MIC-BP4 Bi-Phase Converter Card for the MIC400 PTZ Camera Series

Bosch Security Systems

EN | Installation and Operation Manual

BOSCH
Invented for life

MIC-BP4 Bi-Phase Converter Card

For the MIC400 series camera

Chapters

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Safety Precautions

The following symbols are used throughout this manual please pay careful attention to their meaning.

The lightning flash with an arrowhead symbol within a triangle is intended to alert the user to the presence of non-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within a triangle is intended to alert the user to the presence of important safety, operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Important Safety Instructions

CAUTION
TO REDUCE THE RISK OF ELECTRICAL SHOCK, DISCONNECT POWER SUPPLY BEFORE OPENING THE POWER SUPPLY UNIT.
POWER DISCONNECT: POWER SUPPLY UNITS HAVE POWER SUPPLIED WHENEVER THE POWER CORD IS INSERTED INTO THE POWER SOURCE

WARNING
INSTALLATION SHOULD BE CARRIED OUT BY QUALIFIED PERSONNEL ONLY IN ACCORDANCE WITH THE APPLICABLE LOCAL CODES.
BOSCH SECURITY SYSTEMS ACCEPTS NO LIABILITY FOR ANY DAMAGES OR LOSSES CAUSED DUE TO INCORRECT OR IMPROPER INSTALLATION

1. Read all instructions prior to installation.
2. Keep this manual for future reference.
3. Heed all warnings.
4. Install according to manufacturer's instructions.
5. Qualified persons only should install this product, if in doubt consult a qualified installer.
6. Use correct electrostatic discharge handling procedures when handling printed circuit boards to avoid damage to electro-sensitive components.
7. Do not install near any strong heat sources such as furnaces.
8. Never push objects or pour liquids into the product enclosure as this can cause a fire or electrical shock hazard.
9. Only use electronic cleaning solvent in the unlikely event of the card requiring cleaning.
10. Ensure that the product is correctly earthed.
11. Use only the power sources indicated in this user guide and ensure that the current rating of the supply cable is adequate for the product.
12. Do not overload power supply sockets as this can be a fire or electrical shock hazard.
13. In the event of failure do not attempt to service this product yourself, please contact Bosch Security Systems for assistance.
14. Only use approved attachments or accessories specified by the manufacturer. Any changes or modifications made to the equipment, not expressly approved in writing by Bosch Security Systems, could prevent proper or safe operation of the product and will invalidate the warranty.
15. Please dispose of disused electrical & electronic equipment at an environmentally compatible recycling facility (contact Bosch Security Systems for further details).

This product complies with the following EC directives:-

EMC Directive (89/336/EC as amended)
Machinery Directive (98/37/EC)
LV Directive (73/23/EC)

RoHS (Restriction of Hazardous substances) 2002/95/EC

WEEE (Waste Electrical & Electronic Equipment) 2002/96/EC

This equipment contains electrical or electronic components that must be recycled properly to comply with Directive 2002/96/EC of the European Union regarding the disposal of waste electrical and electronic equipment (WEEE). Contact your local supplier for procedures for recycling this equipment.

Reference

Glossary of Terms

PTZ	-	Pan/Tilt/Zoom
Bi-phase	-	Bosch Bi-phase telemetry protocol (see pg8)
PSU	-	Power Supply Unit
IR	-	Infra Red (MIC cameras with IR lamps MUST use an IR psu)
MIC-BP4	-	Bi-phase converter card for non-IR power supplies
STP	-	Shielded Twisted Pair cable

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CHAPTER 1 **Introduction**

The MIC-BP4 Bi-phase converter card allows translation of the Bosch Bi-phase protocol signals to RS485, half duplex telemetry signals. This enables Bosch Security Systems MIC400 series PTZ cameras to interface with Bosch Bi-phase equipment.

The MIC-BP4 Bi-phase converter card also enables the camera address to be set through its integrated DIP switch selector.

Versions

This manual covers the installation and operation of Bosch Security Systems MIC-BP4 Bi-phase converter card can be fitted in MIC400 power supplies which have a free expansion slot (header CN2).

For MIC400IR cameras please refer to the MIC-BP3 Bi-phase converter card manual.

CAUTION: The MIC-BP4 converter card can only be used with MIC400 Non - IR variant power supplies due to a lack of an expansion slot in the IR variant power supplies. Please ensure the correct Bi-phase card for the type of power supply is used (see below).

