



---

## RTOS Debugger for OSE Classic

**68000**

**6830x**

**6833x**

**68360/349**

**68020/30**

**68040/60**

- Improved support for the OSE System Debugger
- Real time, non-intrusive display of OSE Classic system resources
- OSE Classic specific display of analyzer listing
- Statistic evaluation and graphic display of process run times
- Process related evaluation of function run times
- Statistic evaluation and graphic display of process states
- Manual executed system calls
- PRACTICE functions for OS data

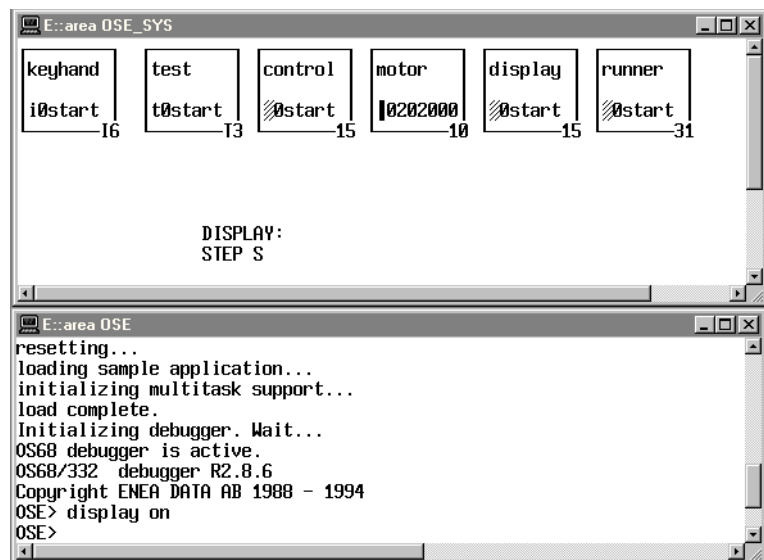
The TRACE32 System includes a configurable multitask debugger to provide symbolic debugging in real time operating systems. Our software package contains a ready-to-run configuration for the OSE Epsilon Real Time Kernel from Enea OSE Systems.

## Multitask Debugging on TRACE32 with OSE Classic (OS68)

### Improved support for the OSE System Debugger

OS68 provides an OSE System Debugger, which runs on the target. TRACE32 provides an interface to this debugger. I.e. you can control the debugger and view it's outputs inside the TRACE32 surface. TRACE32 handles clearly the dual-windowed inter-

face to the debugger. There is no more need to use other tools for the OSE System Debugger control.



Command window and output window of the OSE System

### Manual executed system calls

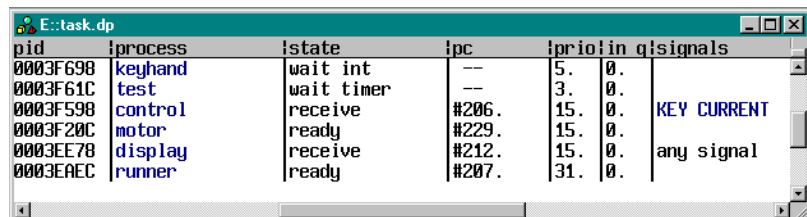
In OSE Classic it is possible to execute system calls, initiated with PRACTICE from the TRACE32 surface. This technique can be used, for example, to set

specific signals, to suspend processes or simulate some other special condition.

