KM-OPTOOUT-32

EDP No A-484600

32 optically isolated outputs

wasco®

user‘s guide

wasco®

Registered Trademarks

IBM PC, PC/XT and PC/AT are registered trademarks of International Business Machines (IBM).
BASIC is registered trademark of Dartmouth College.
Turbo Pascal, Turbo C are registered trademarks of Borland.
Quickbasic is registered trademark of Microsoft.
Powerbasic is registered trademark of Robert S. Zale.
wasco® is registered trademark.

Disclaimer

The company Messcomp Datentechnik GmbH assumes no liability for the use of the interface card KM-OPTOOUT-32 and this documentation, neither for direct nor indirect damages.

wasco®

Table of Contents

1. Description

KM-OPTOOUT-32 provides an inexpensive galvanic isolation of 32 channels for the outputs of WITIO-PCI160EXTENDED, WITIO-PCI64EXTENDED and WITIO-PCI32STANDARD. Special high power output optocouplers handle a switching current of up to 150 mA. The optocouplers are additionally protected against harmful voltage peaks and pulses by protection diodes.
The output module KM-OPTOOUT-32 can be connected to the 68-pin SCSI-II socket of a WITIO via a KM-VB-5 together with the input module KM-OPTOIN-32 or the screw terminal module KMDB-68. For this purpose, 68-pin connection cables are available in various lengths. Uncomplicated connection to the peripherals is done by screw terminals. The polyamide chassis of the KM-OPTOOUT-32 is fitted with foot elements to snap onto DIN-EN top-hat rails.

2. Safety Instructions

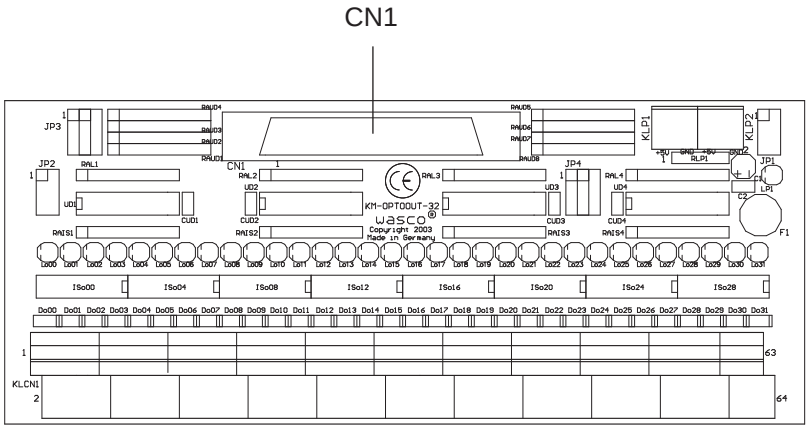
Observe the relevant VDE regulations!

Never use the switching outputs of the KM-OPTOOUT-32 as safety switches or emergency stop switches!

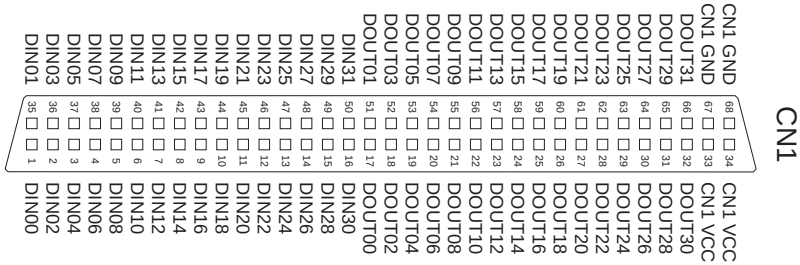
The KM-OPTOOUT-32 module was designed for operation in control cabinets.