For customers requiring RS485 to Bosch Bi-phase protocol translation using other MIC400 power supply variants; please refer to the following list to select the correct card for the appropriate power supply:-

Converter Card Type

MIC-BP3	-	Card is mounted in an external enclosure for PSU's Without an expansion slot available (header CN2), can be used with any MIC-PSU.
MIC-BP4	-	Plug in card for power supplies were the CN2 expansion slot is available.

MIC PSU		**BP Converter Card Type**
MIC-IR-PSU (all types)	-	No expansion slot; BP3 Only
MIC-240PSU	-	1 expansion slot; BP3 or BP4
MIC-12PSU	-	1 expansion slot; BP3 or BP4
MIC-24PSU	-	1 expansion slot; BP3 or BP4
MIC-115PSU	-	1 expansion slot; BP3 or BP4
MIC-THERMAL-PSU	-	1 expansion slot; BP3 or BP4
MDPS PSU's	-	BP3 or BP4 depending on availability of expansion slot.

Unpacking

- Check the exterior of the packaging for visible damage. If any items appear to have been damaged in transit please inform the shipping company.
- Unpack the card carefully; this is electronic equipment and should be handled with care.
- Do not use if any component appears to be damaged. Please contact Bosch Security Systems in the event of damaged goods.
- The shipping carton is the best way to transport the unit, save it and all other packaging materials for future use. If the part must be returned, use the original packing materials.

CAUTION: Use proper ESD handling precautions to avoid electrostatic discharge. Wear a grounded wrist strap to prevent damage when handling electro-sensitive printed circuit boards.

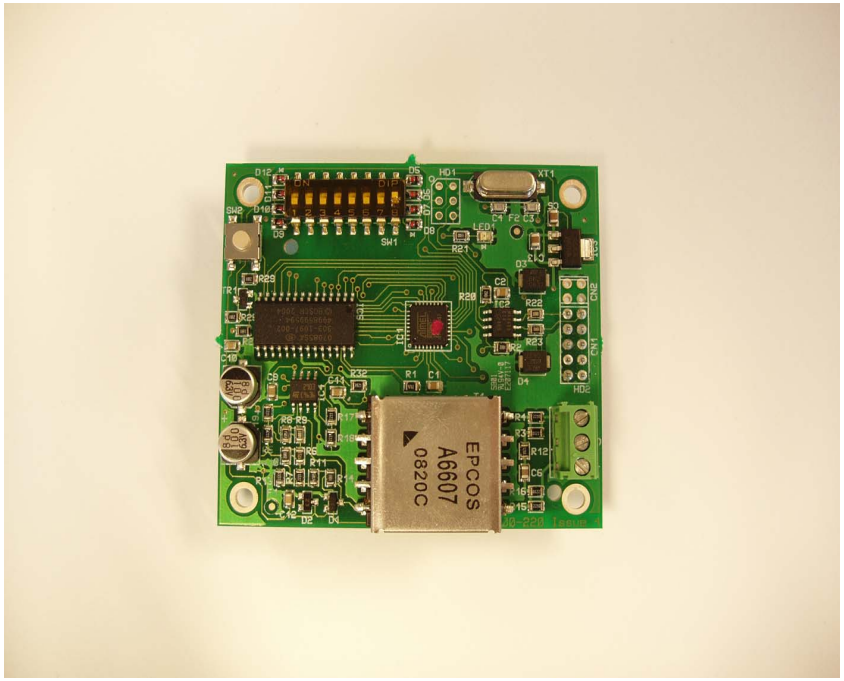
Packaging Contents

Please check for the following contents

- MIC-BP4 Bi-Phase converter card installation manual (this guide)
- MIC-BP4 Bi-Phase card

CHAPTER 2 **MIC-BP4 Bi-phase Converter Card**

Picture 1 – The MIC-BP4 Bi-phase converter card for MIC400 series power supplies.



The Bi-phase converter card allows Bosch control systems with Bi-phase output to control up to eight (8) non-IR MIC400 series camera via their associated power supply units.

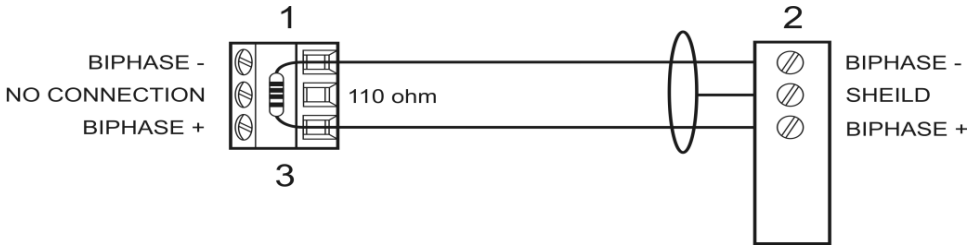
Bi-phase Telemetry Specifications

Shielded 2-wire, half-duplex, multi-drop, 5000 ft. cable limit, 18AWG gauge needed for 500ft distance.

