. 2  
1200, 2400, 4800, 9600 Baud  
even, odd, no (space parity)  
1  
1

### Ordering information

Hardware:  
Coupler 07 MK 62  
Software:  
Diskette with CEs and FBs  
for MODBUS coupler 07 MK 62

Order No. GATS 110 143 R1  
  
Order No. GATS 110 144 R1

## MODBUS Protocol

The MODBUS protocol is of a request/reply type: the master MODBUS sends a request, then it waits for an answer from the slave.

The communication frames are set up in the same way:

- Slave number           1 byte
- Function code         1 byte
- Message text         N bytes
- CRC16 check         2 bytes

### • Read n bits ( $0 < n < 255$ )

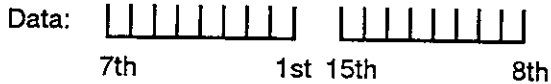
Function code: 01 or 02

Send:

SLAVE	FCT	ADH	ADL	NB OF BITS	CRCL	CRCH
-------	-----	-----	-----	------------	------	------

Receive:

SLAVE	FCT	NBYTE	...DATA...	CRCL	CRCH
-------	-----	-------	------------	------	------



Example:  
Read 16 bits at the address 2000<sub>H</sub>

Send:  
01 01 20 00 00 10 3D C6

Receive:  
01 01 02 00 00 B9 FC

### • Read n words ( $0 < n < 100$ )

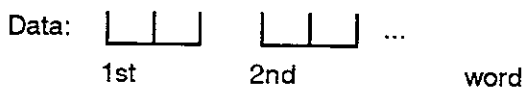
Function code: 03 or 04

Send:

SLAVE	FCT	ADH	ADL	NB OF WORDS	CRCL	CRCH
-------	-----	-----	-----	-------------	------	------

Receive:

SLAVE	FCT	NBYTE	...DATA...	CRCL	CRCH
-------	-----	-------	------------	------	------



Example:  
Read 10 words at the address 2060<sub>H</sub>

Send:  
01 03 20 60 00 0A C5 D3

Receive:

01 03 14 0000 0000 0000 0000 0000  
0000 0000 0000 0000 0000 A367

with 14<sub>H</sub> = 20 bytes

### • Write 1 bit

Function code: 05

Send:

SLAVE	FCT	ADH	ADL	DATA	DATA	CRCL	CRCH
-------	-----	-----	-----	------	------	------	------

Receive:

SLAVE	FCT	ADH	ADL	DATA	DATA	CRCL	CRCH
-------	-----	-----	-----	------	------	------	------

Data: Bit = 0 → 00 00  
Bit = 1 → FF 00

Example:  
Write 1 at the address 2000<sub>H</sub>

Send:  
01 05 20 00 FF 00 87 FA

Receive:  
01 05 20 00 FF 00 87 FA

### • Write 1 word

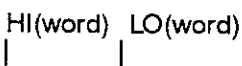
Function code: 06

Send:

SLAVE	FCT	ADH	ADL	DATA	DATA	CRCL	CRCH
-------	-----	-----	-----	------	------	------	------

Receive:

SLAVE	FCT	ADH	ADL	DATA	DATA	CRCL	CRCH
-------	-----	-----	-----	------	------	------	------

Data: 

Example:  
Write 1234<sub>H</sub> at the address 2000<sub>H</sub>

Send:  
01 06 20 00 12 34 8F 7D

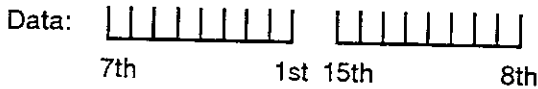
Receive:  
01 06 20 00 12 34 8F 7D



• **Write n bits (1 < n < 255)**

Function code: 0F

Send:



Receive:



Example:

Write 5 bits (set to 1)  
at the address 2000<sub>H</sub>

Send:

01 0F 20 00 00 05 01 1F 29 FE

Receive:

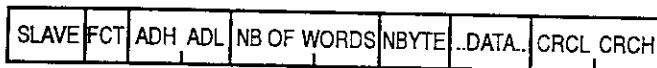
01 0F 20 00 00 02 DF CA

with: 05<sub>H</sub> = NB OF BITS  
01<sub>H</sub> = NBYTE  
1F<sub>H</sub> = 0001 1111<sub>B</sub> data  
02<sub>H</sub> = NBYTES\*2(1<sub>H</sub>\*2)

• **Write n words (1 < n < 100)**

Function code: 10

Send:



Receive:



Example:

Write:            1<sub>H</sub> at address 2000<sub>H</sub>  
                     2<sub>H</sub> at address 2001<sub>H</sub>  
                     3<sub>H</sub> at address 2002<sub>H</sub>

Send:

01 10 20 00 0003 06 0001 0002 0003 91 41

Receive:

01 10 20 00 00 0C CB CC

• **Error code**

Send:



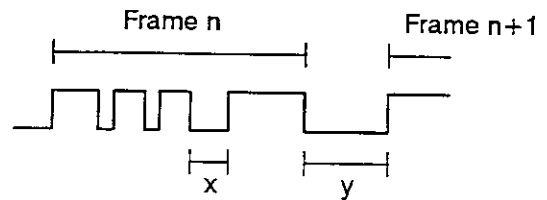
- Error code 0 = No error
- Error code 1 = Function is not supported by the slave
- Error code 9 = Timeout error
- Error code 17 = Parameter error
- Error code 01 = Unknown function code
- Error code 02 = Address error
- Error code 03 = Data error

Example: Address error

Receive after reading n words (code 03<sub>H</sub>)  
01 83 02 C0 C0

with 83<sub>H</sub> = 80<sub>H</sub> + 03<sub>H</sub>

• **Timing**



Time between characters (x):  
with 9600 bauds: 1 ms

The time between 2 characters must be shorter than x.

