Manual IFC 50E

Foreword

This manual presents installation and function description for the communication module IFC 50E.

Besides this manual, the following manuals are also available.

– E-serien, Installation

– E-serien, Manual

– E900/910, Installation

– E900/910, Manual

All examples in this manual are used solely to promote understanding of how the equipment works and its operation. G & L Beijer Electronics AB take no responsability if these examples are used in real applications.

Because of the great many application areas for this equipment, the user himself must acquire the appropriate knlowledge needed to use the equipment correctly for particular applications.

G & L Beijer Electronics AB absolves itself of all responsabilities for damage and injuries that may occur during installation or use of this equipment. G & L Beijer Electronics AB absolves itself of all responsabilities for any type of modification made to the equipment.

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Safety precautions

General

– Check the delivery for transport damage. If damage is found, advise your supplier.

– The product fulfils the requirements of article 4 of EMC directive 89/336/EEC.

– Do not use the product in an explosive environment.

– Modifications, changes and additions to the product are forbidden.

– Use only spare parts approved by the manufacture.

– Read the user instructions carefully before use.

– This equipment should only be operated by qualified personnel.

At installation

– The product is constructed for stationary installation.

– Install the product according to the accompanying installation instructions.

– The product must be grounded according to the accompanying installation instructions.

– This equipment must be installed by qualified personnel.

– High voltage-, signal- and supply cables must be separated.

In use

– Keep the equipment clean.

– Emergency stop- and other safety functions should not be controlled from the terminal.

Service and maintenance

- The agreed guarantee applies.
- Repairs should be made by qualified personnel.

At disassembly and scrapping

- Local regulations apply concerning recycling of products or part.

Contents

Contents

1   Introduction

The expansion card IFC 50E is used to connect more than one terminal to one PLC system and simultaneously maintain good performance. Network communication via IFC 50E can only be done via MAC network.

1.1   MAC network

MAC network is used for operator terminals in the MAC-series and in early versions of terminals in the E-series. You can have one master and up to seven slaves in a network. The terminal connected to the PLC system should be master.

MAC network with IFC 50E can only be connected to the terminals in the E series with the following version of the system program:

E300 version 1.00 – 1.11
E700 version 1.11 – 2.04
E710 version 1.11 – 2.04
E900 version 1.00 – 1.01

2   Installation

This chapter describes how the expansion card is mounted in the terminal.
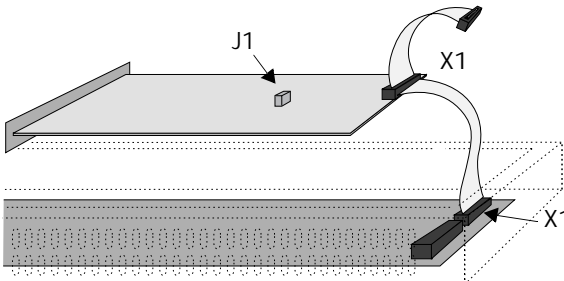
2.1   Install one expansion card

Carry out the following steps to mount a IFC 50E.

1. Switch off the terminal power.

2. Make sure that your ESD protection is good.

3. Remove the cover plates on the rear of the terminal, and the two expansion plates on the short side. The bigger terminals have two expansion slots, Slot 1 and Slot 2. On terminals with one expansion slot, it is called Slot 1.
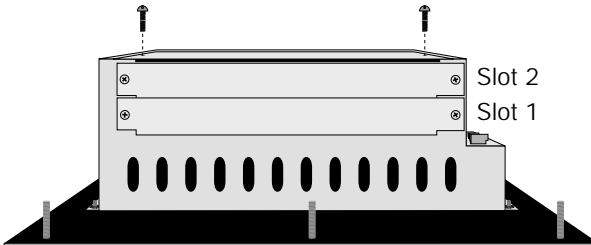
4. Put the jumper J1 on the expansion card in the position SLOT 1 if the expansion card is mounted in slot 1, and in position SLOT 2 if the card is mounted in slot 2.

5. Mount the expansion cable with the components of the expansion card placed upwards. The expansion cable is mounted between X1 on the CPU card and X1 on the expansion card.