Bi-phase is the standard Bosch protocol used to send Pan/Tilt/Zoom control over 2-wire shielded twisted pair (STP) terminated with an 110Ω terminal resistor.

Cable Type	STP - Shielded Twisted Pair
Distance	1524 m (5000 ft) Belden 8760 recommended
Transmission Rate	31.25 KHz
Gage	1.02 mm (18 AWG)
Termination	110 Ω
Terminal Connector	Screw terminals
Voltage	4 Vp-p

Figure 1 below illustrates the connections necessary for Bi-phase operation.



1	Bi-phase to RS485 Converter PCB
2	Bi-phase output on Control System
3	HD2 Screw Terminal Header

Figure 1: Connections for Bi-phase

CAUTION: The shield must be connected to the controller end only

The **MIC-BP4** has a 110 Ω termination resistor between the Bi-phase +ve and –ve terminals which should be removed unless the camera is the last in the daisy chain of cameras.

Typical Wiring Example

In a daisy chain configuration (as shown in Figure 2 below), a termination resistor of 110 Ω must be added to the last MIC400 in the series. You can daisy chain a maximum of eight (8) MIC400's per Bi-phase output.

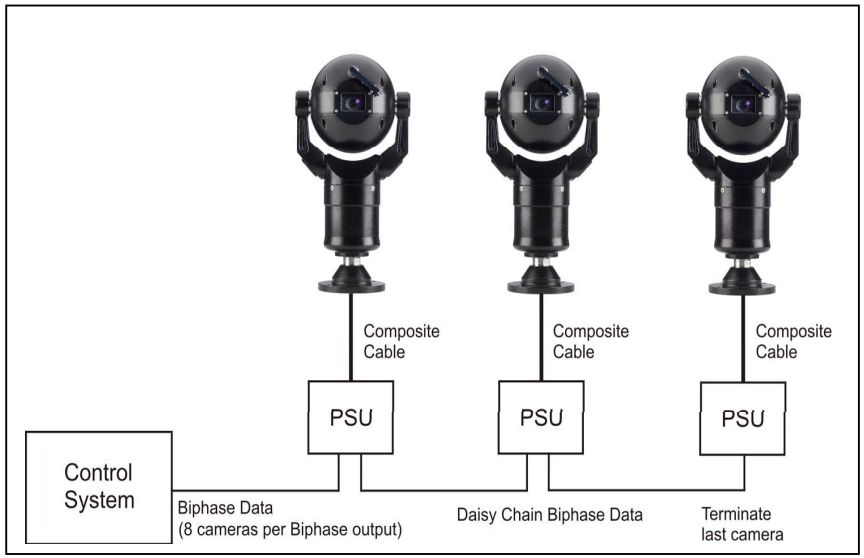


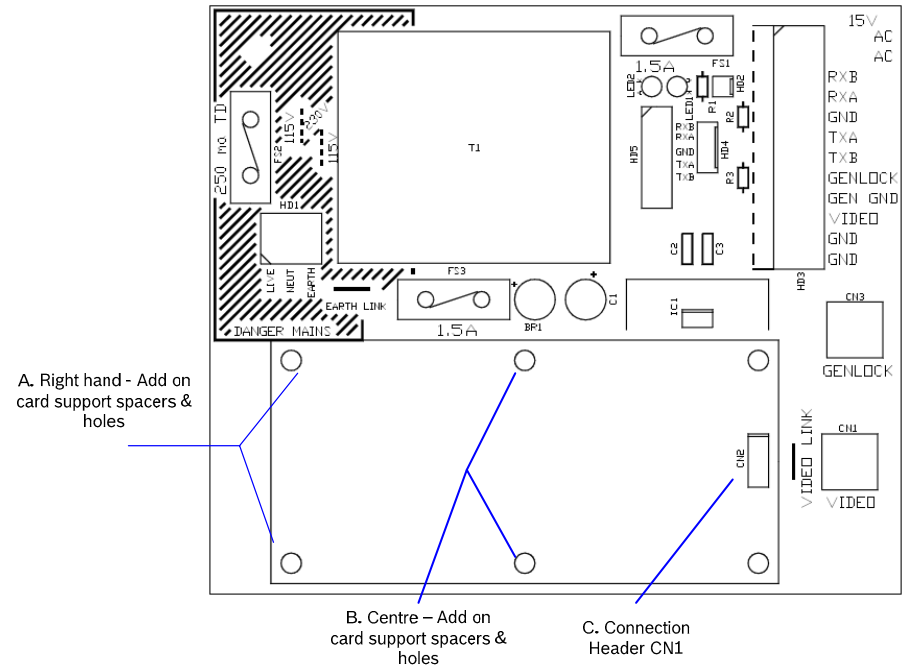
Figure 2: Daisy chain configuration for Bi-phase controller