3. Connection socket

3.1 Position of CN1



3.2 Pin Assignment of CN1

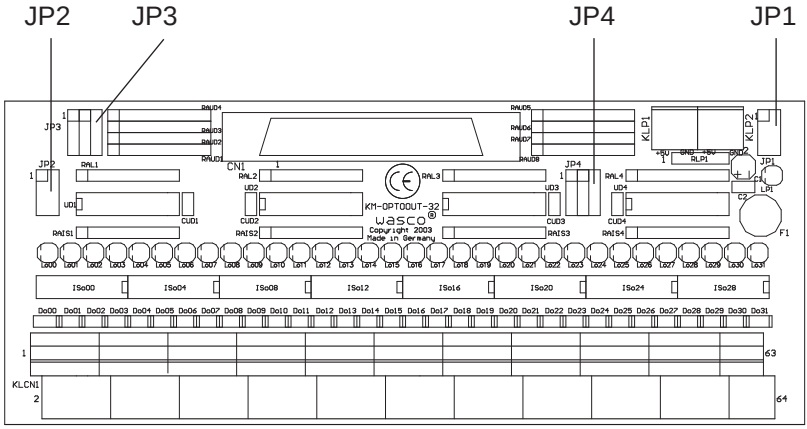


Vcc:
Connector for internal voltage source (+ 5V), **Never apply an external voltage across this pin.**

GND:
Ground connection

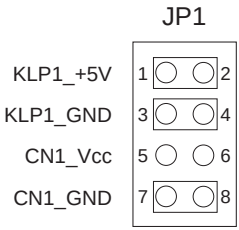
4. Jumper blocks

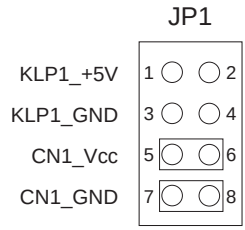
4.1 Position of the Jumper Blocks



JP1: Power supply of the module internal or external
JP2: Status LEDs (On/Off)
JP3: Disconnection of the the data lines DIN00...DIN31 (optional)
JP4: Disconnection of the the data lines DOUT00...DOUT31 (optional)

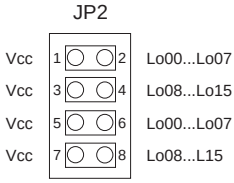
4.2 Jumper Block Assignment JP1





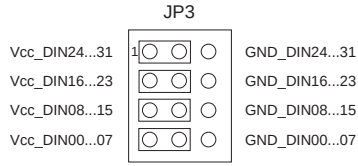
JP1 provides the power supply of the +5V KM-OPTOOUT-32 module either via an external power source or internally via the **wasco**® PCI card.
Attention:
In order not to overload the card, the power supply must be connected externally when using several KM modules on one PCI card!

4.3 Jumper Block Assignment JP2



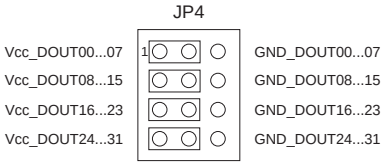
The status LEDs Lo00...Lo31 are powered via JP2. You can switch off the LEDs block by block by removing the jumpers on JP2.

4.4 Jumper Block Assignment JP3



In order to reduce possibly occurring spurious signals on the data lines DINxx, via JP3 you can connect the data lines block by block to +5V or GND via optionally usable terminating resistors (resistance decades RAUD1...RAUD4).

4.5 Jumper Block Assignment JP4



In order to reduce possibly occurring spurious signals on the data lines DOUTxx, via JP4 you can connect the data lines block by block to +5V or GND via optionally usable terminating resistors (resistance decades RAUD5...RAUD8).

5. Operation Displays/Fuse Protection

Operation display
Upon applying the +5V DC voltage supply, the Power-On LED LP1 indicates the unit to be ready for operation.

