User's Manual

OPTOREL16
OPTORELTTL

QUANCOM
INFORMATIONSSYSTEME

Industrial Measurement and Automation

Table of contents

1 General information about the card

1.1 Introduction

Congratulations! You've bought a QUANCOM measuring technique card. You are now the proud owner of a modern measuring- and steering card which shows the newest update of technology and whose attributes and functions are able to compete with every other instrument and even outdoes them. The following special attributes are included:

Resistance of the card

- Only those components, which are available in Germany, are used
- Diverse example programs in different programming languages
- Driver support by Windows 2000, NT and 98/95 with the **QLIB**

1.1.1 Our experience is your profit

We from QUANCOM are specialists for the development of hard- and software. Our experience ranges from impulse recording of web-machines by means of temperature-measurement in nuclear power stations, to product data banks or the time recording under LOTUS Notes.

1.1.2 Changes in this manual and Software updates

QUANCOM - products are distinguished by their constant further development. You can see all the actual information of the changes in the README-file on the installation disk or CD. You can always get more information and free software updates on our internet website.

(WWW.QUANCOM.DE)

1.1 Scope of supply

- Measuring technical card
- User's manual
- QUANCOM measuring technical –CD

If a component is missing please contact your dealer. QUANCOM reserves the right to change the extent of delivery without a preliminary announcement.

1.1 Card information

1.1.1 General information

With our TTL-, Optoccoupler- and Relay cards you can switch extern circuits from your PC or make a recording of switching proceedings in your PC.

The in- and outputs are controlled by software. Every relay has two connections, so that voltages with different potentials as well as with alternating voltages can be switched.

The Optocouplers function as Opto-inputs, consequently they can only record direct current activity. In return, they are distinguished by a high switching speed and a relative high voltage field (chapter 1.3 "*Technical data*")

TTL- wires work as in- and outputs, but they can also work bi-directional and thus they can record data and control extern devices respectively.

1.1.2 Operational area

QUANCOM TTL-cards are suited for triggering or for seizing the switching operation of digital circuit.

QUANCOM Optocoupler- cards are utilised where a galvanic separation of two circuits is clever or necessary (for example, Control- and Efficiency-component or for the data transfer over long distances to avoid defects). Without special drivers you can exclusively set them in for low voltage charge. Optocoupler-cards seize outer switching events fast and precise.

QUANCOM relay-cards are best utilised for power-switching. They are very flexible in their choice of the used voltages and they can also be charged with currents of 1A or more.

1.1.3 Functionality

Our TTL-, Optocoupler- and Relay-cards are universal digital I/O-cards. With a maximum of **16 DIL – Reed relays, 24 TTL-I/O channels and 16 Optocoupler-inputs,** it is suitable for many industrial jobs. All relays and Optocouplers are, among each other and to the PC, galvanically isolated.

The Optocoupler have separated ground wires and are available on the card via a 16 pole tub connector. The 24 TTL-I/O are accessible on a 26-pole tub connector. The relay contacts are accessible via a 37-pole D-Sub socket. Additionally to the switching contacts at the D-Sub socket, there are GND, +5V, +12V, -12V, with 100mA available.

The relays are addressed by a simple Port-Out command. For the function control the status of the relays is shown by LED's. With the Port-In commands you can read the signals into the Optocoupler. Accessing (read and write) the three ports of the 8255 takes place the same way.

1.1 Technical Data

Karte	OPTOREL16	OPTORELTTL
Quantity TTLI/O	-	24
Switching-relays (only Rel8/UM)	16	16
OptocouplerIN	16	8

Technical data	
Relays (all except Rel8/UM)	1 Amp / 15 Watt
Switching voltage	Up to 30V DC
Relay switch time (with bounce)	1 ms
Opto-In-voltage	5, 12, 18, 30V *
Connectors	37.pol D-Sub, 26pol., 2*16pol.
Temperature range	5...50° C
Dimension	158*97mm

! ATTENTION ! Please note that, to prevent damage to the hardware (card or computer) and the injury of people, these values should, under no circumstances, be exceeded,.

* => Exchange of the multiplier resistors according to the chart on page 16

2 Installation procedures

2.1 System requirements

- Personal computer: The QUANCOM boards are assigned to operate in IBM-AT compatible computers with 80X86 or compatible. (i.e. 80386 / 80486 / Pentium)
- Bus: Your computer must have the corresponding bus. (PCI / ISA)

2.1 Safety precautions

For the sake of your security and of a safe function of your new QUANCOM board mind the following advice:

- Before opening the computer please unplug it.
- Computer motherboards and components contain very delicate integrated circuit (IC) chips. To protect them against damage from static electricity, you must follow some precautions whenever you work on your computer. Use a grounded wrist strap before handling computer components. If you don't have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
- Hold components by the edges and try not to touch the integrated circuit chips, leads or circuitry.
- Place components on a grounded anti-static pad or on the bag that came with the component whenever the components are separated from the system.

