Edition 12

LÜTZE-REPORT

The international magazine of the Lütze Group

LÜTZE SOLVES PROBLEMS OF SPACE IN THE GTW 2/6 BOMBARDIER TRANSPORTATION

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FIRST DIONET TRAINING SEMINAR AT LÜTZE INC.

PARTNERS: LÜTZE AND KUKA

INTERFACE PRODUCTS HELP IN FOAM MANUFACTURE

LÜTZE
Systematic Technology

EDITORIAL

Friedrich Lütze
founder
of the Lütze Group

Just as in previous years, 2002 will also see us represented on a stand at the Hanover industry fair, taking place from 15 to 20 April this year.

LÜTZE as a systems supplier
... is the message we want to convey this year to the industry about the range of services we offer as an innovative enterprise. We will be presenting package solutions such as

- terminated trailing power supply chains,
- wiring systems,
- system solutions for your automation tasks,

all of them developed in close collaboration with our clients.

We look forward to seeing you at **stand F 17 in hall 9**, where you can be assured of professional advice.

See you in Hanover!

Yours,
F. Lütze

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Tel. 0049 7151 60 53-0 • Fax 0049 7151 60 53-277
e-mail: info@luetze.de
Internet: www.luetze.com

Editorial/Coordination:
LÜTZE AG
Oststrasse 2 • CH-8854 Siebnen/Switzerland
Tel. 0041 55 450 23 23 • Fax 0041 55 450 23 13
e-mail: info@luetze.ch
Internet: www.luetze.ch

Copywriting/Layout:
RITTER KREATIV....
Unternehmensberatung + Kommunikation AG
Gerberngasse 44 • 3000 Bern 13
Tel. 0041 31 313 30 30 • Fax 0041 31 313 30 39
e-mail: info@ritterkreativ.ch
Internet: www.ritterkreativ.ch

Photography by:
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e-mail: fotarena@complot.ch

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TRADE FAIRS

Lütze goes around the world:

Fair	Location	Dates	
Ampere	Prague (CZ)	09.04. – 12.04.	Lütze A
Light & building	Frankfurt (D)	14.04. – 18.04.	Lütze D
HMI	Hanover (D)	15.04. – 20.04.	Lütze D
Road Show	Sunderland (GB)	14.05.	Lütze GB
	Manchester (GB)	16.05.	Lütze GB
	Bristol (GB)	21.05.	Lütze GB
	Southampton (GB)	23.05.	Lütze GB
Maschinenbaumesse	Nitra (SK)	28.05. – 31.05.	Lütze A
Industria	Budapest (H)	28.05. – 31.05.	Lütze A
go.automation days 02	Basle (CH)	03.09. – 06.09.	Lütze CH
Maschinenbaumesse	Brünn (CZ)	16.09. – 20.09.	Lütze A
InnoTrans	Berlin (D)	24.09. – 27.09.	Lütze D
Motek	Sinsheim (D)	24.09. – 27.09.	Lütze D
efa	Leipzig (D)	26.09. – 27.09.	Lütze D
Smart Automation	Linz (A)	09.10. – 11.10.	Lütze A
E + E	Budapest (H)	18.10. – 18.10.	Lütze A
SPS/IPC/DRIVES	Nuremberg (D)	26.11. – 28.11.	Lütze D
ELEC 2002	Paris (F)	09.12. – 13.12.	Lütze F

FRIEDRICH LÜTZE GMBH & CO. IN ITALY...

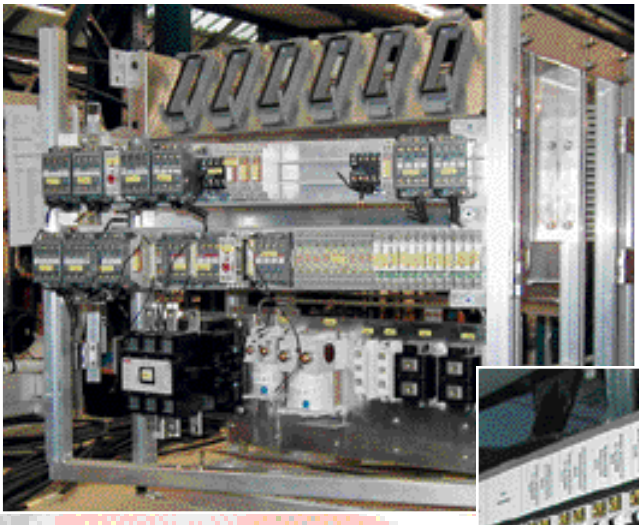
Mr Luciano Begnini heads up **Lütze's** recently founded **distribution company in Italy**. His wealth of experience and wide-ranging technical expertise mean that our clients, distributors and other interested parties in Italy can call on expert advice.