Time between frames (y):

Baud rate	Time y (ms)
19200	4
9600	5,5
4800	11
2400	21
1200	42
600	83
300	166
150	330

A new frame is only detected if the delay after the previous frame is longer than y. If the delay is shorter, a CRC error occurs on the previous frame.

• **Communication parameters**

The factory setting is:

- 9600 bauds, configurable with MOD\_INIT
- no parity
- 8 data bits
- 1 stop bit

# MODBUS RTU

## Overview

### Brief description, field of use

MODBUS-RTU is an internationally well-known standard. The main use is the coupling in the local area for:

- Automation systems and PLCs
- Operating terminals
- PC operating stations / SW for supervisory terminals
- ABB-Master and other ABB systems.

In spite of relatively low data rates, sufficient reaction times can be achieved because of the fact that the transmission tasks can be individually configured.

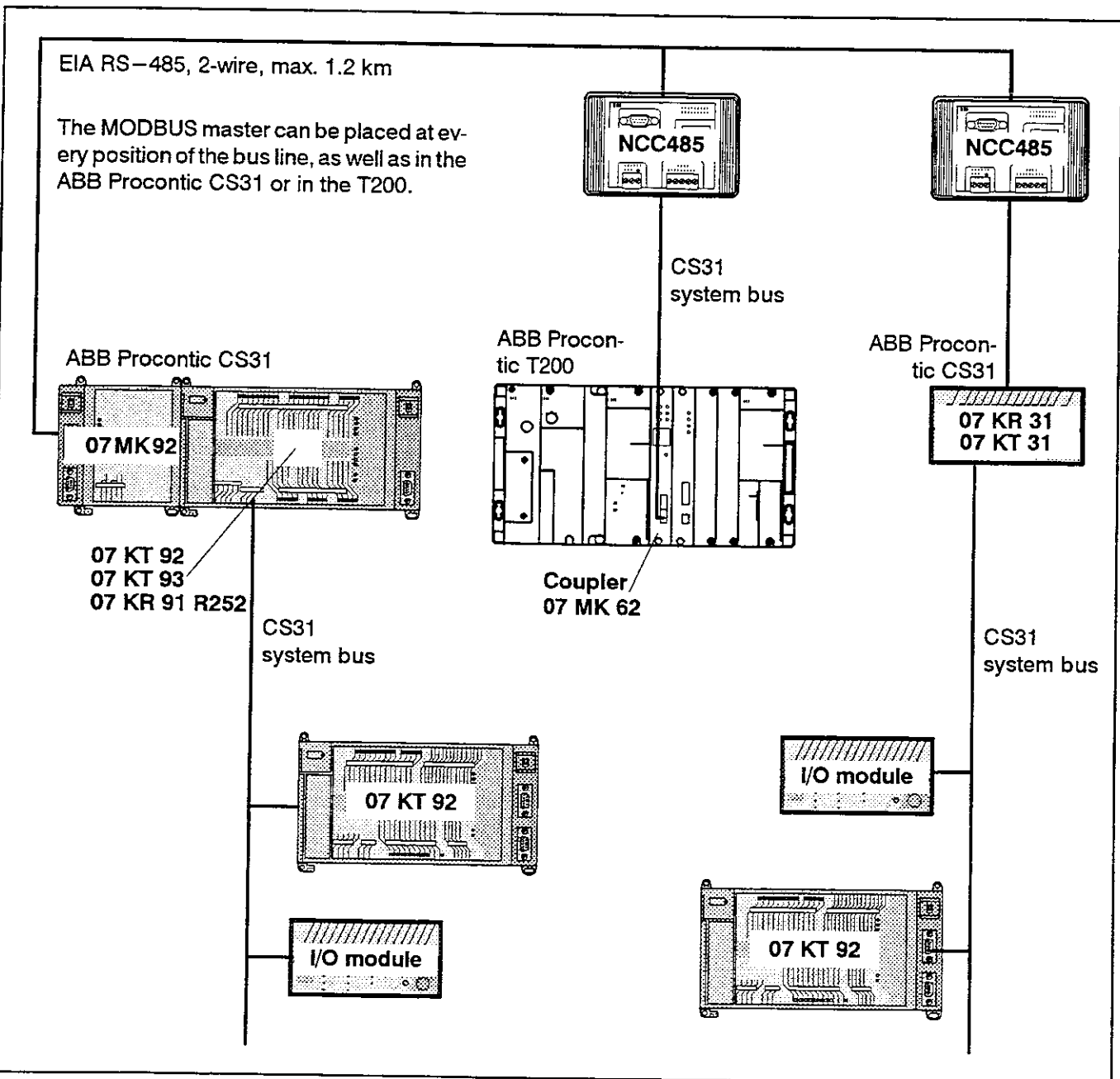
The configuration is easy, the program is short.