! ATTENTION ! Modifications, made at the device without express permission of QUANCOM, lead to the loss

2.1 Installing the board

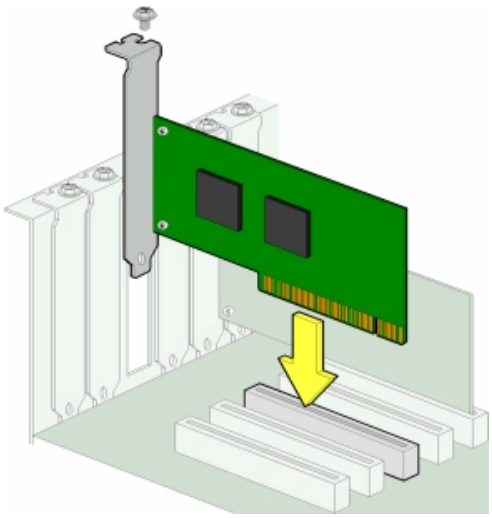
CAUTION:

1. **Always turn the system power off and remove the power cord from the wall before installing or removing any device.**
2. **Always observe static electricity precautions.**
   See „*Safety precautions*“ in chapter Safety precautions

1. Switch off the computer and the connected devices and unplug them.

Warning: Static electricity can destroy your computer and the board!

Discharge yourself as described in chapter 3.2 *“Safety precautions“.*



2. To open your PC you have to detach the four safety screws on the back of the case with a screw driver. Then you can pull the cover forwards. If necessary you must remove impeding cables.

3. The slots are positioned at the back side of your computer. The back wall of unused slots is covered by a small metal plates. Search for a free slot, detach its holding screw and remove the small metal plate belonging to it.

4. Position the extension card into a free slot. Pay attention that the card is set firmly in the slot.

5. Fasten the board with the screw of the small metal plate on the back wall.

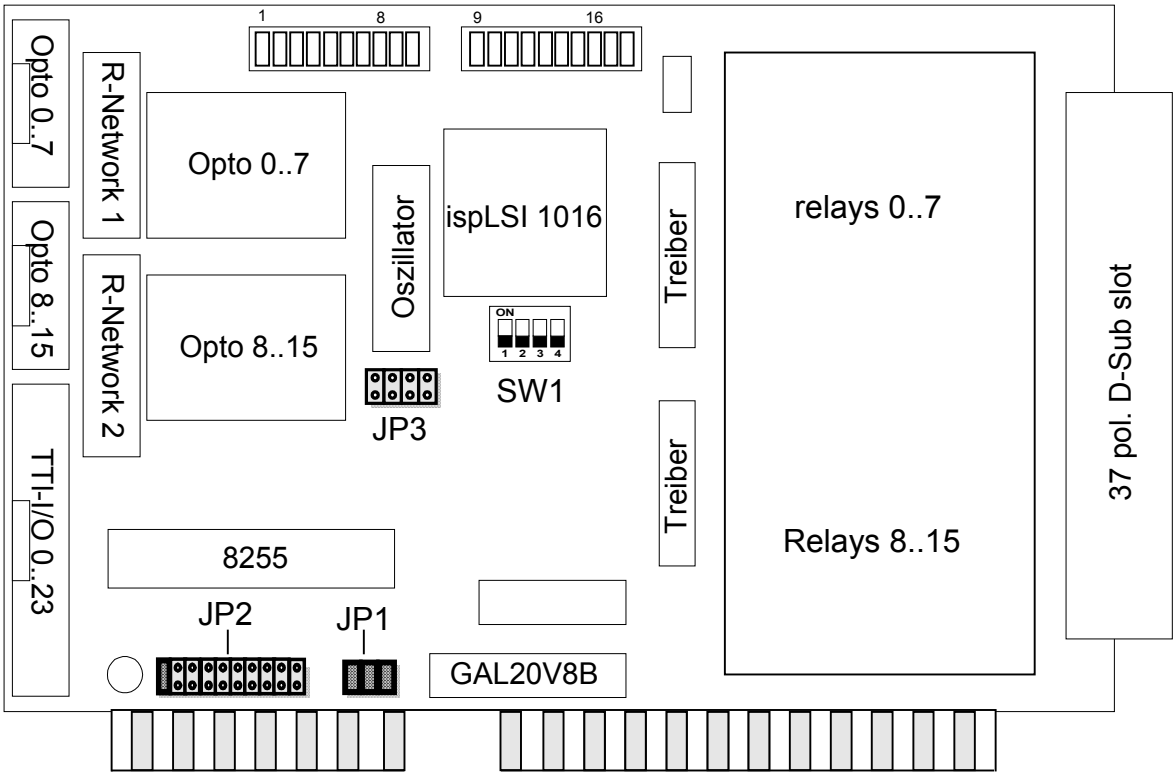
6. Close the cover of your computer. Cables, that you detached during the installation, should now be reconnected.

7. Connect the cable of the board into the slot belonging to it.

2.1 Card survey

2.1.1 View for maximum component part assembly

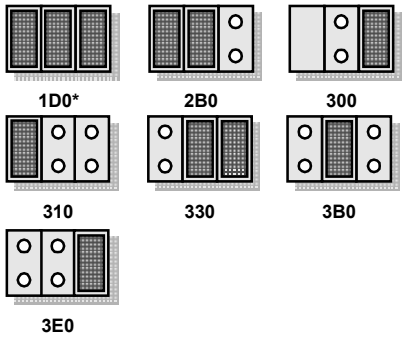
Advice: first block relays 0-7 / second block relays 8-15
lighting when the relays are switched on!