Friedrich Lütze GmbH & Co.
Via, G. Verdi, 6/a
I-23870 Cernusco Lombardone (LC)
Internet: www.luetze.it

Lütze solves problems of space in the GTW 2/6

BOMBARDIER TRANSPORTATION

Karl Heberle



Attractive and passenger-friendly rail coaches – those are the essential prerequisites for the acceptance of a local rail passenger network. Today's vehicles, however, must also meet up to the requirements of tomorrow in terms of **engineering, economic viability** and **design**.

Just such a vehicle is now available on the market in the shape of the advanced GTW 2/6 from the **Stadler Rail Group** in collaboration with **Bombardier Transportation**. This diesel-electric regional rail coach, with its striking new head, is already in use with Brandenburger Bahn (Deutsche Bahn AG), its subsidiary Usedomer Bäderbahn, and regional rail company Hessische Landesbahn, while orders for the Greek national railways, the Munich regional network of Deutsche Bahn AG and the Southern New Jersey Transit Authority are in the process of execution.

The technical requirements and specifications on these vehicles presented a **real challenge to developers and designers** alike. The drive unit located in the central section (joint) with the associated electrical equipment had to be accommodated in an extremely confined space together with the entire electrical installation. It was clear as early as in the development phase that a conventional installation would not allow the specifications to be realised. Bombardier Transportation then took the decision to work **with the space-saving LSC wiring system from Lütze**.

These were the arguments that helped lead to the decision to opt for Lütze's modern LSC wiring system:

- extreme component density
- modular construction of the supporting structure
- clean, manageable concept despite the high component density
- weight advantages compared with conventional designs
- good thermal properties
- halogen-free material
- expert technical advice in the planning phase
- followed by support and rapid reaction from Lütze in the production phase
- good price/performance ratio

MICROKON – THE NEW ARRIVAL

Jürgen Wendel

The main advantages of the GTW principle:

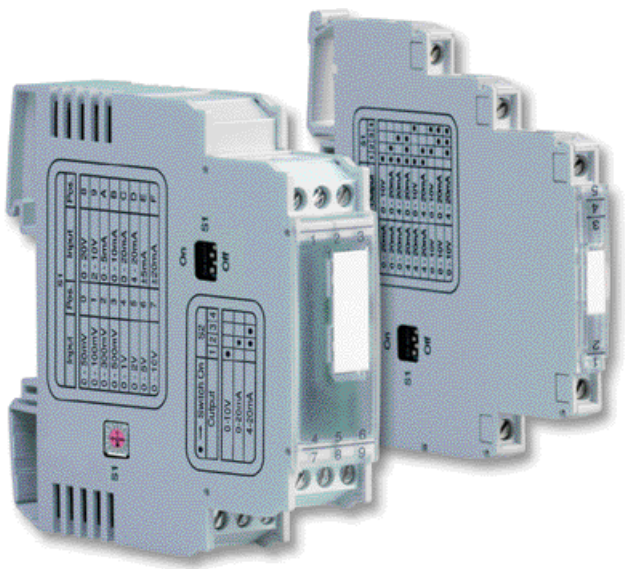
1. **Separation of passenger section and drive unit**
   - low noise and vibration levels
   - excellent traction conditions
   - short replacement times for drive module
2. **Economic operation thanks to diesel-electric drive**
3. **Generous low-floor section** (for wheelchairs, bicycles etc.)
4. **Flexible design of the spacious, transparent interior**
   - 1st class compartment
   - user-friendly seating arrangement
   - sealed toilet system

For each vehicle, Lütze AG supplied the supporting structure, a welded construction with assembled elements of Lütze's LSC wiring system, for the low-voltage, auxiliary generator and electronics sections, completely assembled as a ready-to-fit / wire unit.
Interference suppression modules, resistor gates and **interface components** were also installed in the control section of the GTW.
In terms of engineering, Bombardier is highly satisfied with Lütze's products, which fully meet the high standards expected in railway engineering. **The Lütze LSC wiring system and the function modules would be used again in any new construction.**

Lütze presented last year the new **MICROKON transformer range**. The first development stage focused on analog-analog transformers, so that input signals from 0-10V, 0-20mA and 4-20mA are output isolated as 0-10V, 0-20mA or 4-20mA signals. Analog voltages and currents of up to 60V and about 20mA respectively can also be handled.

