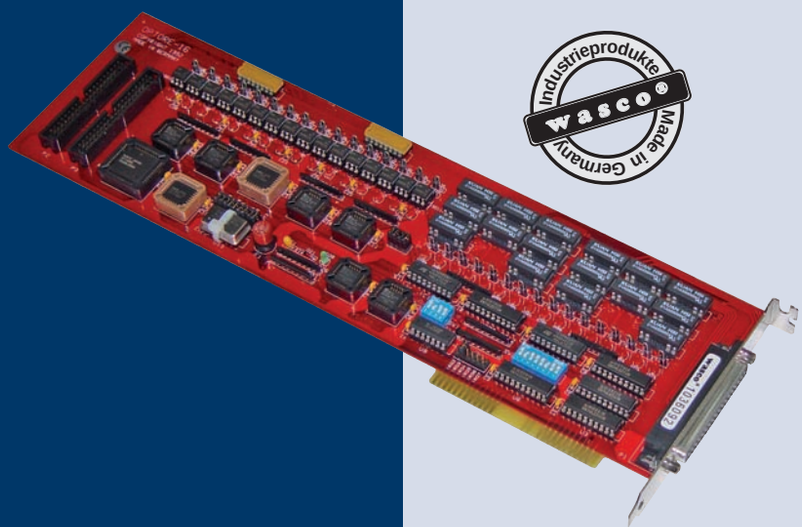
wasco®

OPTORE-16EXTENDED

Interrupt Capable Digital ISA I/O Interface Card with 16 Optocoupler Inputs, 16 Reed Relay Outputs, 24 Inputs/ Outputs TTL and Timer



- **16 optocoupler inputs**
- **16 reed relay outputs**
- **24 TTL inputs/outputs**
- **3 * 16-bit timer/counter**
- **quartz time based**
- **interrupt capable**

The **wasco**® interface card OPTORE-**16**EXTENDED features 16 digital inputs and 16 outputs, each of whitch is galvanically isolated. The inputs are electrically isolated by 16 high quality optocouplers with Schmitt trigger funktion, the outputs by 16 reed relays. An LED for status indication is assigned to each optocoupler and each relay. You can adjust two different input voltage ranges via easily exchangeable, pluggable resistor arrays. The reed relays of the outputs manage a maximum switching current of 500 mA. Triggering the interrupt is possible via eight of the 16 optocoupler inputs or time-dependently across the timer or counter IC, combined with a quartz oscillator. 24 TTL compatible digital inputs/outputs are placed onboard for any other control tasks.
The signals of the output relays are connected to a 37-pin Sub-D socket. The connection of the optocouplers and the TTL inputs and outputs can be accessed at two box headers. The pin assignments and input voltage ranges are compatible with the OPTORE-PCI16EXTENDED.

SPECIFICATIONS

Optocoupler inputs
Optocoupler: 16 * PC900V
16 channels, galvanically isolated
8 channels usable to be interrupt inputs
Galvanic isolation also between every single channel with each two discrete connections for each of the channels
Two different input voltage ranges, selectable by enclosed, pluggable resistor arrays:
R = 4,7 kΩ: high = 8..30 Volt
low = 0..4 Volt
R = 1,0 kΩ: high = 2,2..15 Volt
low = 0..1,5 Volt
Input frequency: max. 10 KHz

Reed Relay outputs
16 channels, galvanically isolated
Galvanic isolation also between every single channel with each two separate connections for each of the channels
Switching current: 500mA max.
Switching voltage: 50 volt DC max.
Switching capacity: 10 watt
Circuit time (typ): 0,5 ms
Fall time: 0,2 ms
Coil voltage: 5 V
Coil resistance: 500 Ω
Coil current: 10 mA

Status Indicators
32 LEDs, switchable on/off via Jumpers

Digital Inputs/Outputs TTL
IC's: 8255 or 71055
24 channels TTL compatible
Programming: port A and B in 8-bit groups, Port C in one 8-bit group or in two 4-bit groups to be input or output

Timer
IC's: 8254 or 71054
3 * 16-bit backward counters
Counting frequency: max. 8 MHz
Interrupt triggered time-dependently
Cycles from quartz oscillator