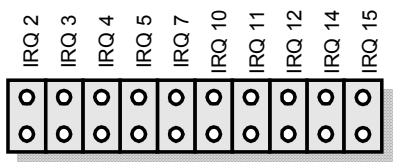
SW1	SW2	Function
Off	Off	Timeout time 1,5s
On	On	Timeout time 800ms
On	Off	Timeout time 200ms
Off	On	Timeout time 50ms

SW3	Function
on	Timeout-Watchdog Activated
off	Timeout-Watchdog Deactivated
SW4	**Function**
on	IRQ at Timeout
off	IRQ at 0->1 on Opto0

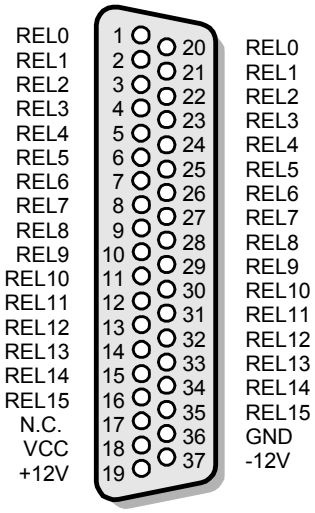
JP 1



JP 2

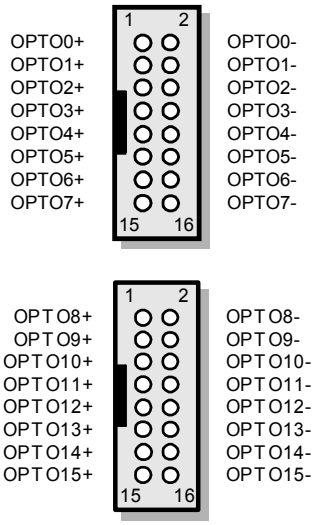


2.1.2 Occupancy of the 37 pol. D-Sub connectors



REL0 - 15: The connections of the relays 0 – 15

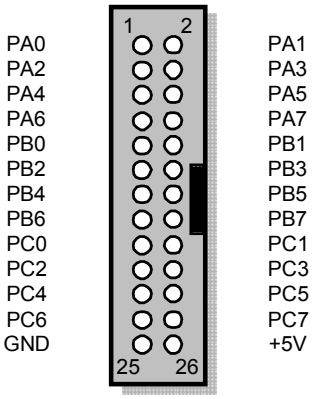
2.1.3 Occupancy of the Optocoupler connectors



OPTO0..15+: positive connection of the Optocouplers

OPTO0..15-: negative connection of the Optocouplers

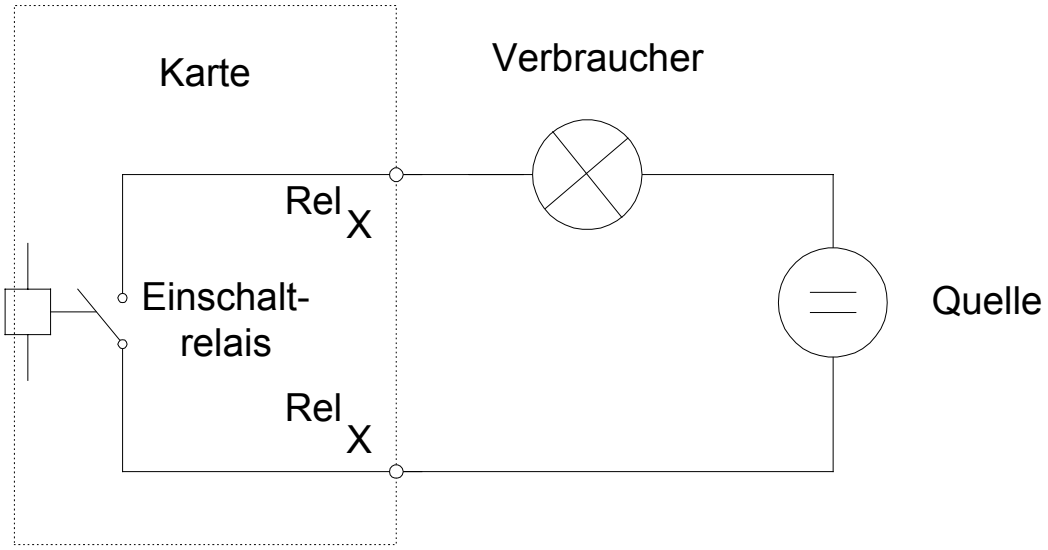
2.1.4 Occupancy of the TTL I/O



2.1 Technical data of relays

Maximum currency	: 1Ampere / 15Watt
Switchable voltage	: 30V DC
Relays switching time (with bounce)	: 1ms