Customer response to the product presentation was huge. One of the first customers to use this series is the firm Stahl in Crailsheim, which manufactures test stands for electric motors and transformers of all kinds. Stahl performs a wide variety of measuring tasks using its own control and device concept. The test stands are built to be as compact as the end customer's circumstances allow, which means, for instance, that sensors for pressures can be installed immediately adjacent to high-tension test probes.

Many kinds of interfering signals such as inrush peaks and superimposed frequencies require reliable isolation between the sensor and the control. In some sensors, the 0-10V output signal is transformed into a 4-20mA current signal, so that reliable data transfer to the control is ensured.
The lack of space in the test stands ultimately tipped the balance in favour of **using Lütze transformers** from the **MICROKON range**, because at the moment Lütze is **the only supplier** of transformers in a 6.2 mm housing. These transformers fit into small terminal boxes and – an added bonus – they require no measurement expertise, since the electronic system used by Lütze is self-calibrating.
This concept is thus **saving** Stahl both **time and money**, enabling the firm to offer its customers an optimal test device for electric motors.

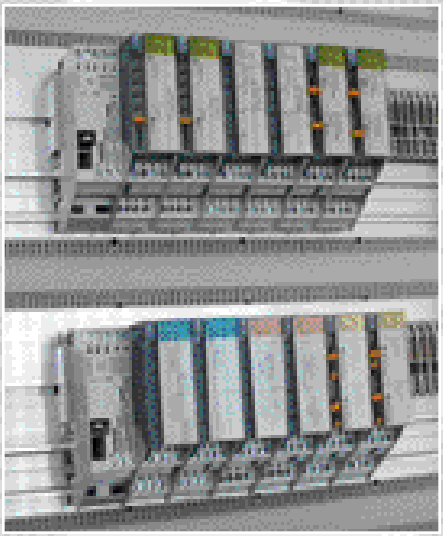


BOMBARDIER TRANSPORTATION

BUILDING SERVICES AUTOMATION BY LÜTZE

WELL CONNECTED!

Dettmar Schauermann



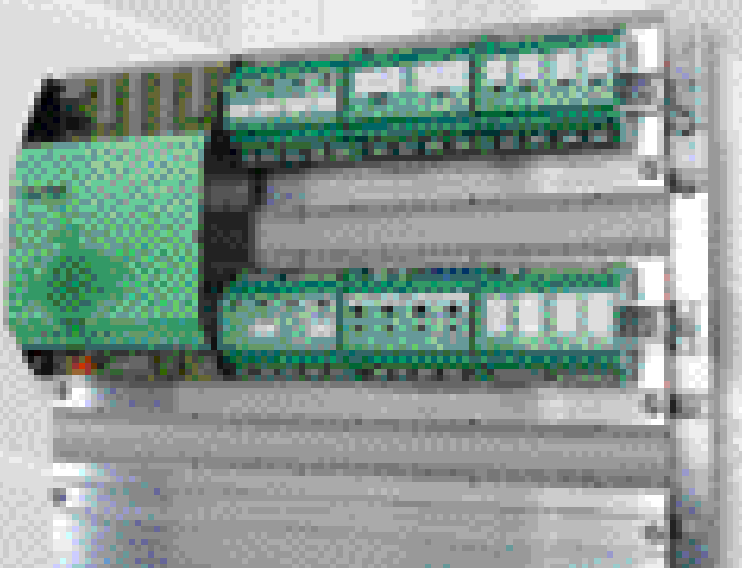
The automation of building services in detached homes is increasing apace with the introduction of bus systems with peripheral devices such as EIB BUS and the electric installation bus systems.
We understand **building services automation to mean control and instrumentation technology** in large buildings such as shopping centres, administrative buildings, swimming-pools, hospitals and clinics etc.. This is where DDC* technology is used.