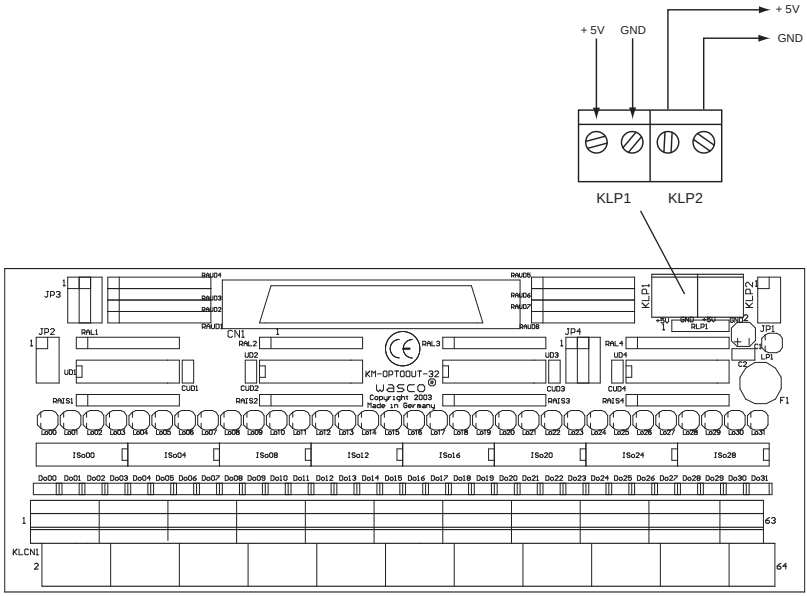
Status displays
The status LEDs (Lo00...Lo31) indicate the state of the control channels. The respective status LED is lit when the control channel is active.

Fuse protection
The operation power supply +5V is protected by a 1A miniature fuse (F1)

6. Installation of the KM-OPTOOUT-32

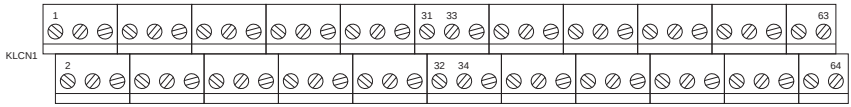
Before starting the installation, make sure there is no current in/to the entire system.

Check the correct position of the jumpers. When the power disconnection is ensured, snap the module onto the DIN-EN rail at the intended position. When using an external voltage supply, connect the power supply (+5V and GND) to the terminal pair KLP1 as shown in the figure below. The terminal pair KLP2 can be used to forward the operating power supply to the next KM-OPTOOUT-32, if required.

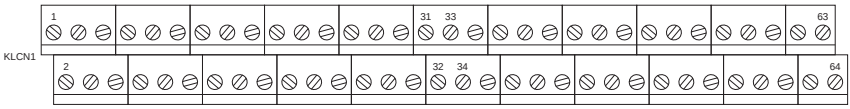


The KM-OPTOOUT-32 requires an operating voltage of +5V DC. Connect the peripherals via the terminals KLCN1 - KLCN64. Ensure a strain relief on all of the wiring connections. Finally, connect the module to the **wasco**® card via a connection cable. The DS68R200DS68 is the intended cable. Check again all of the connections for correctness and secure mounting. Ensure that the Power-On LED LP1 is lit after you have switched on the system.

Please observe the polarity of the optocoupler connections!



Output OUT00 +	KLCN1_1	Output OUT08 +	KLCN1_17
Output OUT00 -	KLCN1_2	Output OUT08 -	KLCN1_18
Output OUT01 +	KLCN1_3	Output OUT09 +	KLCN1_19
Output OUT01 -	KLCN1_4	Output OUT09 -	KLCN1_20
Output OUT02 +	KLCN1_5	Output OUT10 +	KLCN1_21
Output OUT02 -	KLCN1_6	Output OUT10 -	KLCN1_22
Output OUT03 +	KLCN1_7	Output OUT11 +	KLCN1_23
Output OUT03 -	KLCN1_8	Output OUT11 -	KLCN1_24
Output OUT04 +	KLCN1_9	Output OUT12 +	KLCN1_25
Output OUT04 -	KLCN1_10	Output OUT12 -	KLCN1_26
Output OUT05 +	KLCN1_11	Output OUT13 +	KLCN1_27
Output OUT05 -	KLCN1_12	Output OUT13 -	KLCN1_28
Output OUT06 +	KLCN1_13	Output OUT14 +	KLCN1_29
Output OUT06 -	KLCN1_14	Output OUT14 -	KLCN1_30
Output OUT07 +	KLCN1_15	Output OUT15 +	KLCN1_31
Output OUT07 -	KLCN1_16	Output OUT15 -	KLCN1_32