## Real time, non-intrusive display of OSE Classic system resources

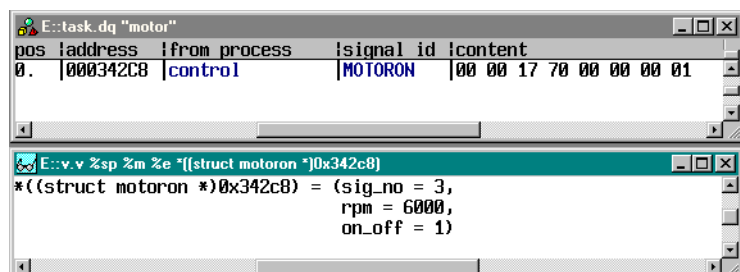
The TRACE32 multitask debugger for OSE Classic provides display functions, closely mirroring the command set of the OSE System Debugger. The system resources such as process list and signal queues can be displayed. In addition, by using the emulators dual-port memory, the display of all these regions can be viewed non-intrusively in real time. The tables are updated

permanently (“On The Fly”), without affecting the application at all. Moreover these function are still available, when the OSE System Debugger is not linked to your software.



pid	process	state	pc	prio	in	q	signals
0003F698	keyhand	wait int	--	5.	0.		
0003F61C	test	wait timer	--	3.	0.		
0003F598	control	receive	#206.	15.	0.		KEY CURRENT
0003F20C	motor	ready	#229.	15.	0.		
0003EE78	display	receive	#212.	15.	0.		any signal
0003EAEC	runner	ready	#207.	31.	0.		

Process list in window



pos	address	from process	signal id	content
0.	000342C8	control	MOTORON	00 00 17 70 00 00 00 01

```

E::v %sp %m %e *((struct motoron *)0x342c8)
*((struct motoron *)0x342c8) = (sig_no = 3,
                                rpm = 6000,
                                on_off = 1)

```

Signal list window and detailed signal description

## OSE Classic specific display of analyzer listing

The data recorded in the analyzer can be displayed and interpreted specific to the operating system. The process

switches and all system calls, including their parameters, can be displayed symbolically.

```

E::a.l1.task l.nc %len 40. spare spare ti.fore
Goto... Find... Set Ref Set Zero View
record spare spare ti.fore
+032580 --- TASK = keyhand ( pid=0003F698 ) 0.500us
return(free_buf )
+032582 --- KERNEL ENTRY from keyhand ( pid=0003F698 ) 56.250us
+032583 send ( sigbuf = 000260A4 , addressee = 0003F598 ) 0.500us
+032587 --- TASK = keyhand ( pid=0003F698 ) 2.000us
+032592 return(send ) 0.500us
+032594 --- KERNEL ENTRY from keyhand ( pid=0003F698 ) 53.250us
+032595 receive ( signals = 0002609A ) 0.500us
+032599 --- TASK = keyhand ( pid=0003F698 ) 2.000us
+032602 return(receive ) , sigbuf = 00000000 0.500us
+032604 --- TASK = control ( pid=0003F598 ) 2.000us
+032607 return(receive ) , sigbuf = 00034248 0.500us
+032609 --- KERNEL ENTRY from control ( pid=0003F598 ) 2.000us
+032612 alloc ( bufsize = 0002 , signal = 0006 ) 0.500us
+032616 --- TASK = control ( pid=0003F598 ) 2.000us
+032621 return(alloc ) , sigbuf = 00034266 0.500us
+032623 2.000us
  