***DDC** = **D**irect **D**ata **C**ontrol

Depending on their size, these buildings may have hundreds of control cabinets in their system control centres. Since space in such buildings is potentially useful surface area which is let by the square metre, the system control centre rooms are generally very small indeed. This is fertile territory for the space-saving LSC wiring system. Up to 30% of control cabinet space that would be taken up by appliances can be saved, meaning more function in the control cabinets themselves, less space required and a smaller footprint, hence more m² of lettable surface area!

The **complete prefabricated frames** supplied by **Lütze** just have to be configured with devices and wired. Wiring is achieved by means of prefabricated lines in a few standard lengths. Aframe 800 mm wide and 2000 mm high can be wired with just 5 different lengths of flexible lead, representing a **saving** of about half **compared with duct wiring**. The better heat circulation resulting from the separation of devices from the wiring level offers a further advantage since it often means that no control cabinet air-conditioning is required.

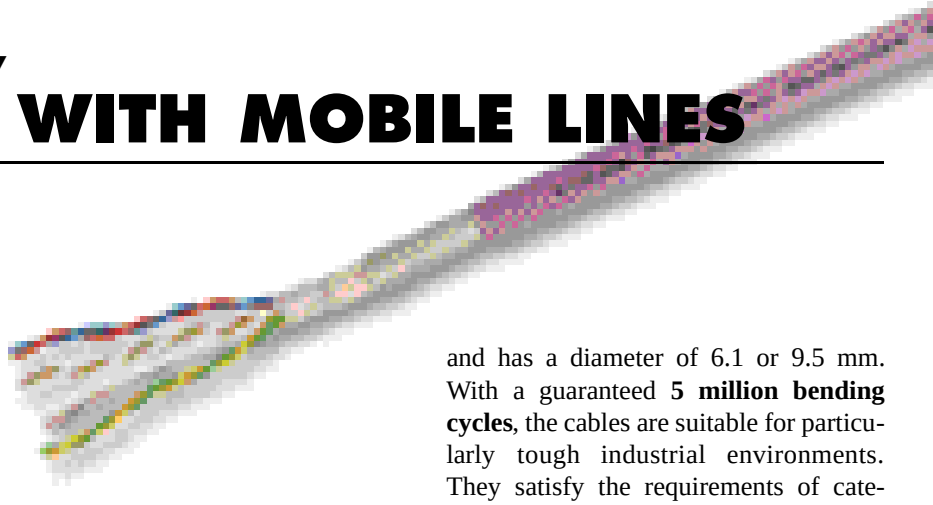
Companies like **Honeywell, Sauter, Johnsons Control, Landis & Stefa (Siemens)** – to mention just the biggest ones – offer components for instrumentation and control technology for building services automation. We can already boast a whole series of references where control cabinets for building services automation have been constructed with LSC and equipped with the above devices. These include the **Federal Chancellery building in Berlin**, which was fitted with Landis & Stefa components, the **Nuremberg Tower**, which was equipped with DDC components from Johnson Control, and the **clinic in Obergölsch**, where we were also able to fit out the air-conditioning system of the operating theatres with LSC cabinets.