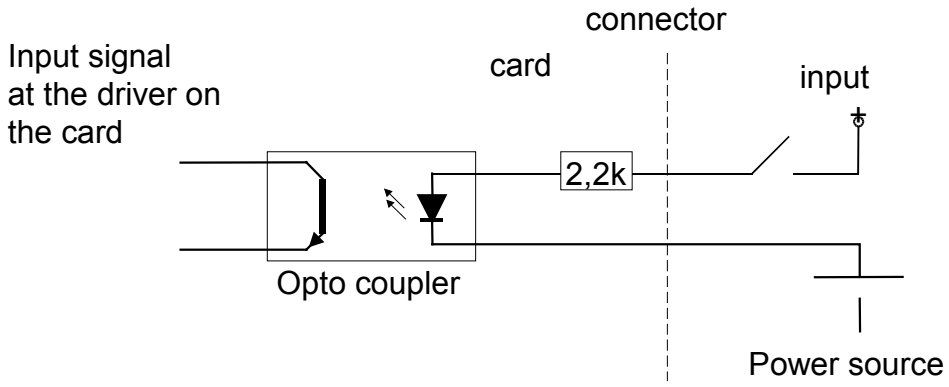
Output switching of relays



2.1 Technical data of the Optocoupler

Maximum Input voltage : 5, 12, 18, 30V (depending on resistance placement)
Minimum Input currency : 10mA

2.1.1 Input switching of the Optocouplers

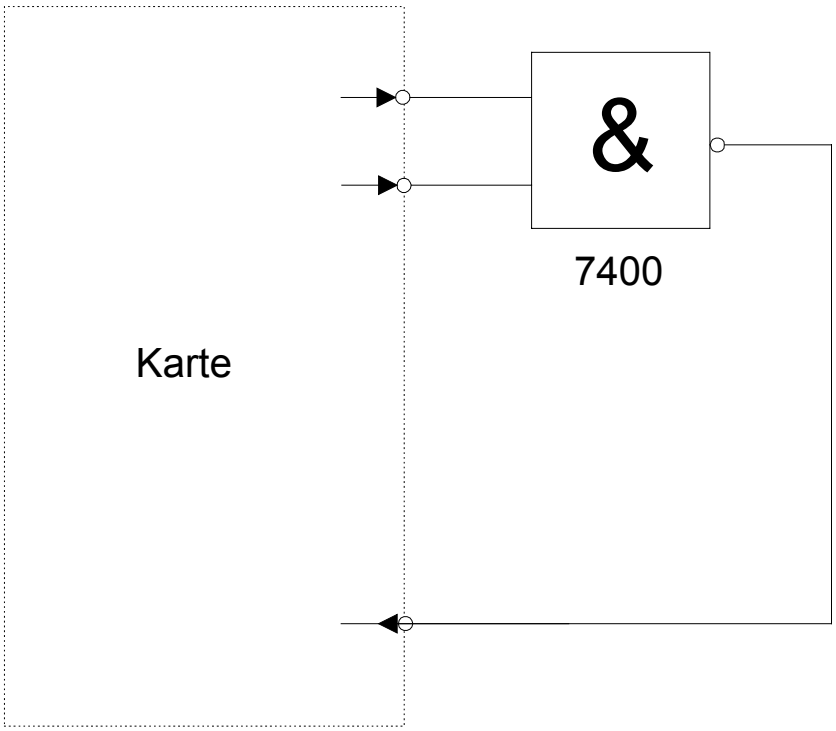


Input voltage	Resistance network
5V	220Ω
12V	1kΩ
18V	1,5kΩ
24V	2,2kΩ

Technical data of the TTL-I/O

Input voltage : 0V – 0.8V / 2V – 5V
Output load (FAN-Out) : 5
Output currency : 5mA

Output switching of the TTL-I/O



3 Register occupancy of the card

3.1 Controlling the relays

(only OPTOREL16, REL8, REL16, REL8/UM and OPTORELTTL)

Write	Valence	Access: Port +0	Access: Port +1 (not REL8 and REL8/UM)
Output		**Relays 0-7**	**Relays 8-15**
Bit 0	1	Relay 0	Relay 8
Bit 1	2	Relay 1	Relay 9
Bit 2	4	Relay 2	Relay 10
Bit 3	8	Relay 3	Relay 11
Bit 4	16	Relay 4	Relay 12
Bit 5	32	Relay 5	Relay 13
Bit 6	64	Relay 6	Relay 14
Bit 7	128	Relay 7	Relay 15

Port is the I/O-basis address of the card

⇒ “Program examples for the QLIB” page 26

EXAMPLE 1.:

To switch on the relays 1, 4 and 7 please add all corresponding numbers of the column „Valence“.

(1) 2 + 16 + 128 = 246
(2) Write down the value 246 into the register **Port + 0**

Thereby the relays 1, 4 and 7 are now switched on.

EXAMPLE 2.:

To switch on the relays 10 and 11 please add all corresponding numbers of the column „Valence“.

(3) 4 + 8 = 12
(6) Write down the value 246 into the register **Port + 1**

Thereby the relays 10 and 11 are now switched on.

TIP.:

During every writing cycle **8 relays** are always switched on or off. To switch a **single** relay on or off, and thereby not changing the switching condition of the remaining relays, you can note the switching condition in a variable. Over a logic „OR“ or a „AND“-knotting the switching is easy realisable.

EXAMPLE 3.:

Assumption: In example 1, we described that the relays 1, 4 and 7 were switched on. Now the relay 0 should additionally be switched on. The relay 0 has the valence 1. Therefore the value 246 is „OR“-knotted with 1. In C or C++ the operator “&” is equivalent to the disjunction „OR“.

(4) The value 246 is stored into a variable.
(5) 246 **OR** 1 = 247
(6) Write down the value 247 into the register Port + 0

Thereby the relays 0, 1, 4 and 7 are switched on.