```

Analyzer listing, task switches and system calls

```

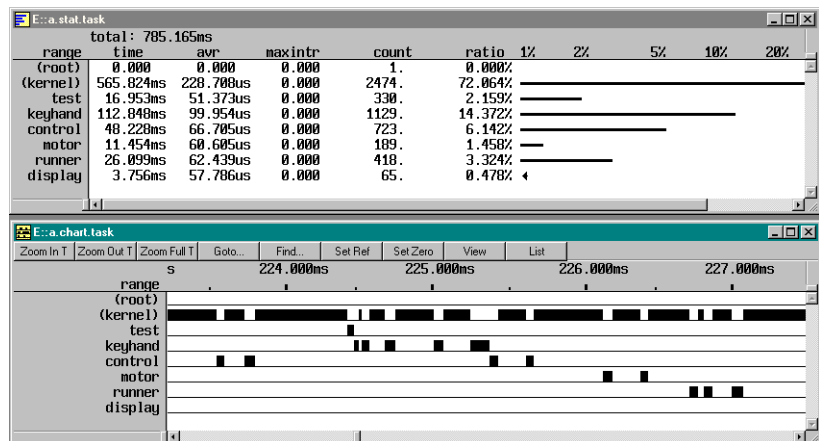
E::a.l1.task l.mix
Goto... Find... Set Ref Set Zero View
record
--- TASK = keyhand ( pid=0003F698 )
--- KERNEL ENTRY
--- TASK = keyhand ( pid=0003F698 )
--- KERNEL ENTRY
--- TASK = keyhand ( pid=0003F698 )
--- KERNEL ENTRY
--- TASK = keyhand ( pid=0003F698 )
--- TASK = control ( pid=0003F598 )
|
| rts
| move.w #13,50F06
| return(send )
| rts
| movem.l (a7)+,[d2-d7,a2-a6]
| unlk a6
| rts
| lea 1C(a7),a7
|
| movea.l -4(a6),a0 if ((sig1->key.ch >= 'A')
| cmpi.b #41,2(a0)
| blt 2273A
|
| break;
| }
| free_buf (&sig1);
| pea -4(a6)
| pea 111
  
```

Analyzer listing, task selective recording, display of task switches, OS system calls, source lines and assembler mnemonics

## Statistic evaluation and graphic display of process run times

The analyzer can calculate statistic tables of process run times and process switches. A graphical diagram

shows which process was active at a specific time, giving a clear view of the behaviour of the system.



Statistics and flow of processes

## Process related evaluation of function run times

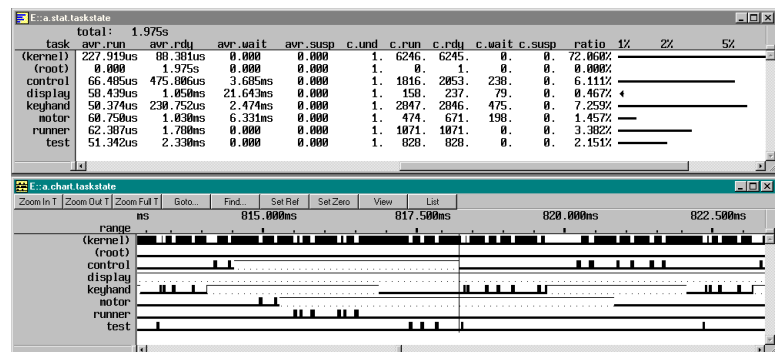
The statistic and graphic evaluation of function calls and function run times can be done dependant to the actual running process. This is necessary, if

different processes call one single function at the same time, or if a process switch occurs in between the function.

## Statistic evaluation and graphic display of process states

These tabular and graphical analyses of the status of processes show the various states (i.e. running, ready, waiting, suspended and undefined) and times each process spent in each

state. A graphical view of the data can help to highlight prioritisation problems, critical paths etc.



Statistics and flow of process states

## PRACTICE functions for OS data.

The support includes extended PRACTICE functions for process specific data. E.g. the function "TASK.CONFIG(magic)" returns the address of the so called magic value

## Contact

### International Representative

#### Argentina

Anacom Eletronica Ltda.  
Mr. Rafael Sorice  
Rua Nazareth, 807, Barcelona  
BR-09551-200 São Caetano do Sul, SP  
Phone: +55 11 3422 4200  
FAX: +55 11 3422 4242  
EMAIL: rsorice@anacom.com.br

#### Australia

Embedded Logic Solutions P/L  
Mr. Ramzi Kaffan  
Suite 2, Level 3  
144 Marsden Street  
Parramatta NSW 2150  
Phone: +61 2 9687 1880  
FAX: +61 2 9687 1881  
EMAIL: sales@emlogic.com.au

#### Austria

Lauterbach GmbH  
Alltaufstr. 40  
D-85635 Höhenkirchen-Siegertsbrunn  
Phone: +49 8102 9876 190  
FAX: +49 8102 9876 187  
EMAIL: sales@lauterbach.com