Installation of the MIC-BP4 Bi-phase Converter Card

1. The power supply unit should be switched off and unplugged prior to carrying out any work.
2. Ensure that the four (4) card spacer supports fitted in the power supply are positioned in the centre and right most mounting holes on the power supply printed circuit board, so that the MIC-BP4 card is supported in each corner.
3. To reposition the card spacers first remove the four (4) screws holding the power supply PCB to the enclosure, turn the PCB over and remove the two (2) card spacer supports at the right hand positions (labelled A on Figure 3), these spacers should be re-fixed at the middle positions (labelled B on Figure 3).
4. Connect the Bi-phase +, Bi-phase - signals in the Shielded Twisted Pair (STP) cable from the control system to the appropriate HD2 screw terminals (as shown in Figure 1).
5. Insert the MIC-BP4 card into the connector labelled CN2 (labelled C on Figure 3) on the PSU, and screw to the card spacer supports using M3x6 screws.
6. Switch on the power supply unit.
7. A status LED will flash (every 3 seconds) indicating the operation of the BP4 Bi-phase converter.
8. To verify the Bi-phase signal are being received and converted, send a PTZ commands from the control system. The status LED will flash whilst commands are being converted to RS485.

CAUTION: The shield must be connected to the controller end only

Figure 3 – Layout of a MIC400 Non-IR Power Supply PCB (MIC-240PSU, MIC-012PSU, MIC-024PSU & MIC-115PSU)



Setting the MIC400 Address (in Hardware)

The MIC-BP4 Bi-phase converter card supports changing the address of the MIC400 at the pole base through hardware.

It should be noted that the MIC-BP4 converts all Bi-phase data into RS485 data regardless of the address setting on the DIP switches. The MIC400 will filter and process commands that match the current address of the MIC400.

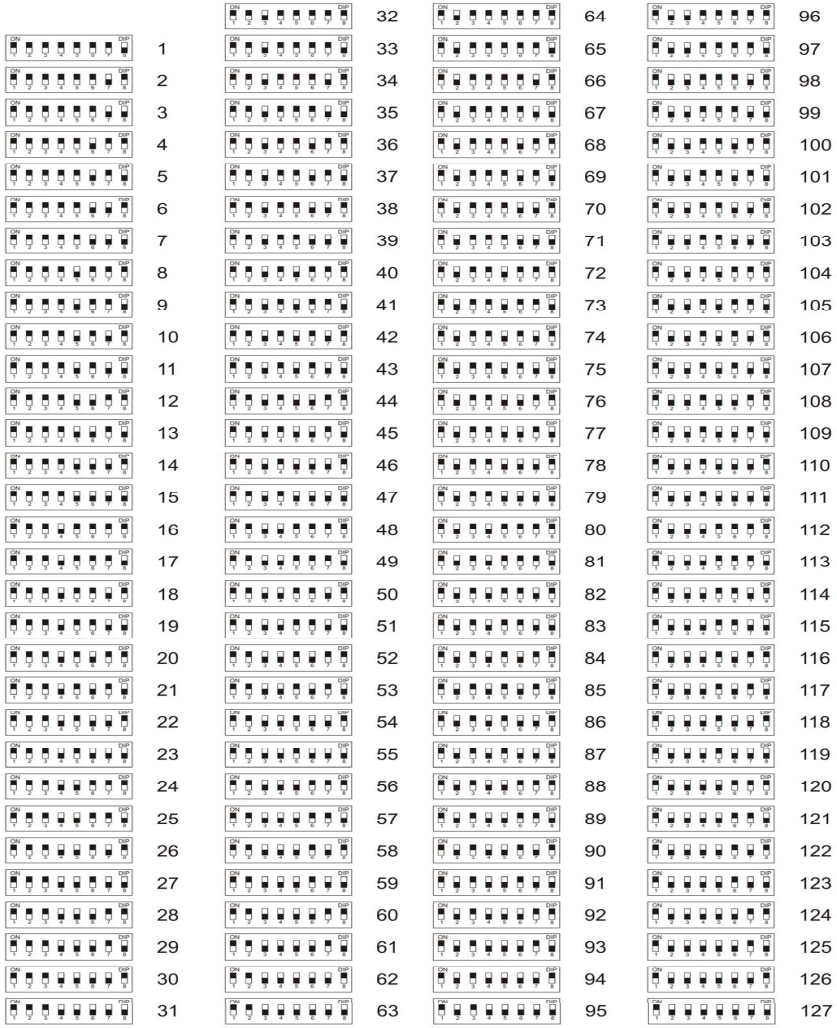
The address setting procedure is as follows:

1. Select the appropriate address (1-255) by setting up the DIP switches. (See tables below)
2. Press the push button (SW2) adjacent to the DIP switches to set the address.
3. The status LED will flash once indicating the start of the address setting procedure. You should then observe the MIC400 panning this confirms that the MIC400 has been set to the new address.
4. The status LED will be illuminated for the duration of this procedure.

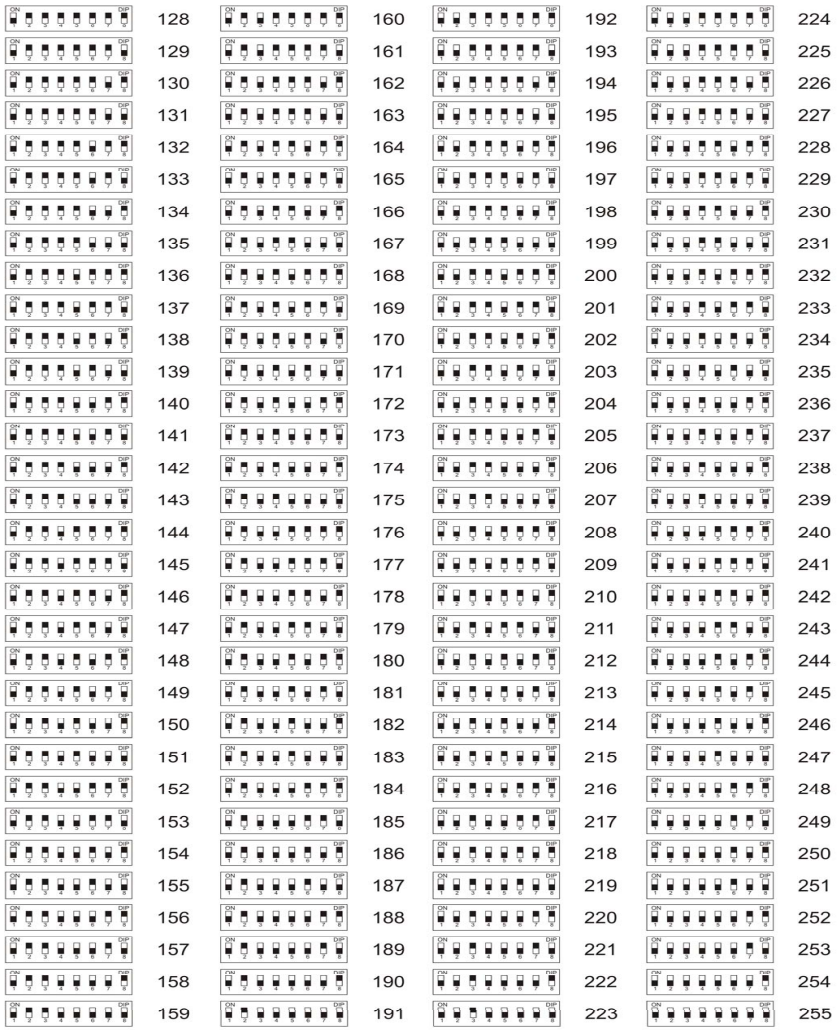
Troubleshooting

1. **The status LED does not flash when sending commands from the control system.**
   a. Check the polarity of Bi-phase signal cables connected on the MIC-BP4.
   b. Ensure the power supply is switch on.

1 to 127 DIP Switch Address Settings for MIC400 series cameras



128 to 255 DIP Switch Address Settings for MIC400 series cameras



CHAPTER 3 **Technical Specifications**

Physical Dimensions and Cable Specification

MIC-BP4 card dimensions
60 mm (W) x 10mm (H) x 70mm (D)

Recommended cable type

Cable Type	STP - Shielded Twisted Pair
Distance	1524 m (5000 ft) Belden 8760 recommended
Transmission Rate	31.25 KHz
Gage	1.02 mm (18 AWG)
Termination	110 Ω
Terminal Connector	Screw terminals
Voltage	4 Vp-p

Bi-phase Specifications**: -** Shielded 2-wire, half-duplex, multi-drop, 5000 ft cable limit, 18 AWG gauge wire needed for 5000ft distance.

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