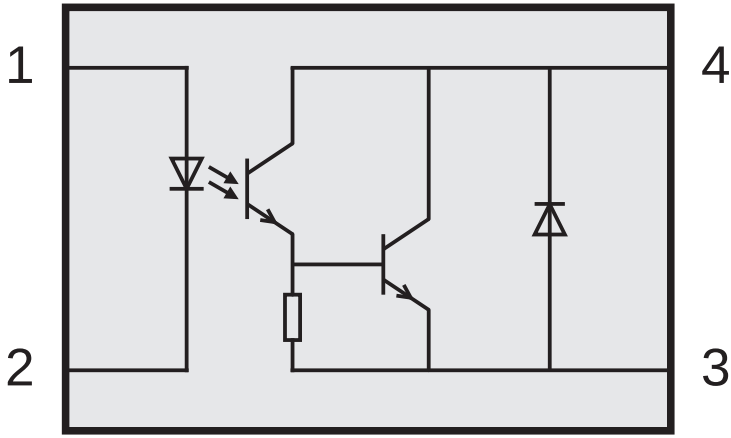


Output OUT16 +	KLCN1_33	Output OUT24 +	KLCN1_49
Output OUT16 -	KLCN1_34	Output OUT24 -	KLCN1_50
Output OUT17 +	KLCN1_35	Output OUT25 +	KLCN1_51
Output OUT17 -	KLCN1_36	Output OUT25 -	KLCN1_52
Output OUT18 +	KLCN1_37	Output OUT26 +	KLCN1_53
Output OUT18 -	KLCN1_38	Output OUT26 -	KLCN1_54
Output OUT19 +	KLCN1_39	Output OUT27 +	KLCN1_55
Output OUT19 -	KLCN1_40	Output OUT27 -	KLCN1_56
Output OUT20 +	KLCN1_41	Output OUT28 +	KLCN1_57
Output OUT20 -	KLCN1_42	Output OUT28 -	KLCN1_58
Output OUT21 +	KLCN1_43	Output OUT29 +	KLCN1_59
Output OUT21 -	KLCN1_44	Output OUT29 -	KLCN1_60
Output OUT22 +	KLCN1_45	Output OUT30 +	KLCN1_61
Output OUT22 -	KLCN1_46	Output OUT30 -	KLCN1_62
Output OUT23 +	KLCN1_47	Output OUT31 +	KLCN1_63
Output OUT23 -	KLCN1_48	Output OUT31 -	KLCN1_64

7. 32 Optocoupler Outputs

The KM-OPTOOUT-32 provides 32 output channels, which are optically isolated by optocouplers. The isolation voltage between the computer‘s ground and outputs is 500 Volt.

7.1 Pin assignment of the output optocouplers



7.2 Optocoupler specifications

Voltage collector-emitter:	max. 50V
Voltage emitter-collector:	0,1V
Current collector-emitter:	max. 150 mA

8. Application Examples

The examples apply for following **wasco**® PCI cards:

Cards with 16 TTL inputs/outputs

OPTOIO-PCI32EXTENDED	Connection socket CN3
OPTOIN-PCI64EXTENDED	Connection socket CN3
OPTOIN-PCI32EXTENDED	Connection socket CN3
OPTOOUT-PCI64EXTENDED	Connection socket CN3
OPTOOUT-PCI32EXTENDED	Connection socket CN3
OPTOPRE-PCI8EXTENDED	Connection socket CN2
ADIODA-PCIF12EXTENDED	Connection socket CN2
ADIODA-PCIF12MDA	Connection socket CN3
IODA-PCI12K8EXTENDED	Connection socket CN2
IODA-PCI12K4EXTENDED	Connection socket CN2