EXAMPLE 4.:

Assumption: In example 3, we described that the relays 0, 1, 4 and 7 were switched on. Now the relay 7 should additionally be switched off. The relay 7 has the valence 128. Therefore, the value 247 is „AND“-knotted with the complement of 128. In C or C++ the operator “&” is equivalent to the conjunction „AND“ and the operator “~” to the negation „NOT“.

(7) The value 247 is stored into a variable.
(8) 247 AND (NOT 128) = 119
(9) Write down the value 119 into the register Port + 0

There by the relays 0, 1 and 4 are switched on.

3.1 Reading of the Optocoupler input

Reading	Valence	Access: Port +4	Access: Port +5
Input		**OPTOI 0-7**	**OPTOI 8-15**
Bit 0	1	OPTO0	OPTO8
Bit 1	2	OPTO1	OPTO9
Bit 2	4	OPTO2	OPTO10
Bit 3	8	OPTO3	OPTO11
Bit 4	16	OPTO4	OPTO12
Bit 5	32	OPTO5	OPTO13
Bit 6	64	OPTO6	OPTO14
Bit 7	128	OPTO7	OPTO15

Port is the I/O-basis address of the card

Please notice:
If one bit is set on high (‚1‘), then the respective Optocoupler-input is **not** active, if one bit is set on low (‚0‘), then you have a voltage at the respective Optocoupler-input.

⇒ “Program examples for the QLIB” page 26

In every reading cycle, **8 inputs** are read at the same time. To keep the condition of an input this must be dimensioned from the read value.

EXAMPLE 1.:
To read the condition of an optocoupler input OPTO5, proceed as follows:

(10) Read the register **Port + 0** into a variable
(2) Variable AND 32 = OPTO5

If the value in OPTO5 is unequal 0, the Optocoupler in/out is not activated. That means that it has no power. In C or C++ the operator “&” is equivalent to the conjunction „AND“.

EXAMPLE 2.:

To read the condition of the Optocoupler input OPTO9, proceed as follows:

(11) Read of the register **Port + 1** into a variable
(2) variable AND 2 = OPTO9

If the value in OPTO9 is unequal 0 the Optocoupler in/out is not activated. That means that it has no power. In C or C++ the operator “&” is equivalent to the conjunction „AND“.

4 Software Installation

4.1 What is the QLIB

The QLIB, a short form for **Q**UANCOM **Lib**rary, offers the possibility, to address all QUANCOM-cards with the operating systems Windows 2000/NT and 98/95 and the programming languages C/C++/Delphi/Visual Basic. It is delivered together with all QUANCOM-cards and allows the user, with the help of simple commands, to integrate the QLIB into their applications.

4.1 General information about the QLIB

Independent operating system programming
All QUANCOM-cards are programmed independent of operating systems. The QLIB (QUANCOM Library) offers you the possibility, to respond to all QUANCOM-cards with the operating systems Windows 2000/NT and 98/95 and the programming languages C/C++/Delphi/Visual Basic with just a few commands.

Programming, independent of program language
It doesn't matter, if a application is programmed under C, C++, Delphi, Visual Basic, HP VEE, or LabView. The QLIB supports up to 16 QUANCOM-at once in a computer and it is not of importance, if all cards are of the same type or not.

SDK-Kit for programmers
This component is included in delivery. The Software Development Kit (SDK) offers further tools, source code and examples, which are necessary for the installation of the QLIB, to equip self programmed applications with the QLIB.

4.1 Construction of the QLIB

Block diagram interpretation

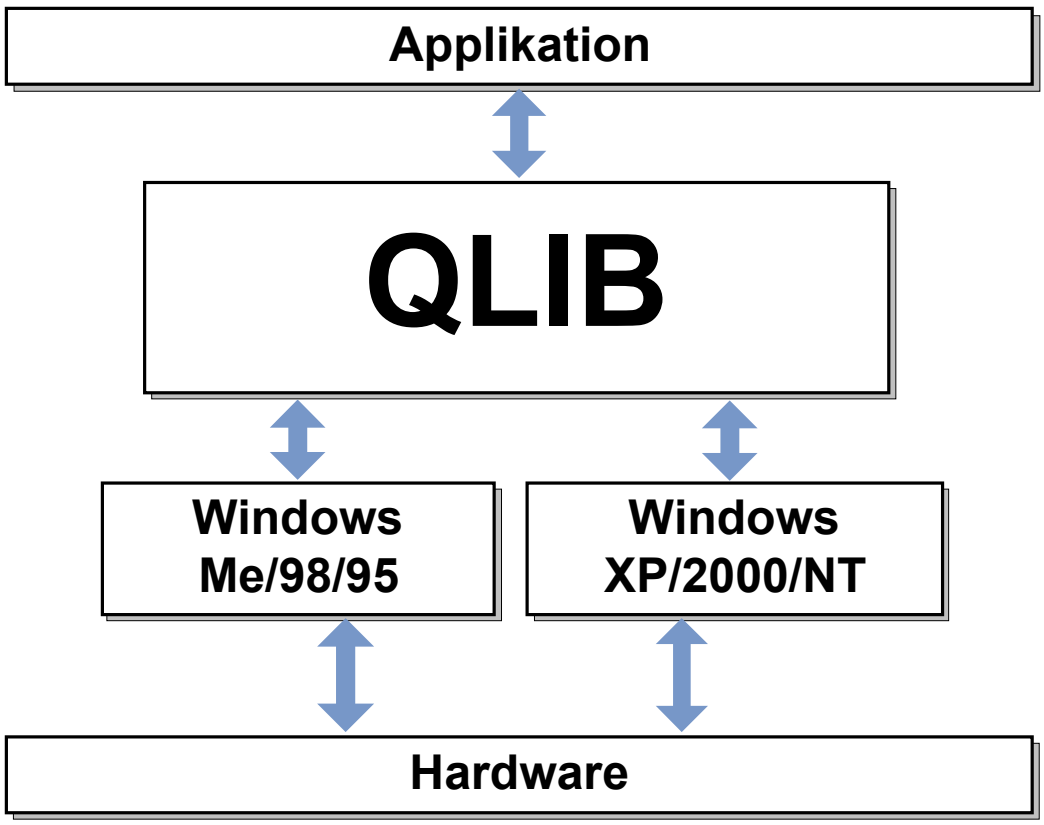
The diagram stated below shows how the QLIB builds the connection between the applications and the Hardware or the operating system.