Quartz Oscillator
4 MHz

Waitstategenerator
Waitstate 4, 8, 16 adjustable via DIP switches

Connector Plug
1 * 37-pin D-Sub jack
2 * 40-pin box header

Power consumption
+ 5 volt typ. 550mA

Dimensions
340 mm x 100 mm (l x h)
4layer Multilayer Board

Other
Fuse for power supply
LED for voltage control.
All IC sockets with gold plated contacts

Address Assignment
In the port section a block of 16 adresses can be assigned. Any address spaces are adjustable via DIP switches

Phone: +49.8071.9187.0
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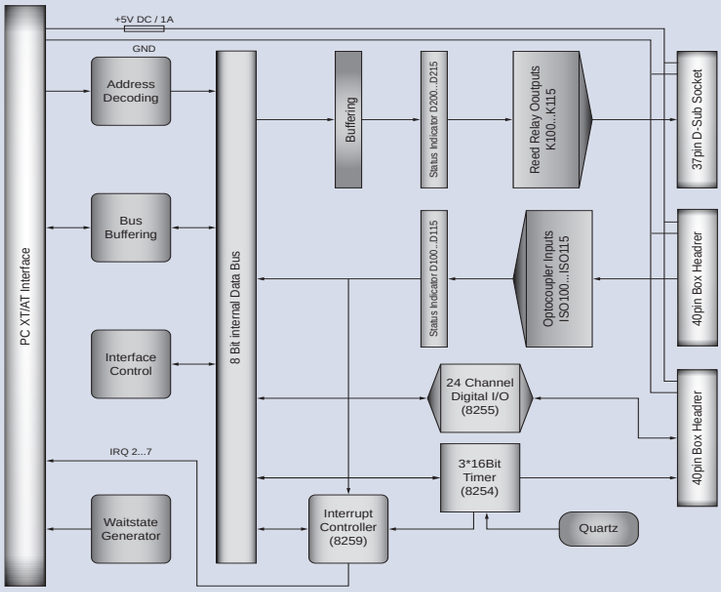
Block Diagram



Pin Assignment

The reed relay outputs are connected to the 37-pin Sub-D socket P1 (on the slot plate of the board). The optocoupler inputs are fed to the 40-pin box header P2, the digital TTL inputs and outputs and the timer signals to the 40-pin box header P3 . P2 and P3 are placed directly on the board and accessible inside the computer only. An optimum connection of the peripherals with strain relief is to obtain by an optional available flat ribbon cable set (see „Suitable Accessories“)

Sub-D Socket P1

GND	37	19	Vcc
GND	36	18	Vcc
OUT15A	35	17	NC
OUT14A	34	16	OUT15E
OUT13A	33	15	OUT14E
OUT12A	32	14	OUT13E
OUT11A	31	13	OUT12E
OUT10A	30	12	OUT11E
OUT09A	29	11	OUT10E
OUT08A	28	10	OUT09E
OUT07A	27	9	OUT08E
OUT06A	26	8	OUT07E
OUT05A	25	7	OUT06E
OUT04A	24	6	OUT05E
OUT03A	23	5	OUT04E
OUT02A	22	4	OUT03E
OUT01A	21	3	OUT02E
OUT00A	20	2	OUT01E
		1	OUT00E

Box Header P2

NC	40	39	NC
NC	38	37	Vcc
GND	36	35	Vcc
GND	34	33	NC
IN15-	32	31	IN15+
IN14-	30	29	IN14+
IN13-	28	27	IN13+
IN12-	26	25	IN12+
IN11-	24	23	IN11+
IN10-	22	21	IN10+
IN09-	20	19	IN09+
IN08-	18	17	IN08+
IN07-	16	15	IN07+
IN06-	14	13	IN06+
IN05-	12	11	IN05+
IN04-	10	9	IN04+
IN03-	8	7	IN03+
IN02-	6	5	IN02+
IN01-	4	3	IN01+
IN00-	2	1	IN00+

P2 as a Sub-D Socket (optionally)