Ethernet cables on tow

AUTOMATING WITH MOBILE LINES

Andreas Chr. Braun

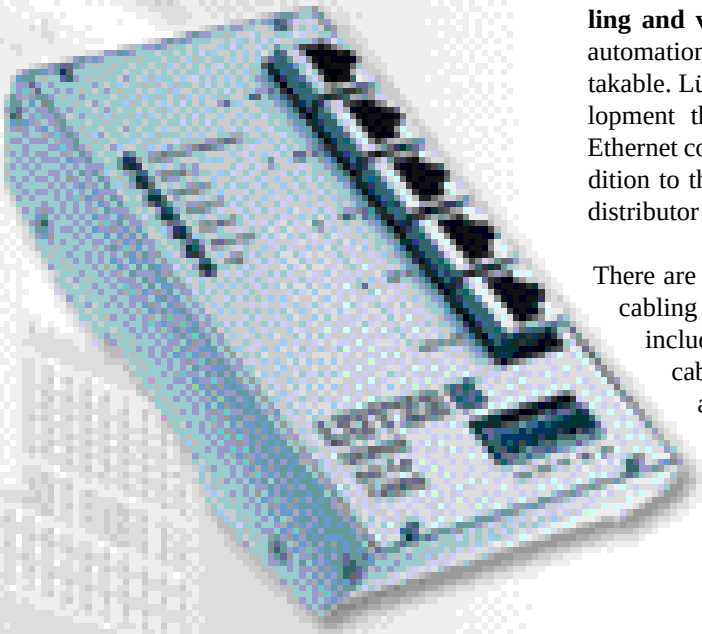


Ethernet technology has been commonplace in the office for many years now and will be just as standard in industry in the near future. In addition to permanent cables, however, the industrial sector also requires flexible cables for long and short traverse paths which are resistant to oil, dirt and temperature fluctuations.
Lütze has developed an **Ethernet cable specifically for this purpose that is suitable for industry and compatible with trailing chains**. The cable comes in an optional two or four pairs and allows a minimum bending radius of 12.5 times the cable diameter. The surge impedance of the Ethernet line is **100 Ohm** in the frequency range from **1 - 100 MHz**, while the ambient temperature must lie between **-35 and +70°C**. The outer sheath of the cable is made from halogen-free PUR and has a diameter of 6.1 or 9.5 mm. With a guaranteed **5 million bending cycles**, the cables are suitable for particularly tough industrial environments. They satisfy the requirements of category 5, meaning that they transfer data flows at up to 100 Mbaud. These trailing chain-compatible Ethernet lines can be used anywhere in an **automated environment**, particularly with robots but also in mechanical and plant engineering as well as in transport and material handling systems.

DIOHUB for convenient star cabling

INTO THE FUTURE OF AUTOMATION TECHNOLOGY WITH ETHERNET

André Kengerter



The trend towards **measuring, controlling and visualisation via Ethernet** in automation engineering is now unmistakable. Lütze is responding to this development through a complete range of Ethernet components, the most recent addition to the family being the **DIOHUB** distributor for star cabling.

There are a number of standards for the cabling of Ethernet networks. These include a line structure with coaxial cable and BNC plug connectors, a star structure with drilled two-core wire and RJ45 plug connectors, or glass-fibre cables with various termination systems.

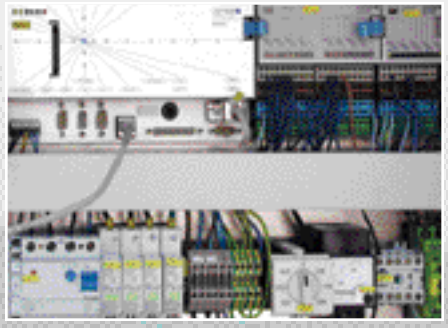
Industry almost exclusively uses the drilled two-wire line, and this is what the DIOHUB was designed for. It offers Ethernet connection for up to five devices and can be cascaded. The **data transfer rate** for the DIOHUB is **10 Megabits**. It demonstrates its suitability for industry through the DC 24V power supply via a clamp-type terminal available in screw or spring form, LEDs for connection status, power supply and collision detection as well as easy DIN rail assembly. **Despite its stable construction in a robust aluminium housing, the DIOHUB is one of the cheapest devices of its kind on the market.**

DIOPC FOR TRAFFIC CALMING

Gottfried Kainradl

ASCOM AUSTRIA has won the invitation to tender from the regional government in Steier for the erection of a **noise-protection zone** on the Austrian motorway heading south. The stipulation was a massive reduction in noise pollution of the neighbours through an innovative new concept.

A **multifunctional system** with a new kind of dramaturgical concept sensitises car drivers to the problem, resulting in an effective reduction in speed and thus a significant decrease in traffic noise. Measuring microphones localise the source of the noise and the wind direction. When it is ascertained that the measured noise is caused by the traffic, the measures described below are initiated.



Some 3 km before the zone, posters warn of possible noise pollution. This is followed by an **overhead warning panel which displays the noise level**. If a certain level is exceeded, the attention of the motorist is drawn to this by enlarging and shrinking messages (e.g. «too loud» or «speed limit»). Information about the actual speed limit is also then displayed.

About 500 m before the noise protection zone, the actual speed limits are displayed on a further overhead panel. The electronic display panel also contains a three-line field with text such as «residential area – noise protection – 500 m».