### Brief data

- Short reaction times with appropriate configuration
- Transmission speed max. 19.2 kbit/s.
- 32 participants (for EIA RS-485), connection of modems is possible
- Distance max. 1.2 km (EIA RS-485), using modems up to 20 km and more

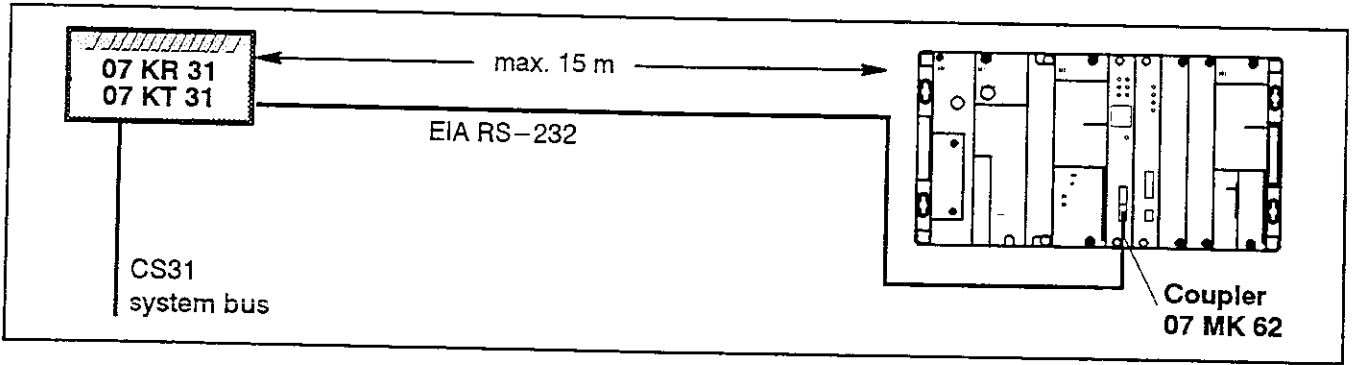
## Network configurations

### Multi-point line up to 1 km

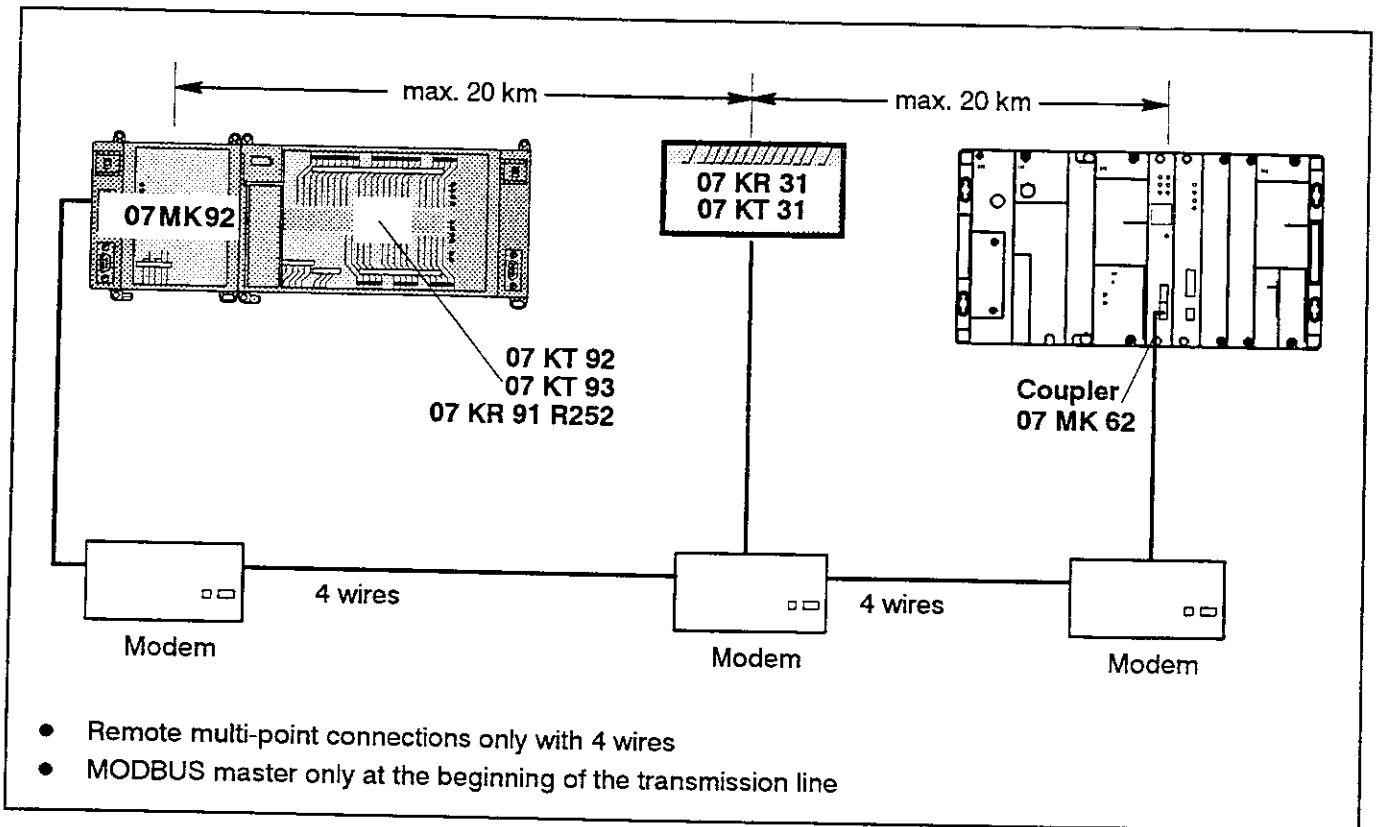


Example for an installation

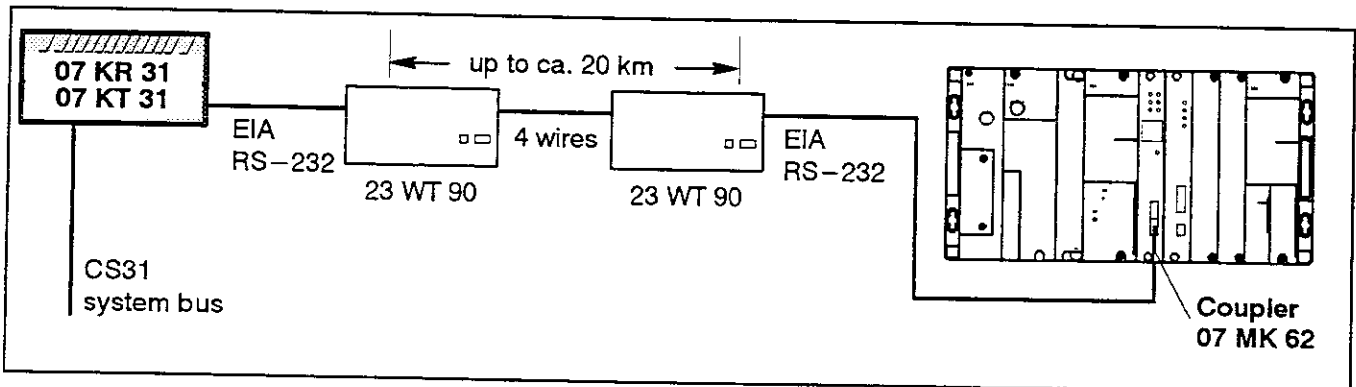
Point-to-point without converter



Multi-point line

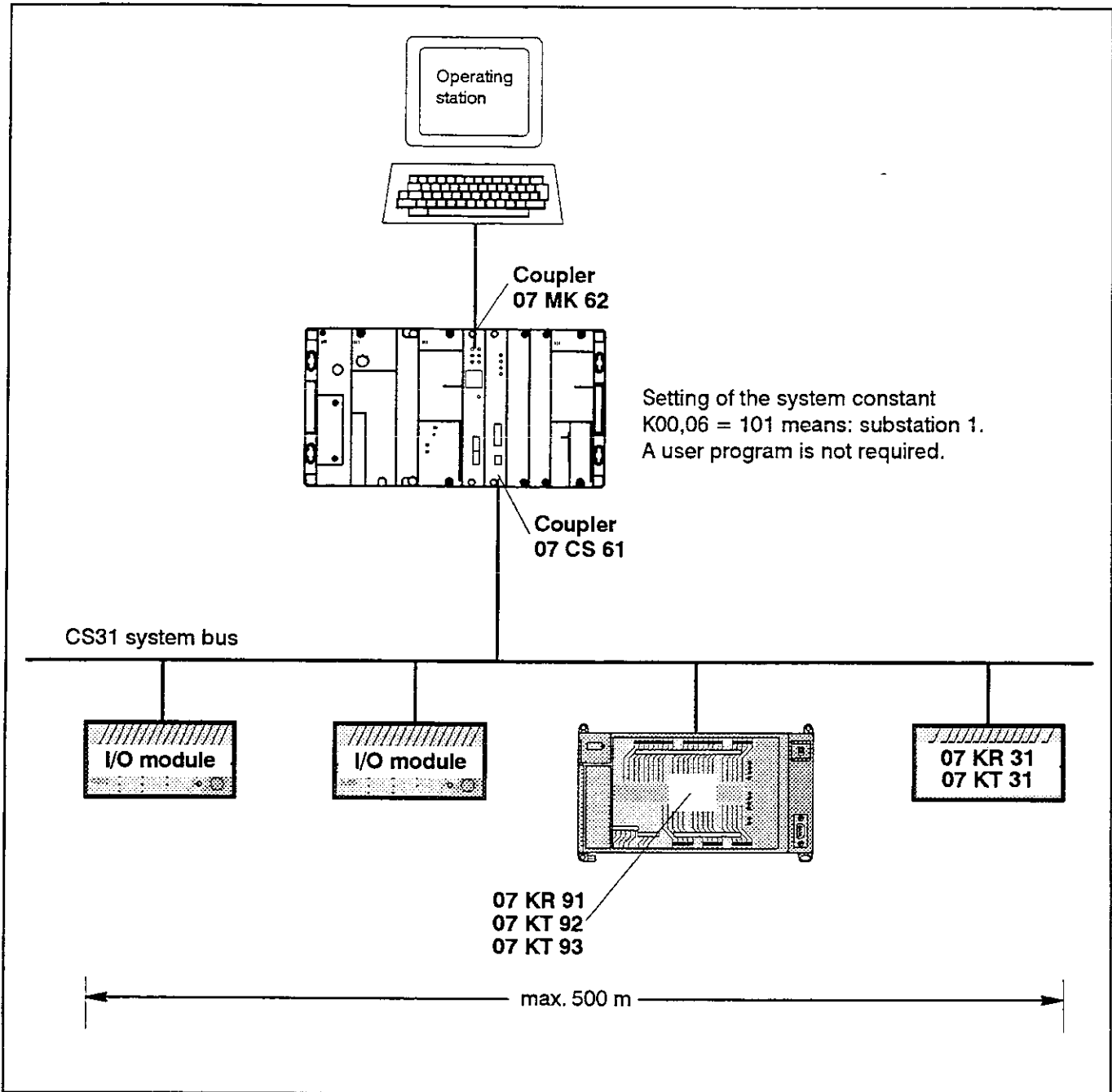


Point-to-point, max. 1200 bits/s, 4 wires



## Installation with a PC as supervisory terminal

Simple supervisory system with MODBUS, fast remote processing



## General MODBUS features

- **Proven and well-known standard**

Components which can be connected:

- Automation systems and PLCs
- Operating terminals
- PC operating stations,  
SW for supervisory terminals
- ABB–Master

- **Short reaction times in spite of relatively low transmission speed of 19.2 kBit/s** due to individual configuration of the transmission tasks. It is possible to prefer transmission commands if required.