6. Fasten the card with the spacers or the screws. Use the screws if the expansion card is mounted in slot 1, and the spacers if the card is mounted in slot 2.

7. Check that the expansion cable is correctly mounted.

8. Mount the cover plates.

2.2 Install two expansion cards

In the bigger terminals in the E-series you can mount two expansion cards. They are mounted in parallel to the connector on the CPU card in the terminal. Two expansion cards can be connected via one expansion cable since there is a parallel contact on the cable. The connector in the middle is used for the expansion card placed in slot 1 and the end connector is used for the expansion card placed in slot 2. If only one card is used it doesn't matter which connector is used.

The connector X1 on the expansion card in slot 2 is connected to the connector X1 and the CPU card in the terminal via the the X1 connector on the expansion card in slot 1. If the X2 connector on the CPU card in the terminal is used by any or both cards this connector is connected to the X2 connector in the expansion card.

When two expansion cards are mounted in the same terminal you mount the card in slot 1 with the distances and the card in slot 2 with the screws in the distances.

Installation
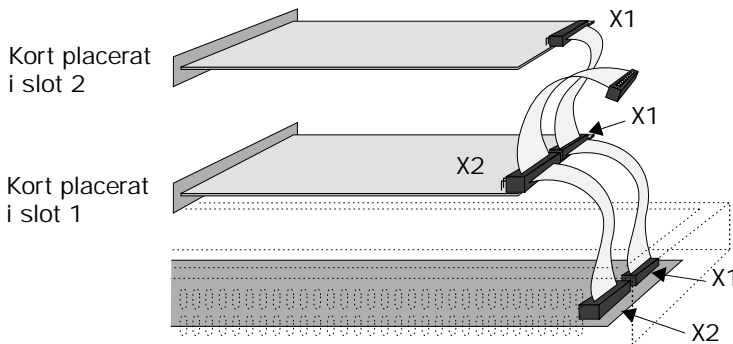
3 Configure MAC network

Carry out the following procedure when using MAC network with IFC 50E.

1. Install the IFC 50E card in the terminal.

2 Configure the expansion card via MAC Programmer+/SW-MTA-WIN. Make sure that you chose correct terminal version in Project Settings in the File Menu.

3. Connect the communication cable.

3.1 Configuration with MAC Programmer+/ SW-MTA-WIN
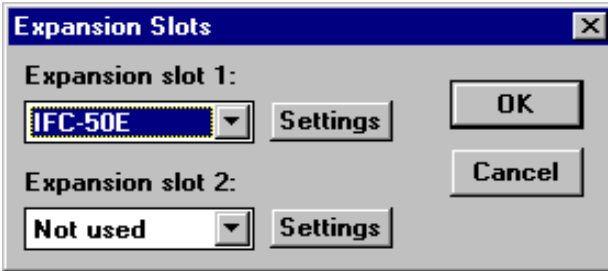
1. Select Expansion slots in the Setup menu.
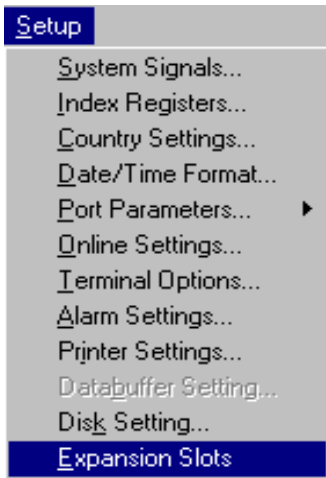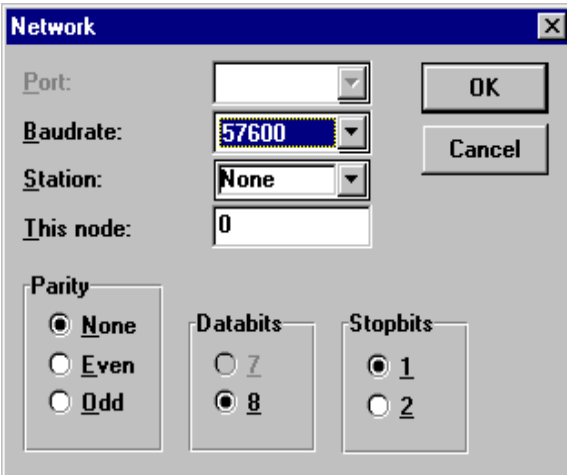

Note!
Make sure that you chose correct terminalversion in Project Settings in the File menu.