#### Belgium

Tritec Benelux B.V.  
Mr. Robbert de Voogt  
Stationspark 550  
NL-3364 DA Sliedrecht  
Phone: +31 184 41 41 31  
FAX: +31 184 42 36 11  
EMAIL: software@tritec.nl

#### Brazil

Anacom Eletronica Ltda.  
Mr. Rafael Sorice  
Rua Nazareth, 807, Barcelona  
BR-09551-200 São Caetano do Sul, SP  
Phone: +55 11 3422 4200  
FAX: +55 11 3422 4242  
EMAIL: rsorice@anacom.com.br

#### Canada

Lauterbach Inc.  
Mr. Udo Zoettler  
4 Mount Royal Ave.  
USA-Marlborough, MA 01752  
Phone: +1 508 303 6812  
FAX: +1 508 303 6813  
EMAIL: info\_us@lauterbach.com

#### China Beijing

Lauterbach Technologies Co., Ltd  
Mr. Linglin He  
Beijing Office  
A3, South Lishi Road, XiCheng District  
Beijing 100037, P.R. China  
Phone: +86 10 68023502  
FAX: +86 10 68023523  
EMAIL: linglin.he@lauterbach.com

#### China Shenzhen

Lauterbach Technologies Co., Ltd  
1406/E Xihaimingzhu Building  
No.1 Taoyuan Road, Nanshan District  
Shenzhen 518052, P.R. China  
Phone: +86 755 8621 0671  
FAX: +86 755 8621 0675  
EMAIL: emily.zhang@lauterbach.com

#### China Suzhou

Lauterbach Technologies Co., Ltd  
Mr. Linglin He  
Hengyu Square, Rm 709  
No. 188, Xing Hai Street  
Suzhou, 215021 P.R. of China  
Phone: +86 512 6265 8030  
FAX: +86 512 6265 8032  
EMAIL: info\_cn@lauterbach.com

#### Czech Republic

Lauterbach GmbH  
Alltaufstr. 40  
D-85635 Höhenkirchen-Siegertsbrunn  
Phone: +49 8102 9876 130  
FAX: +49 8102 9876 187  
EMAIL: sales@lauterbach.com

#### Denmark

Nohau Danmark A/S  
Mr. Flemming Jensen  
Hørkær 26, Plan 4  
DK-2730 Herlev  
Phone: +45 44 52 16 50  
FAX: +45 44 52 26 55  
EMAIL: info@nohau.dk

#### Egypt

Lauterbach GmbH  
Alltaufstr. 40  
D-85635 Höhenkirchen-Siegertsbrunn  
Phone: +49 8102 9876 130  
FAX: +49 8102 9876 187  
EMAIL: sales@lauterbach.com

#### Finland

Nohau Solutions Finland  
Mr. Martti Viljainen  
Tekniikantie 14  
FI-02150 Espoo  
Phone: +358 40 546 0142  
FAX: +358 9 2517 8101  
EMAIL: sales@nohau.fi

#### France

Lauterbach S.A.R.L.  
Mr. Jean-Pierre Paradiso  
Europarc - Le Hameau B  
135 Chemin Des Bassins  
F-94035 Créteil Cedex  
Phone: +33 1 49 56 20 30  
FAX: +33 1 49 56 20 39  
EMAIL: info\_fr@lauterbach.com

#### Germany

Lauterbach GmbH  
Sales Team Germany  
Alltaufstr. 40  
D-85635 Höhenkirchen-Siegertsbrunn  
Phone: +49 8102 9876 190  
FAX: +49 8102 9876 187  
EMAIL: sales@lauterbach.com

#### Greece

Lauterbach GmbH  
Alltaufstr. 40  
D-85635 Höhenkirchen-Siegertsbrunn  
Phone: +49 8102 9876 190  
FAX: +49 8102 9876 187  
EMAIL: sales@lauterbach.com