As motorists enter the direct noise protection area, emotive appeals (picture of baby with text: **«I want to sleep – sshh!»**) are linked on an LED panel with pertinent advice, thus establishing a relationship with the neighbouring population.

A further noise-level display linked with the reminder to keep the speed down is located in the monitored motorway section, while a «Thank you» sign and more emotive posters **(«kill your speed, not yourself» or «drive with style»)** are sited further on.

All displays are controlled centrally via the Internet. This made it essential to connect the multi-function panels by means of a data network. The long distances between the particular switch-boxes meant that networking with field buses was ruled out.

ASCOM AUSTRIA therefore opted for the **DIOPC from LÜTZE** (386 processor, 100MHz, 16MB RAM, 16MB flash with integrated compact flash-card slot). This **compact industrial PC** in a robust and EMC-protected aluminium housing which can simply be snapped onto the DIN rail is used as the controller in the decentral distributor cabinets which are required for every display panel. The operating system is QNX. The **DIOCOM modules** connected via the Lütze bus provide the necessary **digital and analog inputs and outputs** for the electric switching operations. The ASCOM display panels are triggered by means of a serial port on the DIOPC, the robust and fan-less design of which ensures high availability of the system.

A direct connection to the Internet is established with the integrated **Ethernet port on the DIOPC**, so that the entire system can, in principle, be serviced from any PC anywhere in the world, while the software (display text) can also be modified in this way. **Combined with the solar equipment for power supply, this is the most modern constellation available on the market and represents an extremely cost-efficient and forward-compatible solution.**

LÜTZE INTERNATIONAL

Think global, act local
Get in direct contact with your local Lütze partner

Friedrich Lütze GmbH & Co.
Postfach 1224 (PLZ 71366)
Bruckwiesenstrasse 17-19
D-71384 Weinstadt
Tel. 0049/7151/60 53-0
Fax 0049/7151/60 53-277
e-mail: info@luetze.de
www.luetze.de

LÜTZE S.A.
52, avenue des Châtaigniers
BP 76
F-95157 Taverny CEDEX
Tél. 0033/1/34 18 77 00
Fax 0033/1/34 18 18 44
e-mail: lutze@lutze.fr
www.lutze.com

LÜTZE
Elektrotechnische Erzeugnisse GmbH
Niedermoserstrasse 18
A-1220 Wien
Tel. 0043/(0)1/257 5252-0
Fax 0043/(0)1/257 5252-20
e-mail: office@luetze.at
www.luetze.at

LÜTZE AG
Oststrasse 2
CH-8854 Siebnen
Tel. 0041/55/450 23 23
Fax 0041/55/450 23 13
e-mail: info@luetze.ch
www.luetze.ch

LÜTZE Inc.
13330 South Ridge Drive
USA-Charlotte, NC 28273
Phone 001/704/504-0222
Fax 001/704/504-0223
e-mail: info@lutze.com
www.lutze.com

LÜTZE Ltd.
Unit 4, Brabazon Court
Borman
Lichfield Road Industrial Estate
GB-Tamworth, Staffordshire B79 7T A
Phone 0044/(0)1827/31 3330
Fax 0044/(0)1827/31 3332
e-mail: sales.gb@lutze.com
www.lutze.com

Friedrich Lütze GmbH & Co.
Via, G. Verdi, 6/a
I-23870 Cernusco Lombardone (LC)
Tel. 0039/039 928 49 36
Fax 0039/039 599 573
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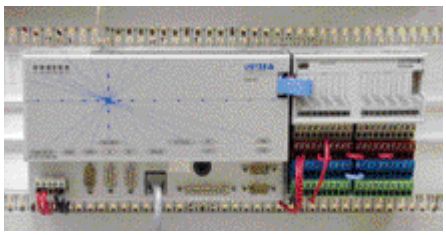
Automation made simple.

LÜTZE INC. HOSTS FIRST DIONET TRAINING SEMINAR

Udo Lütze

January 21st, 2002, **Lütze Inc.** launched a new session of training seminars specifically designed around **DIONet** products and the **DIOPC**. Held at the Charlotte, NC, offices of Lütze Inc., this **freshman seminar** received participants from four countries and proved most informative.