Cards with 32 TTL inputs/outputs

WITIO-PCI32STANDARD	Connection socket CN1
WITIO-PCI64EXTENDED	Connection socket CN1/CN2
WITIO-PCI160EXTENDED	Connection socket CN1/2/3/4/5

8.1 Default applications of **wasco**® KM modules

16 isolated inputs, 16 isolated outputs 150mA

16 isolated outputs 2A

16 isolated inputs

8 isolated outputs 5A

32 isolated inputs

32 isolated outputs150mA

16 isolated inputs, 16 isolated outputs 150mA

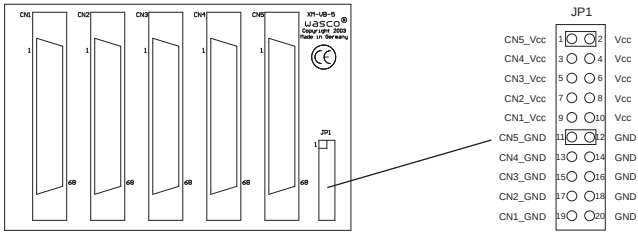
16 isolated inputs

16 isolated outputs 2A

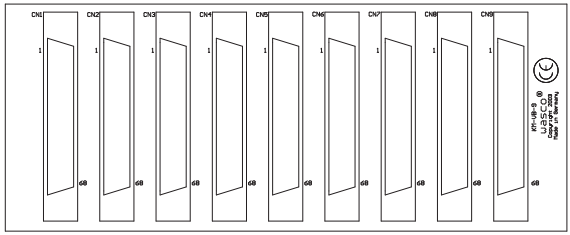
8 isolated outputs 5A

8.2 Connection modules KM-VB-5 and KM-VB-9

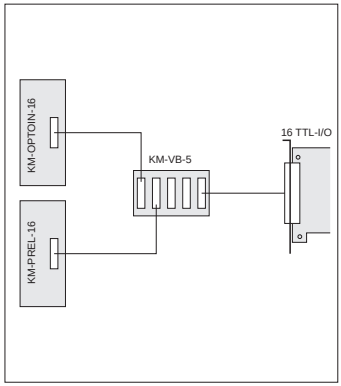
Several modules of the same type or a combination of various KM modules can be connected to a 68-pin SCSI-II socket for extended applications via the connection modules KM-VB-5 and KM-VB-9.



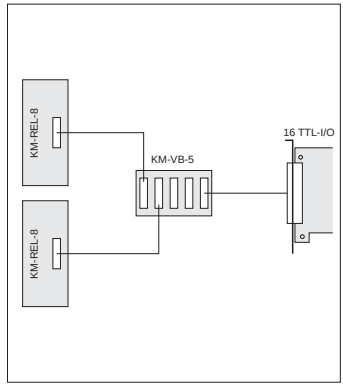
Via JP1 on the KM-VB-5 you can connect the power supply of +5V und GND from the PCI card to the connection sockets CN1...CN5.



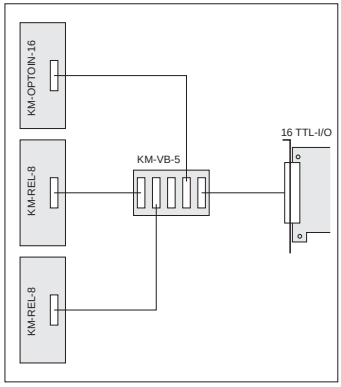
8.3 Extended applications of the wasco® KM series



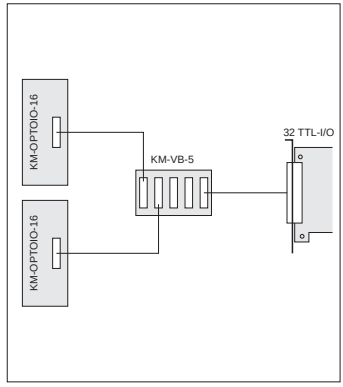
16 isolated inputs, 16 isolated outputs 2A