- **Multi-point line up to 1.2 km** by using the EIA RS–485 interfaces of the 07 MK 92 coupler

- **Very easy programming for ABB Procontic CS31 and T200 central units**

- **Short programs for ABB Procontic CS31 and T200**

- **ABB Procontic T200 via coupler 07 MK 62**

## Modems, tested by ABB

- **LH–1V or H1**

Deliverer: Hedin Tex GmbH  
D–24266 Heikendorf  
Telephone: +49 431 243591

- **23 WT 90**

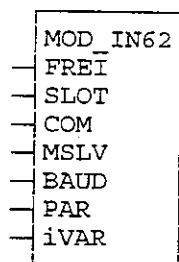
Deliverer: ABB Netzleittechnik GmbH  
D–68526 Ladenburg  
Telephone: +49 6203 71–0

- **Logem LGH 9600 H1**

Deliverer: ke Kommunikations Elektronik GmbH  
D–30179 Hannover  
Telephone: +49 511 6747–0

## MODBUS connection elements

see the following pages



## Description

This CE initializes the communication port to the MODBUS coupler 07 MK 62

There are two versions of this CE:

- MOD\_INIT for the central units 07 ZE 60, 07 ZE 61 and 07 ZE 63
- MOD\_IN62 for the central unit 07 ZE 62 or for faster ones.

---

### Parameters

FREI	BIT	M,M'	Enable the CE
SLOT	WORD	EW	Slot number of the coupler in the T200 subrack
COM	WORD	#W	Number of the serial interface
MSLV	WORD	MW,MW',#W	Master / Slave mode
BAUD	WORD	MW,MW',#W	Baud rate
PAR	WORD	MW,MW',#W	Parity
iVAR	WORD	MW,MW	16 MWs used internally, they must not be used for other purposes

---

Available as of: ABB Procontic T200 / 907 PC 332

## 1 Function

MOD\_IN62 initializes the communication port between the PLC and the MODBUS coupler. The input parameters define the serial interface number, the choice between the master and the slave function, and, in case of the slave function the MODBUS slave address.

If the 07 MK 62 is configured as a slave, only this CE is necessary. If the 07 MK 62 is configured as a master, in addition the CE MOD\_MAST is required.

This CE may only be used once per serial interface!

## 2 Parameters

### FREI:

With the constant "1" at the input FREI, the CE is enabled,  
with the constant "0" at the input FREI, the CE is disabled.

If the CE MOD\_IN62 is used together with the CE MOD\_MAST, the input FREI must be set to permanently "1".

Example: FREI #B 001           -> CE is permanently enabled.

### SLOT:

Parameter, which defines the slot number used by the MODBUS coupler in the T200 subrack. The first slot on the right side of the T200 central unit is given the slot number 0.

Example: SLOT EW 0.02,00   Slot number 2

### BAUD:

This parameter defines the transmission speed (baud rate) of the serial interface. Possible values are 9600, 4800, 2400 and 1200. If an other value is set, the interface works with 9600 baud.

Example: BAUD #W 9600

### PAR:

PAR defines the parity mode of the serial interface.  
This mode remains set until the next restart of the coupler.

The following values are possible:   0 = no parity  
  2 = even parity  
   18 = odd parity

Example: PAR #W 0               -> Master or slave works with "no parity"

### MSLV:

The MSLV input selects the master/slave mode of the 07 MK 62.

Examples: MSLV #W 0               -> Master mode  
          MSLV #W 1 or greater   -> Slave mode with the slave address  
   1 or greater

### COM:

At the input COM the number of the serial interface to be initialized is defined. Possible values are 1 or 2.  
If an other value is given, interface COM 1 is assumed.  
The number of the interface is labelled on the front panel of the 07 MK 62.

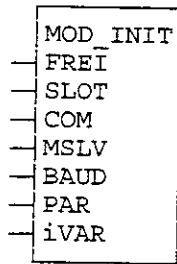
Example: COM #W 2   -> Serial interface COM 2 will be used.

### iVAR:

iVAR defines a range of word flags in the PLC, in which the CE stores its own parameters and variables. This memory is 16 words in size and must not be used by other functions.

MOD\_IN62 and MOD\_MAST, configured for the same interface, use the same iVar words. If CEs use different COM interfaces, they also need different word ranges.

Example: iVAR MW 16,00   -> CE works with the word flags from  
   16,00 to 16,15.



## Description

This CE initializes the communication port to the MODBUS coupler 07 MK 62

There are two versions of this CE:

- MOD\_INIT for the central units 07 ZE 60, 07 ZE 61 and 07 ZE 63
- MOD\_IN62 for the central unit 07 ZE 62 or for faster ones.

---

### Parameters

FREI	BIT	M,M'	Enable the CE
SLOT	WORD	EW	Slot number of the coupler in the T200 subrack
COM	WORD	#W	Number of the serial interface
MSLV	WORD	MW,MW',#W	Master / Slave mode
BAUD	WORD	MW,MW',#W	Baud rate
PAR	WORD	MW,MW',#W	Parity
iVAR	WORD	MW,MW	16 MWs used internally, they must not be used for other purposes

---

Available as of: ABB Procontic T200 / 907 PC 332

## 1 Function

MOD\_INIT initializes the communication port between the PLC and the MODBUS coupler. The input parameters define the serial interface number, the choice between the master and the slave function, and, in case of the slave function the MODBUS slave address.

If the 07 MK 62 is configured as a slave, only this CE is necessary.  
If the 07 MK 62 is configured as a master, in addition the CE MOD\_MAST is required.

This CE may only be used once per serial interface!