#### Hungary

Lauterbach GmbH  
Alltaufstr. 40  
D-85635 Höhenkirchen-Siegertsbrunn  
Phone: +49 8102 9876 190  
FAX: +49 8102 9876 187  
EMAIL: sales@lauterbach.com

**India-Bangalore**

Electro Systems Associates Pvt. Ltd.  
Mr. G. V. Gurunatham  
S-606, World Trade Center  
Malleswaram West, No.26/1, Dr. Rajkumar  
Road  
India - Bangalore 560055  
Phone: +91 80 67648888  
FAX: +91 80 23475615  
EMAIL: Trace32sales@esaindia.com

**India-Chennai**

Electro Systems Associates Pvt. Ltd.  
Mr. D. Kannan  
No.109 /59A - Ground Floor  
IV Avenue, Ashok Nagar  
India - Chennai - 600 083 Tamilnadu  
Phone: +91 044-24715750  
FAX: +91 44 24715750  
EMAIL: chennai@esaindia.com

**India-Delhi**

Electro Systems Associates Pvt. Ltd.  
Mr. R.K. Bhandari  
No. 705, 7th Floor, Laxmi Deep  
Shivajinagar  
India - Delhi - 110 092  
Phone: +91 11-22549351  
FAX:  
EMAIL: delhi@esaindia.com

**India-Hyderabad**

Electro Systems Associates Pvt. Ltd.  
Mr. C.V.M. Sri Ram Murthy  
Shop No. 14, "Global Enclave"  
Bhagyanagar Colony, Kukat pally  
India - Hyderabad 500 072  
Phone: +91 40-23063346  
FAX: +91 40-23063346  
EMAIL: hyderabad@esaindia.com

**India-Kolkata**

Electro Systems Associates Pvt. Ltd.  
Mr. Arun Roy  
India - Kolkata  
Phone: +91 98305 78843  
FAX:  
EMAIL: kolkata@esaindia.com

**India-Pune**

Electro Systems Associates Pvt. Ltd.  
Mr. R K Bhandari  
Shriram Complex, 1126/1, Model Colony  
Shivajinagar  
India - Pune - 411 016  
Phone: +91 20 - 30462035 / 25663  
FAX: +91 20-25677202  
EMAIL: pune@esaindia.com

**Ireland**

Lauterbach Ltd.  
Mr. Richard Copeman  
11 Basepoint Enterprise Centre  
Stroudley Road  
Basingstoke, Hants RG24 8UP  
Phone: 0044-118 328 3334  
FAX:  
EMAIL: info\_uk@lauterbach.com

**Israel**

Itec Ltd.  
Mr. Mauri Gottlieb  
P.O.Box 10002  
IL-Tel Aviv 61100  
Phone: +972 3 6491202  
FAX: +972 3 6497661  
EMAIL: general@itec.co.il

**Italy**

Lauterbach Srl  
Mr. Maurizio Menegotto  
Via Enzo Ferrieri 12  
I-20153 Milano  
Phone: +39 02 45490282  
FAX: +39 02 45490428  
EMAIL: info\_it@lauterbach.com

**Japan**

Lauterbach Japan, Ltd.  
Mr. Kenji Furukawa  
3-8-8 Shinyokohama  
Kohoku-ku, Nisso 16th Building  
Yokohama-shi, Japan 222-0033  
Phone: +81 45 477 4511  
FAX: +81 45 477 4519  
EMAIL: info@lauterbach.co.jp

**Luxembourg**

Tritec Benelux B.V.  
Mr. Robbert de Voogt  
Stationspark 550  
NL-3364 DA Sliedrecht  
Phone: +31 184 41 41 31  
FAX: +31 184 42 36 11  
EMAIL: software@tritec.nl

**Malaysia**

Flash Technology  
Mr. Teo Kian Hock  
No 61, # 04-15 Kaki Bukit Av 1  
Shun Li Industrial Park  
SGP-Singapore 417943  
Phone: +65 6749 6168  
FAX: +65 6749 6138  
EMAIL: teokh@flashtech.com.sg