The application

An application developed in an optional programming language, for example C, C++ or Pascal, has access to the QLIB.

Hardware access under Win32s

Only limited Hardware access is possible, if any at all. Therefore, the operating systems are not accessed directly through the QLIB, instead, by special operating system drivers. This guarantees a conforming integration of the QLIB in Windows 2000/NT and 98/95.



4.1 Software- / QLIB- installation

4.1.1 Installing the QLIB, sources and application programs

1. Please insert the QUANCOM-measuring technics-CD.
   If Windows starts the CD-Rom automatically continue with point 5.

2. Please click the **Start** button. (on the left/bottom in the Task-menu)

3. Please choose **Perform**.

4. Please perform the following command:
   D:\Autorun
   (If **D** is not the drive-letter of your CD-Rom drive, replace **D** with the right letter.)

5. Please choose the product name of the card and follow the installation instructions.

4.1 Supported compiler and operating systems

4.1.1 QLIB supported operating systems

The QLIB, which stands for QUANCOM Driver LIBrary, was developed with the target to allow the simple programming of all our data acquisition products under various operating systems. So it is easy to write an application that runs under the operating systems Windows Me/98/95 and Windows XP/2000/NT 4.0. This driver interface is not limited to PC boards or other I/O adapters but is also targeted towards supporting the next product generations currently being developed. The used functions and parameters are the same for all operating systems.

Supported operating systems:

• Microsoft Windows XP/2000/NT 4.0
• Microsoft Windows Me / 98 / 95

Supported compilers:

C / C++
• Borland C++ 3.1, 4.x, 5.x
• Microsoft® Visual C++ 1.x, 2.x, 4.x, 5.x
Pascal
• Borland Turbo Pascal
Delphi
• Borland Delphi
Basic
• Microsoft® Visual Basic 3.x, 4.x, 5.x; 6.x

Graphical Programming Language

• HP VEE from Hewlett-Packard
• LabView® of National Instruments

4.5 Program examples for the QLIB unter C

The following program examples show you, how easy it is to develop a program to control the cards under C with the QLIB.

4.5.1 Controlling the Optocouplers

Program example for the Optocoupler with the QLIB under C

```
#include <windows.h>
#include <stdio.h>
#include <conio.h>

#include "qlib.h"


/*=====================
          main program
======================*/

void main ()
{
ULONG handle;

if ((handle=QAPIExtOpenCard(handle,0L)) == 0L)
          {
  printf("card could'n be open\n");
  return;
  }

for (;;)
          {
  if (kbhit()!=0 && getch()==27) break;

  printf("%04lx\n",QAPIExtReadDI16(handle,0L,0L));
  Sleep(500);
  printf("%04lx\n",QAPIExtReadDI16(handle,0L,0L));
  Sleep(500);
  printf("%04lx\n",QAPIExtReadDI16(handle,0L,0L));
  Sleep(500);
  printf("%04lx\n",QAPIExtReadDI16(handle,0L,0L));
  Sleep(500);
  }

QAPIExtCloseCard(handle);

}
```

4.5.2 Controlling the relays

Program example for the relays with the QLIB under C

```
#include <windows.h>
#include <stdio.h>
#include <conio.h>

#include "qlib.h"


/*=====================
          main program
======================*/

void main ()
{
ULONG rel16;

if ((rel16=QAPIExtOpenCard(REL16,0L)) == 0L)
          {
  printf("card could'n be open\n");
  return;
  }

for (;;)
          {
  if (kbhit()!=0 && getch()==27) break;

  QAPIExtWriteDO8(handle,0L,0x00L,0L);
  Sleep(500);
  QAPIExtWriteDO8(handle,0L,0xFFL,0L);
  Sleep(500);
  QAPIExtWriteDO8(handle,0L,0x55L,0L);
  Sleep(500);
  QAPIExtWriteDO8(handle,0L,0xAAL,0L);
  Sleep(500);
  }

QAPIExtCloseCard(handle);

}
```