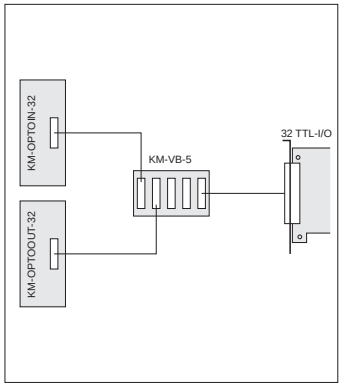
16 isolated outputs 5A



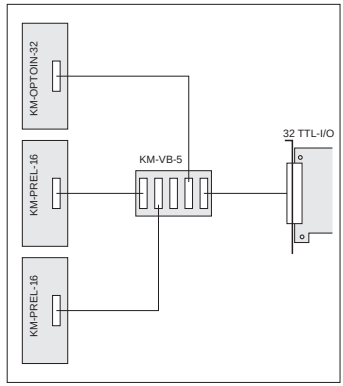
16 isolated inputs, 16 isolated outputs 5A



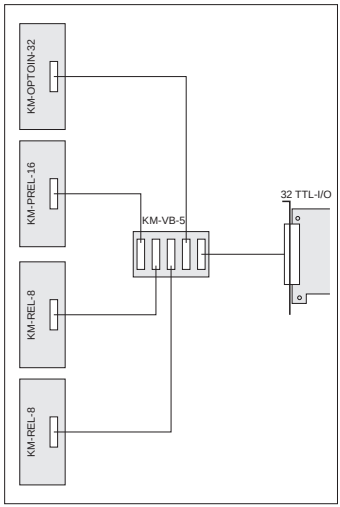
32 isolated inputs, 32 isolated outputs150mA



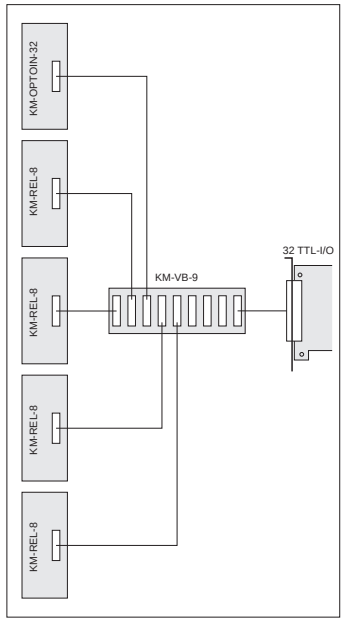
32 isolated inputs, 32 isolated outputs 150mA



32 isolated inputs, 32 isolated outputs 2A



32 isolated inputs, 16 isolated outputs 2A, 16 isolated outputs 5



32 isolated inputs, 32 isolated outputs 5A

9. Accessories

9.1 Fitting wasco® accessories

Connecting parts	EDP No.
DS68R200DS68 Connecting cable (2 meters)	A-492400
KM-VB-5 Connection Module	A-488200
KM-VB-9 Connection Module	A-488600
KM-DB68F25DB68 Connecting cable	A-489200
KM-DB68F50DB68 Connecting cable	A-489400
KM-DB68F75DB68 Connecting cable	A-489600

9.2 Single components for customized assembly

Connecting parts	EDP No.
SCSI-II plug 68-pin for flat ribbon cable	A-553200
Flat ribbon cable 68-pin	A-572800

10. Troubleshooting

You can find below a brief compilation of the most known error causes, which may occur while starting-up or running KM-OPTOOUT-32.

Power On LED is not lit!

Are the operating power supply lines connected properly?

Have the jumpers on JP1 been set correctly?

Is the miniature fuse F1 of the KM-OPTOOUT-32 in an orderly condition?

No functions at the outputs!

Is the Power On LED lit?