## 2 Parameters

### FREI:

With the constant "1" at the input FREI, the CE is enabled,  
with the constant "0" at the input FREI, the CE is disabled.

If the CE MOD\_INIT is used together with the CE MOD\_MAST, the input FREI must be set to permanently "1".

Example: FREI #B 001           -> CE is permanently enabled.

### SLOT:

Parameter, which defines the slot number used by the MODBUS coupler in the T200 subrack. The first slot on the right side of the T200 central unit is given the slot number 0.

Example: SLOT EW 0.02,00   Slot number 2

### BAUD:

This parameter defines the transmission speed (baud rate) of the serial interface. Possible values are 9600, 4800, 2400 and 1200. If an other value is set, the interface works with 9600 baud.

Example: BAUD #W 9600

### PAR:

PAR defines the parity mode of the serial interface.  
This mode remains set until the next restart of the coupler.

The following values are possible:   0 = no parity  
  2 = even parity  
   18 = odd parity

Example: PAR #W 0                   -> Master or slave works with "no parity"

### MSLV:

The MSLV input selects the master/slave mode of the 07 MK 62.

Examples: MSLV #W 0                   -> Master mode  
          MSLV #W 1 or greater       -> Slave mode with the slave address  
   1 or greater

### COM:

At the input COM the number of the serial interface to be initialized is defined. Possible values are 1 or 2.  
If an other value is given, interface COM 1 is assumed.  
The number of the interface is labelled on the front panel of the 07 MK 62.

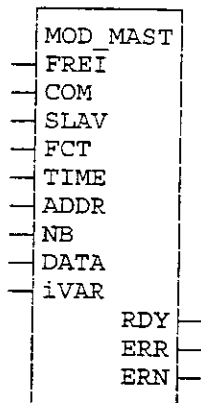
Example: COM #W 2   -> Serial interface COM 2 will be used.

### iVAR:

iVAR defines a range of word flags in the PLC, in which the CE stores its own parameters and variables. This memory is 16 words in size and must not be used by other functions.

MOD\_INIT and MOD\_MAST, configured for the same interface, use the same iVar words. If CEs use different COM interfaces, they also need different word ranges.

Example: iVAR MW 16,00   -> CE works with the word flags from  
   16,00 to 16,15.



Parameters

FREI	BIT	M, M'	Enable
COM	WORD	#W	COM interface
SLAV	WORD	MW, MW', #W	Slave address
FCT	WORD	MW, MW', #W	MODBUS function code
TIME	WORD	MW, MW', #W	Timeout
ADDR	WORD	MW, MW', #W	Destination/source address on slave
NB	WORD	MW, MW', #W	Number of data
DATA	WORD	MW, MW', #W	Destination/source address on master
iVAR	WORD	MW, MW	16 MWs used internally, they must not be used for other purposes

1 Function

MOD\_MAST is used, when a serial interface was configured with MOD\_INIT or MOD\_IN62 as a MODBUS master. MOD\_MAST makes use of the initialization parameters of these CEs.

This CE may only be used once per serial interface!

2 Parameters

FREI:

With an 0-1 edge at the FREI input the MOD\_MAST CE starts working for one MODBUS transmission. It is a precondition, that the previous transmission task has already been finished. The FREI input has to be at signal "1" as long as the communication not has been completed. FREI = 0 clears the outputs ERR and RDY.

COM:

At the input COM the number of the serial interface to be initialized is defined. Possible values are 1 or 2.  
If an other value is given, interface COM 1 is assumed.  
The number of the interface is labelled on the front panel of the 07 MK 62.

TIME:

If a slave does not answer on a request of the master, the communication is aborted after a delay specified in the TIME parameter. Possible values are from 1 to 65535. The unit of measurement is milliseconds. This means a timeout from 1 ms up to ca. 65 s.

Example: TIME #W 1000      -> Master waits 1 s for the timeout

SLAV:

MODBUS slave address. Possible values are 1...254.

Example: SLAV #W 0002      -> MODBUS slave with address 2

FCT:

MODBUS function code:

- 1, 2: Read n bits
- 3, 4: Read n words
- 5:    Write 1 bit
- 6:    Write 1 word
- 15:   Write n bits
- 16:   Write n words

NB:

Number of words to read from a slave or to write to a slave. Possible values are 1...96.

Example: NB #W 0002

DATA:

First memory address in the master, from which data are sent to a slave or which contains data read from a slave.  
This memory address is also defined with a MODBUS reference address (see below).

Example: DATA #H 5000      -> MW 00,00 is used as the first address

ADDR:

The first memory address in an area of the slave, whose data is read or written.  
If the slave is an 07 MK 62, the reference addresses show below are to be used.

RDY:

RDY=1 shows, that the communication has been completed and that the outputs ERR and ERN are valid.  
With FREI=0 RDY is cleared to 0.

ERR:

ERR=1 shows, that a communication error has occurred.  
With FREI=0 ERR is cleared to 0.

ERN:

Shows the number of the communication error.  
ERN is only valid when ERR = 1.

Number	Error
0	No error
1	Function code is not supported by the slave
9	Timeout error
17	Parameter error

### 3 Table of reference addresses

This table contains the reference addresses, which must be used to define flags in the T200 central unit:

- a) Input DATA: pointer in the PLC memory as MODBUS master for received and transmitted data.
- b) Input ADDR: only if the slave is also an 07 MK 62.

Flag address	MODBUS reference address	MODBUS function
MW'00,00 - 383,01	2000h - 2237h	3, 4, 6, 16
MW 00,00 - 2815,15	5000h - FFFFh	3, 4, 6, 16
M'00,00 - 283,31	2000h - 437FH	1, 2, 5, 15
M 00,00 - 123,15	5000h - 57BFh	1, 2, 5, 15

### 4 LED functions

After reset and start-up of the coupler, all LEDs are flashing.  
After a few seconds the LEDs are back off.