4.5.3 Controlling the TTL-I/O

Program example for the TTL with the QLIB under C

```
#include <windows.h>
#include <stdio.h>
#include <conio.h>

#include "qlib.h"


/*=====================
          main program
======================*/

void main (void)
{
ULONG handle;
int  i = 0;

clrscr();

if ((handle = QAPIExtOpenCard(OPTORELTTL,0)) == 0L)
  {
  printf("OPTORELTTL could'n be open\n");
  return;
  }

QAPIExtWrite8255(handle,0,3,128);

printf("Abbruch mit ESC\n");

while (!kbhit())
  {
  QAPIExtWrite8255(handle,0,0,i);
  QAPIExtWrite8255(handle,0,1,i);
  QAPIExtWrite8255(handle,0,2,i);

  i = (i + 1) & 255;

  Sleep(500);
  }

QAPIExtCloseCard(handle);
}
```

4.6 Controlling the card under Dos

The following program examples show you, how easy it is to develop a program for the QUANCOM-cards.

4.6.1 Controlling the Optocouplers

Program example for the Optocoupler under C

```
#include <stdio.h>

void main()
{
unsigned int port;

int i;
long int j;
unsigned int wert;

port=0x1d0;

if(port==0) exit(0);


while(!kbhit()) {
for(i=0;i<16;++i) {
        wert=1<<i;


        for(j=0;j!=200000;++j);
        printf("%x %x \n",inp(port+4),inp(port+5));
}
}
}
```

4.6.2 Controlling the relays

Program example for the relays under C

```
#include <stdio.h>

void main()
{
unsigned long ret;
unsigned int port;

int i;
long int j;
unsigned int value;

port=0x1d0;

if(port==0) exit(0);

while(!kbhit()) {
for(i=0;i<16;++i) {
        wert=1<<i;

        for(j=0;j!=200000;++j);

        outp(port,value&0xff);
        outp(port+1,(value>>8)&0xff);



}
}
getch();
}
```

4.6.3 Controlling the TTL-I/O

Program example for the TTL under C

```
#define p8255A   port+0xc
#define p8255B   port+0xd
#define p8255C   port+0xe
#define p8255CMD port+0xf

#include <stdio.h>

void main()
{

unsigned int port;

int i;
long int j;
unsigned int wert;

port=0x1d0;

if(port==0) exit(0);

/*TTL-I/O*/

outp(p8255CMD,128);    /*8255 auf Ausgabe*/

while(!kbhit()) {
for(i=0;i<8;++i) {
            wert=1<<i;
            outp(p8255A,wert&0xff);
            for(j=0;j!=200000;++j);
            printf("Port A=%2x  Port B=%2x  Port C=%2x\n",inp(p8255A),inp(p8255B),inp(p8255C));
}
outp(p8255A,0);

for(i=0;i<8;++i) {
            wert=1<<i;
            outp(p8255B,wert&0xff);
            for(j=0;j!=200000;++j);
            printf("Port A=%2x  Port B=%2x  Port C=%2x\n",inp(p8255A),inp(p8255B),inp(p8255C));
}
outp(p8255B,0);

for(i=0;i<8;++i) {
            wert=1<<i;
            outp(p8255C,wert&0xff);
            for(j=0;j!=200000;++j);
            printf("Port A=%2x  Port B=%2x  Port C=%2x\n",inp(p8255A),inp(p8255B),inp(p8255C));
}
outp(p8255C,0);

}
}
```

5 Annex

5.1 Frequently asked questions

5.1.1 General information

Do you have problems with the Net work cards?

Yes, according to how you have addressed the port of your QUANCOM or network-card you could become resource-conflicts. Either you change the Port-address of the QUANCOM-card or of that of the Network-card.

I have a Network card inside my computer which is not addressable after the installation of the QUANCOM-card! What can I do?

Change the Port-address of the QUANCOM-card or the Port-address of the Network card to remove the problem.

You have problems with the soundcard?

Yes, according to how you have addressed the port of your QUANCOM or soundcard, you could become resource-conflicts. Either you change the Port-address of the QUANCOM-card or that of the Network card.

5.1.2 Running the card under Dos

Can I use the card in connection with a Store-Manager?
(QEMM 386,EMM386)

Yes, but the use of a Store-Manager can make your computer or the software slower.

The card is not responding under DOS with the direct-IO commands, what is the reason or what can I do?

1) Problems with the Optocoupler-input

- Port conflict: 2 cards are using the same IO-Basis-address, change the Basis-address of your QUANCOM-card.

- Wrong IO-Basis-address in the program. Check if the Basis-address stated in your program is corresponding to the jumped Basis-address on the card.

- The voltage, at the Optocoupler-input, is too low to control the Optocouplers. Choose a higher voltage or change the multiplier under consideration of the technical specification of this card.

- Examine, if the Optocouplers are switched correctly.

- The multipliers were damaged by a too high Input-voltage.

- The Optocouplers were damaged by a to high Input-voltage.

2) Problems with the Relays-output

- Port conflict: 2 cards are using the same IO-Basis-address. Change the Basis-address of your QUANCOM-card.

- Wrong IO-Basis-address in the program. Check if the Basis-address stated in your program coincides with the jumped Basis-address on the card.

- Check if the relays are switched correctly.

3) Problems with the TTL- In/Output

- Port conflict, 2 cards are using the same IO-Basis-address, change the Basis-address of your QUANCOM-card.