Are all of the jumper blocks set correctly?

Is the connection line plugged securely?

Are the lines to the peripherals connected properly?

11. Specifications

Optocoupler Outputs
32 channels, optically isolated
32 x PC853 optocouplers
Overvoltage protection by 32 protection diodes
Output current max. 150mA
Voltage collector-emitter: max. 50V
Voltage emitter-collector: max. 0,1V

Connection Socket
1 x 68pin SCSI-II socket

Terminal blocks
2 x 2-pin screw terminals
1 x 64-pin screw terminals

Operating voltage
+ 5 V 1A miniature fuse F1

Power Consumption
+ 5 V typ. 341 mA

Dimensions
182mm x 77mm x 48mm (l x b x h) incl. polyamide casing

12. Product Liability Act

Information about Product Liability

The Product Liability Act (Act on Liability for Defective Products - ProdHaftG) in Germany regulates the manufacturer‘s liability for damages caused by defective products.

The obligation to pay compensation may already be given, if the product’s presentation could cause a misconception of safety to a non-commercial end-user and also if the end-user is expected not to observe the necessary safety instructions when handling this product.

It must therefore always be possible to prove that the non-commercial end-user has been made familiar with the safety rules.

IIn the interest of safety, please always point out the following safety instructions to your non-commercial customer:

Safety instructions

The valid VDE instructions must be observed, when handling products that come in contact with electrical voltage.

Especially the following instructions must be observed:
VDE100; VDE0550/0551; VDE0700; VDE0711; VDE0860.

The instructions are available from:
Vde-Verlag GmbH
Bismarckstr. 33
10625 Berlin

* unplug the power plug before you open the unit or make sure, there is no current to/in the unit.

* You only may put into operation any components, boards or devices if they have been installed inside a secure touch-protected casing before. During installation there must be no current to the equipment.

* Make sure that the device is disconnected from the power supply before using any tools on any components, boards or devices. Any electric charges stored in components in the device are to be discharged prior.

* Live cables or wires which are connected to the unit, the components or the boards, must always be tested for insulation defects or breaks. In case of any defect the device must be immediately taken out of operation until the defective cables have been replaced.

* When using components or boards you must strictly comply with the characteristic data for electrical sizes shown in the related description

* As a non-commercial end-user, if it is not clear whether or not the electrical characteristic data given in the provided description apply to a component you must consult an expert.

Furthermore, the compliance with building and safety instructions of all kinds (VDE, TÜV, industrial injuries corporation, etc.) is subject to the user/customer.

13. CE Confirmation

This is to certify, that the product

KM-OPTOOUT-32
EDP Number A-484600

comply with the requirements of the relevant CE directives. This declaration will lose its validity, if the instructions given in this manual for the intended use of the products are not fully complied with.

EN 5502 Class B
IEC 801-2
IEC 801-3
IEC 801-4
EN 50082-1
EN 60555-2
EN 60555-3

The following manufacturer is responsible for this declaration:

Messcomp Datentechnik GmbH
Neudecker Str. 11
83512 Wasserburg

given by

Dipl.Ing.(FH) Hans Schnellhammer

Wasserburg, 22.06.2006

Reference system for intended use

This KM module is not a stand-alone device. The CE conformity only can be assessed when additional computer components are in use simultaneously. Therefore the CE conformity only can be confirmed when using the following reference system for the intended use of the KM module:

Control Cabinet:	Vero IMRAK 3400	804-530061C 802-563424J 802-561589J
19" Casing :	Vero PC-Casing	145-010108L
19“ Casing:	Additional Electronic	519-112111C
Motherboard:	GA-586HX	PIV 1.55
Floppy-Controller:	on Motherboard	
Floppy:	TEAC	FD-235HF
Grafik card:	Advantech	PCA-6443
Interface:	WITIO-PCI64EXTENDED	A-461800
Module:	KM-OPTOOUT-32	A-484600
Connecting cable:	DS68R200DS68	A-492400