**Mexico**

Lauterbach Inc.  
Mr. Udo Zoettler  
4 Mount Royal Ave.  
USA-Marlborough, MA 01752  
Phone: +1 508 303 6812  
FAX: +1 508 303 6813  
EMAIL: info\_us@lauterbach.com

**Netherlands**

Tritec Benelux B.V.  
Mr. Robbert de Voogt  
Stationspark 550  
NL-3364 DA Sliedrecht  
Phone: +31 184 41 41 31  
FAX: +31 184 42 36 11  
EMAIL: software@tritec.nl

**New Zealand**

Embedded Logic Solutions P/L  
Mr. Ramzi Kattan  
Suite 2, Level 3  
144 Marsden Street  
Parramatta NSW 2150  
Phone: +61 2 9687 1880  
FAX: +61 2 9687 1881  
EMAIL: sales@emilogic.com.au

**Norway**

Nohau Solutions AB  
Mr. Jörgen Nilsson  
Derbyvägen 6D  
SE-21235 Malmö  
Phone: +46 40 592 206  
FAX: +46-40 592 229  
EMAIL: Jorgen.nilsson@nohau.se

**Poland**

QUANTUM Sp. z o.o.  
Mr. Aleksander Bil  
ul. Jeleniogorska 6  
54-056 Wrocław  
Phone: +48 71 362 6356  
FAX: +48 71 362 6357  
EMAIL: info@quantum.com.pl

**Portugal**

Captura Electronica, SCCL  
Mr. Juan Martinez  
c/Duero, 40  
E-08031 Barcelona  
Phone: +34 93 429 5730  
FAX: +34 93 407 0778  
EMAIL: info@captura-el.com

**Romania**

Lauterbach GmbH  
Altlaufstr. 40  
D-85635 Höhenkirchen-Siegersbrunn  
Phone: +49 8102 9876 130  
FAX: +49 8102 9876 187  
EMAIL: sales@lauterbach.com



**Russia**

RTSoft  
Mr. Alexey Isaev  
Nikitinskaya 3  
RUS-105037 Moscow  
Phone: +7 495 742 6828  
FAX: +7 495 742 6829  
EMAIL: sales@rtsoft.msk.ru

**Singapore**

Flash Technology  
Mr. Teo Kian Hock  
No 61, # 04-15 Kaki Bukit Av 1  
Shun Li Industrial Park  
SGP-Singapore 417943  
Phone: +65 6749 6168  
FAX: +65 6749 6138  
EMAIL: teokh@flashtech.com.sg

**South Korea, Pangyo**

Hancom MDS Inc.  
Mr. Dongwook Jun  
3FL, Hancom Tower  
49, Daewangpangyo-ro 644, Bundang-gu  
Seongnam-si, Gyeonggi-do, 463-400, ROK  
Phone: +82-31-627-3000  
FAX: +82-31-627-3100  
EMAIL: trace32@hancommds.com

**Spain**

Captura Electronica, SCCL  
Mr. Juan Martinez  
c/Duero, 40  
E-08031 Barcelona  
Phone: +34 93 429 5730  
FAX: +34 93 407 0778  
EMAIL: info@captura-el.com

**Sweden**

Nohau Solutions AB  
Mr. Jörgen Nilsson  
Derbyvägen 6D  
SE-21235 Malmö  
Phone: +46 40 592 206  
FAX: +46 40 592 229  
EMAIL: Jorgen.nilsson@nohau.se

**Switzerland**

JDT Jberg DatenTechnik  
Mr. Andreas Jberg  
Zimmereistrasse 2  
CH-5734 Reinach AG  
Phone: +41 62 7710 886  
FAX:  
EMAIL: Andreas.Jberg@jdt.ch

**Taiwan**

Superlink Technology Corp.  
Mr. Sulin Huang  
3F-8, No. 77, Sec. 1, Xintaiwu Rd., Xizhi District,  
New Taipei City 22101, Taiwan, R.O.C.  
Phone: +886 2 26983456  
FAX: +886 2 26983535  
EMAIL: info.stc@superlink.com.tw