- Wrong IO-Basis-address in the program. Check if the Basis-address stated in your program is coincides with the jumped Basis-address on the card.

- Check if the TTL-In/Output are switched correctly.

- Check if the load is too high. They should not exceed XX .

- Check the voltage at the input. If this is set too high, then the inputs could be damaged.

- It is possible that the inputs were damaged by static electricity.

- Check the input-switching for possible faults, switched polarity or the like.

5.1.3 Running the card under Windows 98/95

Why is the card-dialogue under the QLIB empty?
- There is no QUANCOM-PCI-card in the system.
- There are no drivers for a QUANCOM-card installed.

After installation I get the message “QLIBNDRV.SYS not found“. What can I do?

- If you use a QUANCOM-ISA-card, check if the drivers for the QUANCOM-card are installed.
- Check if the driver was installed correctly, and if it was configured correctly. (System control => Devices)

After Software-Installation I get the message „Direct-IO interface can not be initialised qmulti32.dll could not be initialised“. What can I do?
- If you use a QUANCOM-ISA-card, check if the drivers for the QUANCOM-card are installed.
- Check if the driver was installed correctly, and if it was configured correctly. (System control => Devices)

Why does QAPIExtOpenCard give the return value 0 back, although the card is installed?
- Check if the driver is installed.
- The card is not configured. (System control => QLIB / watch QLIB-documentation)

Why do I get the message "Driver QLIBNdrv.SYS could not be loaded” ?
-There was no driver for a ISA-card installed.
- Installation failed, because QLIB was installed without Administrator rights
-The driver for the QUANCOM-card was not loaded. (System control => Devices)
- QLIB was installed on a Network device.

5.1.4 Running the card under Windows 2000/NT

Why is the card-dialogue under the QLIB empty?

- There is no QUANCOM-PCI-card in the system.
- There are no drivers for a QUANCOM-card installed.

Must the QLIB be installed with Administrator rights?

Yes, the QLIB must be installed with Administrator rights.

Why do I get the message "Driver could not be installed" during the installation?

- Installation was made without Administrator rights.

Why do I get the message "driver QLIBNdrv.SYS could not be loaded"?

- The driver, "QLIBNDRV", is not listed in the list under „System control => Devices", or is not booked as "started" there.
- Driver installation failed because the QLIB was not installed with Administrator rights.
- QLIB-Software was installed on a network drive.

How can I install the driver QLIBNDRV.SYS manually?

Sometimes it happens, that the file QLIBNDRV.SYS is not installed correctly on the system. To install the driver manually please follow these instructions:

1) In the QLIB- register Tools exists the tool "instdrv.exe". With this tool you can install/uninstall the driver manually.

2) Please call this tool up with the following command: **instdrv qlibndrv d:\verzeichnisname\qlibndrv.sys,** whereby you replace **d:\verzeichnisname** with the drive and the file, where the driver file "qlibndrv.sys" lies on your system.

3) Go under " System control => Devices " and change the Start type on "automatic", then click on the **Start** button. After that, you may have to restart your computer, so that the changes become effective.

Why must I restart the driver after every restart of the computer?

The starting type of the driver is set on manual. You can change the settings to „automatic“.

Newest Software versions

Where can I get the newest drivers/software for the QUANCOM-cards?

You can find the newest drivers on our Internet WWW-sides.

http://www.quancom.de/download

5.1 Consultation and Help

You need help?

If you don't know how to go on during the installation or operation of your QUANCOM board please first consult this user's guide.

! Tip !

In the chapter A.1 „*Frequently asked questions*" a lot of questions are answered. They may help to solve the problems. On the QUANCOM installation CD you can find a ASCII – Text – file README.TXT, which include changes made after printing of this user's manual.

! IMPORTANT !

If you have further questions please contact our support team and have the following information handy:

- Exact type of the board.
- Version of the driver
- Version of the QLIB
- Operating system, Hardware equipment and Bus - System
- Name and Version of the program, where the error is reported.

1. • A detailed failure description. To make sure, please try to reproduce the failure, describe it as exact as possible, and which steps led to this failure.

Who can you contact?

The QUANCOM Internet side
WWW.QUANCOM.DE

Per Fax
0 22 36 / 89 92 - 49

Per e-mail:

support@quancom.de

In written form:
QUANCOM INFORMATIONSSYSTEME GmbH
In der Flecht 14
50389 Wesseling

If you need urgent help call:

QUANCOM Hotline Germany
0 22 36 / 89 92 - 20

Monday-Thursday
from 9:00 to 18:00
Friday
from 9:00 to 17:00

Newest drivers

You can find the newest Version of QUANCOM software on our internet website http://www.quancom.de. You can also find a lot of information and „Frequently asked questions (FAQ's)". Before you contact the QUANCOM support, please check if you are using the newest software version of the QUANCOM software.

Repairing?

If you are not sure whether your QUANCOM board is defective please call the QUANCOM Hotline:

Tel.: **0 22 36 / 89 92 – 20**

Call before you send us the QUANCOM board to be repaired.

If you send us your QUANCOM board, please use original package or any other suitable package, to protect the contents against transport damage. You also need to send us a copy of the original bill and the RMA number.

You can shorten the repair time by sending us an exact failure description, so that a faster failure search is possible. Send your QUANCOM board directly to the service department of QUANCOM Informations-systeme GmbH.

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