LED	Function
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RUN

- a) OFF after system start-up
- b) permanently ON after initialization by MOD\_INIT

FK1

COM1: ON during communication (Master has sent a request or slave is receiving a request)  
OFF when the communication has been completed

FK2

COM2: ON during communication (Master has sent a request or slave is receiving a request)  
OFF when the communication has been completed

FK3

belongs to the output ERR of the MOD\_MAST CE and lights up when during the communication an error has occurred.

# Higher-level fast networking with PDnet for ABB Procontic CS31 and T200

Used coupler 07 KP 66 (T200) and 07 KP 96 (CS31)

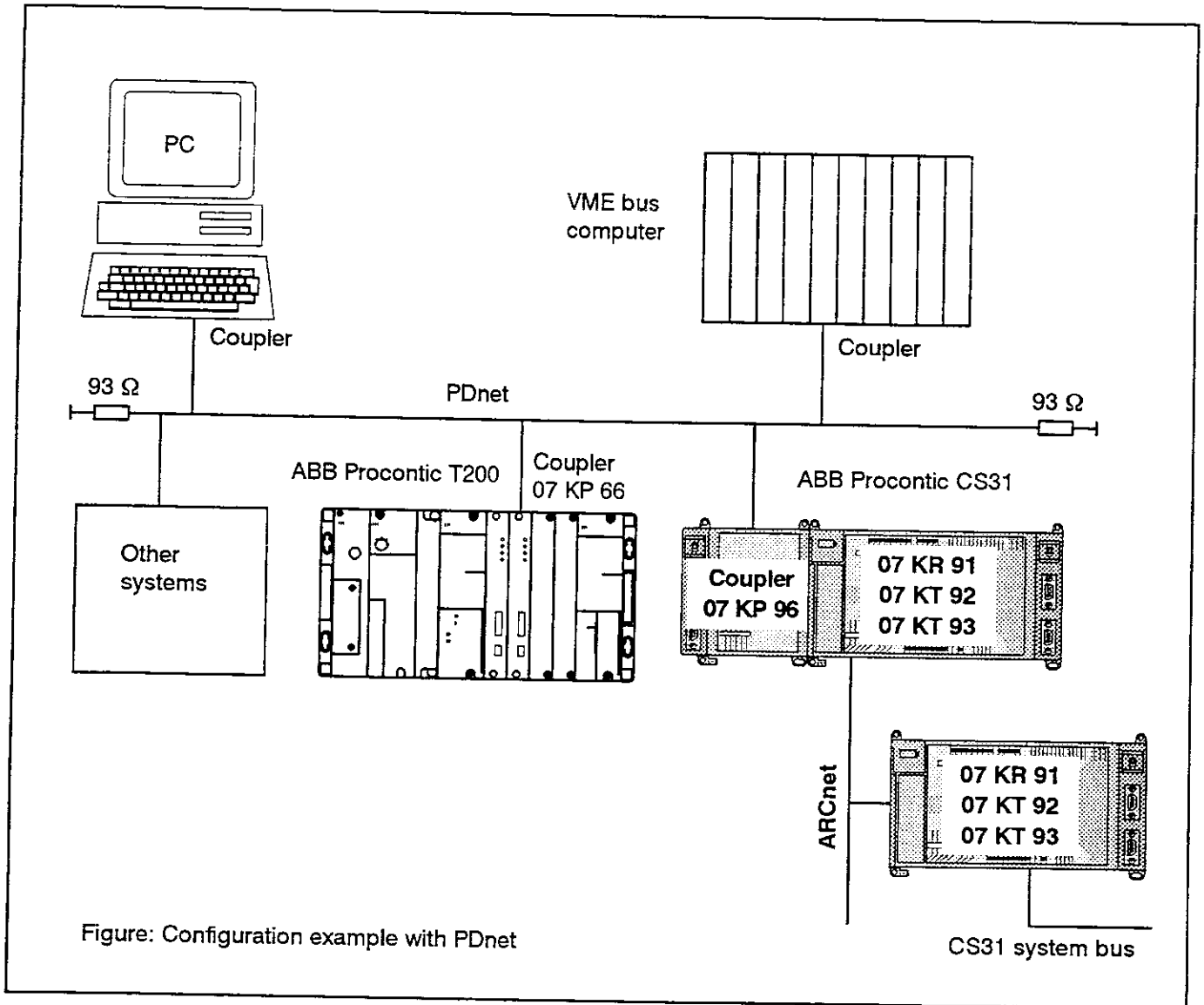


Figure: Configuration example with PDnet

## Brief description, field of application

PDnet is a higher-level fast networking (LAN = Local Area Network) of

- T200 and CS31 with one another
- T200 and CS31 with other systems
- T200 and CS31 with PCs

The powerful software planning aid NetPro with comfortable desktop allows you to easily create connections even to other systems.

The connection to PDnet is carried out via a separate coupler. Concerning the central units 07 KT 92 R262 and 07 KT 93 R171, the advantage is that the ARCnet-SST-networking can be employed at the same time.

PDnet is based on ARCnet. Complex networking (line or star configuration etc., single or with redundancy) can be built using coaxial cable or optical fibre.

## Short data

- Very short access times due to high data rate of 2.5 Mbit/s.
- Bus length up to ca. 300 m, using repeaters/couplers for star configuration up to ca. 6 km.
- Token master, without repeater up to ca. 10 participants, with repeaters and couplers in star configuration up to 255 participants.