2. Select the slot you define with the jumper J1 on the expansion card.

Expansion Slots

Expansion slot 1:

IFC-50E   Settings   OK

Expansion slot 2:

Not used   Settings   Cancel

3. Select settings. Here you select the parameter settings for communication.

Network

Port: OK

Baudrate: 57600   Cancel

Station: None

This node: 0

Parity
- ● None
- ○ Even
- ○ Odd

Databits
- ○ 7
- ● 8

Stopbits
- ● 1
- ○ 2

Baudrate

State the baudrate for the network. The baudrate must be the same in the whole network. See section "Baudrate in different network configurations".

Station

State if the terminal shall be Master or Slave 1-7. The Master is the unit connected to the PLC system. The other units in the net are slaves. If

you are using both E- and Mac-terminals in the network, one terminal must be Master.

This node

0, can be changed. For further information we refer to the documentation from Allen Bradley DF1 node number of the terminal.

Parity

State the parity. The parity must be the same in the whole network.

Databits

State the number of databits. The settings must be 8 data bits.

Stopbits

State the number of stopbits. The settings must be the same in the whole network.

3.2 Switchover to Run mode

When the projects are downloaded to all terminals, the terminals will switch over to Run-time mode. Start with the slaves, and take the master last. The following is displayed on the master terminal at switchover to Run mode. Slaves found in the network are marked with a check mark. If the communication with any slave is broken the master must be restarted to establish communication again.
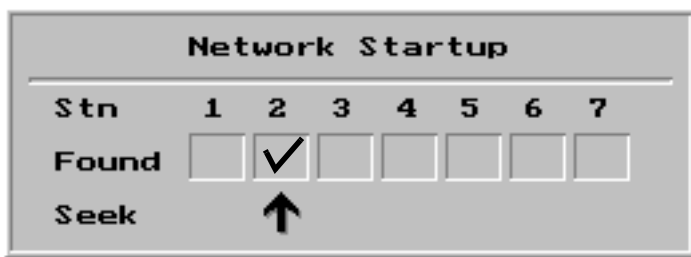
3.3 Limitation and advice

The network is controlled by events; i.e. data is transmitted when a change occurs in one of the systems in the network.

To achieve the best performance, you should think about minimizing the number of signals, particulary those signals which change status often.

The total number of alarms, display signals and printer signals may not exceed 1024.

On the terminals in the net you can display a maximum of 512 digital objects at the same time.

On the terminals in the net you can display a maximum of 180 analog objects at the same time.

Transparent mode can be used in the master if the master is an E300, E700, E710 or E900. Furthermore, No Protocol Mode and data storage (recipe) can be used in all E300, E700, E710 or E900 slaves. In all other cases these functions are not usable in the network.

Use I/O in consecutive sequence for optimum performance. Collect alarm signals in one area, display signals in a second, and printer signals in a third.

To show a 32-bit counter in a FX system you must use double data registers.

If the network contains MAC 50/MTA-250 and/or MAC 90/MTA-G1 with IFC 50 modules (IFC 50 mix) the master must be an E terminal. Both E- and MAC terminals can be slaves.

3.4 Baudrate in different network configurations

Units in the network	Maximal transfer speed
E-terminal and MAC 50/MTA-250	38400
E-terminal and MAC 90/MTA-G1	57600
E-terminal, MAC 50/MTA-250 and MAC 90/MTA-G1	19200
E-terminal	115200

3.5 Clock synchronization

Clocks on all terminals synchronize at start-up and thereafter once each minute. Note that the Master clock takes precedence. All slaves use their own clocks, while the Master can choose between its own clock or that in the PLC system. Slaves may not pass their clock status to the PLC system.

Note!
Make sure that the grounding is completed according to the installation instructions.

Configure MAC network

4   Drawings

IFC 50E
Principschema
Principal diagram

K3-02550