**Tunisia**

Lauterbach Consulting S.A.R.L.  
Mr. Khaled Jmal  
Route El Ain Km 3.5  
TN-3062 Sfax  
Phone: +216-31361061  
FAX: +216-74611723  
EMAIL: info\_tn@lauterbach.com

**Turkey-1**

Tektronik Muh. ve Tic. A.S.  
Mr. Hakan Yavuz  
CyberPlaza B-Blok, 702B  
Bilkent  
06800 Ankara  
Phone: +90 312 437 3000  
FAX: +90 312 437 1616  
EMAIL: info@tektronik.com.tr

**Turkey-2**

G3TEK Embedded Technologies Ltd.  
Mr. Celal Aygun  
Ilkyerlesim Mah. 445.  
Sok. No: 48  
06370 Battikent/Ankara  
Phone: +90 312 3324769  
FAX: +90 312 3324769  
EMAIL: info@g3tek.com

**UK**

Lauterbach GmbH  
Mr. Richard Copeman  
Altlaufstr. 40  
D-85635 Höhenkirchen-Siegertsbrunn  
Phone: +49 8102 9876 190  
FAX: +49 8102 9876 187  
EMAIL: sales@lauterbach.com

**USA East**

Lauterbach Inc.  
Mr. Udo Zoettler  
4 Mount Royal Ave.  
USA-Marlborough, MA 01752  
Phone: +1 508 303 6812  
FAX: +1 508 303 6813  
EMAIL: info\_us@lauterbach.com

**USA West**

Lauterbach Inc.  
Mr. Bob Kupyn  
1111 Main Street, Suite 620  
USA-Vancouver, WA, 98660  
Phone: +1 503 524 2222  
FAX: +1 503 524 2223  
EMAIL: bob.kupyn@lauterbach.com

---

## Additional Information

<http://www.lauterbach.com>

### Lauterbach GmbH

Altlaufstr. 40  
D-85635 Höhenkirchen-Siegertsbrunn  
Tel. ++49 8102 9876-0 FAX -999  
info@lauterbach.com  
http://www.lauterbach.de

### Lauterbach Inc.

4 Mount Royal Ave.  
Marlboro MA 01752  
Phone (508) 303 6812 FAX (508) 303 6813  
info\_us@lauterbach.com  
http://www.us.lauterbach.com

### Lauterbach Ltd.

11 Basepoint Enterprise Ctre Stroudley Road  
Basingstoke, Hants RG24 8UP  
Phone ++44-1256-333-690 FAX -661  
info\_uk@lauterbach.com  
http://www.lauterbach.co.uk

### Lauterbach S.A.R.L.

135 Chemin Des Bassins  
F-94035 Créteil Cedex  
Phone ++33-149-562-030  
FAX ++33-149-562-039  
info\_fr@lauterbach.com  
http://www.lauterbach.fr

### Lauterbach Japan, Ltd.

3-9-5 Shinyokohama Kouhoku-ku  
Yokohama-shi Japan 222-0033  
Phone ++81-45-477-4511 FAX -4519  
info\_j@lauterbach.com  
http://www.lauterbach.co.jp

### Lauterbach s.r.l.

Lauterbach s.r.l.  
Via Enzo Ferrieri 12  
I-20153 Milano  
Phone ++39 02 45490282  
FAX ++39 02 45490428  
info\_it@lauterbach.it  
http://www.lauterbach.it

### Suzhou Lauterbach Consulting Co.,Ltd.

Room 1605, Xing Hai International Square  
No.200, Xing Hai Street  
Suzhou, 215021 PR of China  
Phone: 0086-512 6265 8030  
FAX: 0086-512 6265 8032  
info\_cn@lauterbach.cn  
http://www.lauterbach.cn

---

## Disclaimer

The information presented is intended to give overview information only. Changes and technical enhancements or modifications can be made without notice.