## Hardware

- Coupler for T200           07 KP 66
- Coupler for CS31         07 KP 96
- Coupler for PC            07 CM 96
- Various coupler for other systems

## Software

- Configuration software       NetPro
- Diagnosis software           NetDiag
- Software package  
(configuration + diagnosis)   NetPD

## Documentation

The corresponding documentation is provided with the hardware and software products.

## Our Helpline address

For information concerning the networking with PDnet please contact our Helpline as follows:

ABB Schalt- und Steuerungstechnik GmbH  
SST/MPE  
Eppelheimer Straße 82  
D-69123 Heidelberg

Telephone:     +49 6221 777-444  
Telefax:       +49 6221 777-361

# Software 907 IR 60 R102 for the Industrial Computer BASIC 07 IR 60

The scope of delivery of the 907 IR 60 software (Order number GJP5 2025 00 R0102) consists of:

- two diskettes:  
5 1/4" / 360 kbytes and 3 1/2" / 720 kbytes format
- License Conditions
- Documentation about
  - Hardware of the Industrial Computer BASIC 07 IR 60
  - Installation of BASIC Programming Software
  - BASIC Operating Manual
  - BASIC Programming Manual
  - Connection Element Library for 907 PC 32

Each of the diskettes contains

- an installation program for automatic installation of the software in German and English. The BASIC programming software as well as the newly added connection elements are installed automatically.
- all files, that are described in 'Installation of BASIC Programming Software'.

## General Description

The 907 IR 60 programming software serves to create programs for the 07 IR 60 Industrial Computer Basic, which is a unit of the programmable ABB Procontic T200 control system. An installation program, working in a highly automatic way installs the software package on the PC.

The 907 IR 60 programming software is executable on commercially available IBM-compatible personal computers of the 07 PC 32 type or 07 PH 32 type (Compaq Portable II or Compaq LTE 286) with the following technical characteristics:

- 640 kbytes RAM
- Hard disk drive
- Diskette drive, 5 1/4", 360 kbytes or 3 1/2", 1.44 Mbytes, min. 720 kbytes
- Serial interface RS-232-C (V24) for PLC
- Parallel or second serial interface for printer
- MS-DOS operating system V3.1 or higher

The 907 IR 60 programming software allows a simple and efficient programming of

- BASIC programs for 07 IR 60
- PLC programs for communication with the Industrial Computer, due to some new connection elements

## Characteristics

- Editing and testing BASIC programs
- Sending and receiving BASIC programs to/from the 07 IR 60
- Configuration of the 07 IR 60 interfaces
- Reading and writing BASIC programs as MS-DOS files





# Functional Description

## Text Processor 07 KT 60 R101

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The functional description for the 07 KT 60 text processor (Order number GATS 1314 06 R2001) breaks down into

- Hardware (Unit 07 KT 60)
- Software
- Editor (ASCII module)
- Function blocks
- Examples with programming and function blocks

### Hardware Characteristics

The 07 KT 60 R101 text processor enables the connection of ABB Procontic T200 controllers to external visual display units or printers.

Selectable RS-423 (RS-232-C) or RS-422 serial interfaces are available. The interface is electrically isolated from internal voltages.

The 07 KT 60 R101 module has a housing with a removable, transparent front cover for the display and operating elements and a screw-on connector block with the interface.

It occupies two I/O slots and can be used in basic sub-racks and in expansion subracks, however not in remote expansion configuration (remote I/O). It is possible to use several modules in one system.

Light-emitting diodes are provided for signalling operational conditions. Several pushbuttons and switches are provided for operating the module, for setting operating mode and interface parameters.

### Software Characteristics

The 07 KT 60 text processor is addressed by the central unit as a word input/output. Access is via 4 word input addresses and 4 word output addresses, with 16 bits each.

The central unit writes commands (e.g. the print command) to the output area and reads data of the 07 KT 60 (e.g. the ready signal) from the input area.

The data (texts) are stored in a 24-kbyte battery-backed RAM. The texts are created using the programming unit in terminal mode or using another visual display unit, e.g. VT100.



# Software 907 KP 64 for the communication processor RCOM

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## General

The programming software 907 KP 64 serves to create programs for the communication processor RCOM 07 KP 64 of the ABB Procontic T200 programmable logic controller (PLC).

The programming software 907 KP 64 is capable of running on commercially available IBM-compatible personal computers type 07 PC 32 and 07 PH 32 (Compaq Portable II and Compaq LTE 286) featuring the following technical characteristics:

- 640 kByte RAM
- Hard disk drive
- Floppy disk drive, 3 1/2", 1,44 MByte, min. 720 kByte
- Serial RS-232-C (V24) interface for the control system
- Parallel or Second serial interface for a printer
- MS-DOS operating system V3.1 or higher

The programming software 907 KP 64 permits simple and economical programming of

- Programs for communication by way of the RCOM protocol
  - between ABB MasterPiece 200 control systems and ABB Procontic T200 Systems or
  - between ABB Procontic T200 Systemes

## Features of the 07 KP 64 unit

- The unit can be used as an RCOM master or slave.
- Up to 254 RCOM slaves can be operated in one network (up to eight slaves when using Masterpiece 200).
- The RCOM protocol is compatible with MP200/1 with DSCA 180A. All RCOM utilities are available (cold start, warm start, reset, clock synchronization, writing data, reading data and event polling).
- The RCOM interface for connection of the modem conforms to RS-232-C
- An additional operator interface (console) conforming to EIA RS-232-C is available as an aid to commissioning (to display the communication sequence and to setup telephone numbers etc.).
- The software clock and time can be used in the PLC program.