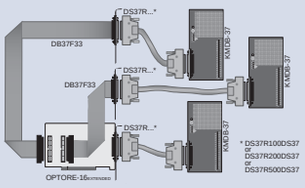
GND	37	19	Vcc
GND	36	18	Vcc
IN15-	35	17	NC
IN14-	34	16	IN15+
IN13-	33	15	IN14+
IN12-	32	14	IN13+
IN11-	31	13	IN12+
IN10-	30	12	IN11+
IN09-	29	11	IN10+
IN08-	28	10	IN09+
IN07-	27	9	IN08+
IN06-	26	8	IN07+
IN05-	25	7	IN06+
IN04-	24	6	IN05+
IN03-	23	5	IN04+
IN02-	22	4	IN03+
IN01-	21	3	IN02+
IN00-	20	2	IN01+
		1	IN00+

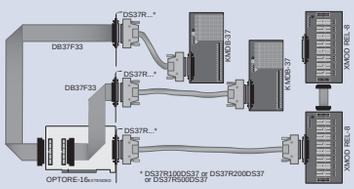
PDB37F13PB40

Box Header P3

PA0	1	2	PA1
PA2	3	4	PA3
PA4	5	6	PA5
PA6	7	8	PA7
PB0	9	10	PB1
PB2	11	12	PB3
PB4	13	14	PB5
PB6	15	16	PB7
PC0	17	18	PC1
PC2	19	20	PC3
PC4	21	22	PC5
PC6	23	24	PC7
CLK0	25	26	G0
OUT0	27	28	CLK1
G1	29	30	OUT1
CLK2	31	32	G2
OUT2	33	34	GND
Vcc*	35	36	GND
Vcc*	37	38	NC
NC	39	40	NC

Connection Technique (Application Examples)





Programming

The accompanying CD provides sample programs for DOS in Basic (Quick-Basic®, Powerbasic® and GW-Basic®), C (Borland Turbo-C®) and Pascal (Borland Turbo-Pascal®) as well as drivers for Windows95®, Windows98® and WindowsNT® in Microsoft Visual Basic and Microsoft C++

Scope of Delivery

Interface Card OPTORE-16EXTENDED
German Manual
CD with driver and program examples

Order Information

OPTORE-16EXTENDED **EDP No. A-1224**
Input/Output Card

Suitable Accessories

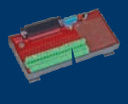
DB37F33 **EDV-Nr. A-1976**
Flat ribbon cable (approx. 23 cm) to relocate signals from P2 (40-pin box header) to a 37pin Sub-D socket with slot bracket

DS37R500DS37 **EDP No. A-202800**
Shielded connection line (approx. 5 m) to connect KMDB-37 to a 37pin Sub-D jack

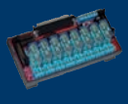
DS37R200DS37 **EDP No. A-202400**
Shielded connection line (approx. 2 m) to connect KMDB-37 to a 37pin Sub-D jack

DS37R100DS37 **EDP-No. A-202200**
Shielded connection line (approx. 1 m) to connect KMDB-37 to a 37pin Sub-D jack

KMDB-37 **EDP No. A-2046**
Terminal module with a 37pin screw terminal block with prototype area for soldering, to connect to a 37pin Sub-D jack



XMOD REL-8 **EDP No. A-3268**
Relay module with eight isolated outputs for switching currents up to 5 A (Connection to the reed relay outputs, cascading of the modules is possible)



XMOD REL-4 **EDP No. A-3264**
Relay module with four isolated outputs for switching currents up to 5 A (Connection to the reed relay outputs, cascading of the modules is possible)

XMOD SSR-4 **EDP No. A-3284**
Solid-State Relay Module with four isolated outputs for switching currents up to 5 A (Connection to the reed relay outputs, cascading of the modules is possible)

XMOD SSR-2 **EDP No. A-3282**
Solid-State Relay Module with two isolated outputs for switching currents up to 5 A (Connection to the reed relay outputs, cascading of the modules is possible)

For more detailed information about the here listed and other accessories we refer to the corresponding data sheets