The expectation for the seminar was to show the ease of deploying a DIONet control network utilizing the DIOPC as a decentralized controller. In addition to discussing hardware and network architecture, Lütze Inc. demonstrated the **tight integrations of the product** and the ISaGRAF ENHANCED control software from AlterSys.
An AlterSys representative was present during the two day event to demonstrate the simplicity of deploying the ISaGRAF ENHANCED software to the DIOPC.

The DIOPC is available from Lütze with the ISaGRAF ENHANCED runtime installed so that the user can use the product «out of the box» without configuration or driver installation.

The DIONet seminars will be held on a regular basis at Lütze Inc. in Charlotte, NC USA.

Alliance in France:

PARTNERS: LÜTZE AND KUKA

Alain Lancelle

For several years Lütze has been working with **KUKA**, one of the **leading manufacturers of industrial robots**, with the aim of integrating certain robot components more efficiently. Robot users have differing needs, leading to the situation where more and more new components have to be integrated into more and more different places within the control cabinet. KUKA saw itself faced with the problem of having to react to each case individually, something that was associated with considerable loss of time.

The result of the fruitful cooperation between the two companies is the sustained **decrease in robot integration times**. Thus today KUKA offers the facility of building preinstalled components into the robot control cabinet. This unit housed in an LSC frame consists of a number of Lütze components, one of which is a Dioface field station. This station is entirely pre-configured and already has the cables required for connection to the network and to the power supply. The various connections are achieved entirely with Siflex-N and electronic bus cables made by Lütze.

The **Dioface field station** is a compact construction measuring **only 221 x 160 mm** and can receive up to 128 TOR input and output. The pluggable connections allow **rapid pre-cabling**. The station supplied by KUKA consists of a carrier module for 6 cards with a Can-Devicenet coupling module and 2 cards with 32 TOR inputs and 32 TOR outputs. The three **free sockets** allow for **extension at a later date**. One important point in regard to this is the fact that the module bears only one article number and therefore is logistically easy to record.

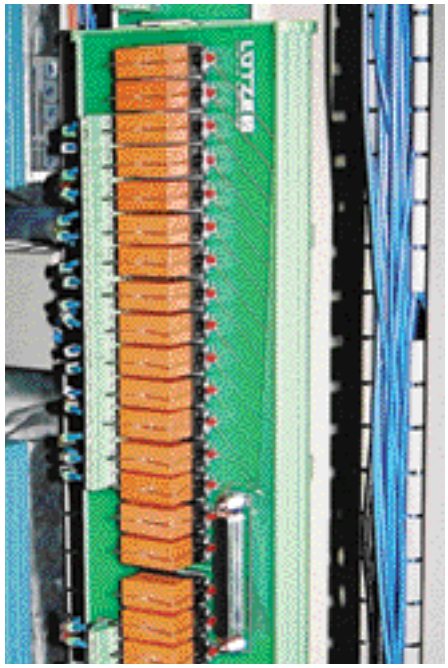
Tailor-made
INTERFACE PRODUCTS HELP FOAM MANUFACTURE

Nigel Broad

«Working with a team that wants to achieve is at the heart of making a project a success» says Kay-Metzler's Chief Engineer, Mike Cranshaw, summing up the achievements made in the upgrading of control systems in the block foam production facility at one of their UK production sites.

The Kay-Metzler production facility in Cheshire, England, produces polyurethane foam used in transportation, furniture and packaging. In addition, it is one of the world's **leading suppliers of graphite foam**, used by all leading airlines for seating because of its excellent properties.
The main catalyst for investment in the existing plant was the need to modernise, thereby reducing scrap rates and making the whole system easier to operate and maintain.
The existing block production was to continue largely free of disruption and interruption during the installation and the change of system. This required careful planning in terms both of logistics and of actual product selection.

The basic control system was to be PLC based. With the considerable number of sensor inputs and control outputs this made for a fairly complex system, especially when considering the wiring to the PLC control modules.
This is where Lütze, working in conjunction with LC Automation, one of its key distributors, based in Preston, North England, were able to offer help and experience. Customised input and output PLC interface modules were designed, manufactured and delivered, all within a few weeks, to the delight of the end customer. «I had looked at «off the shelf» options for the PLC interfacing however there was no single product that offered



exactly what I wanted» commented Adrian Henshaw, Electrical Manager – Block Plant. **«Despite the relatively low volumes, Lütze was able to design cost effective modules** to fit my requirements exactly, which meant that I didn't have to compromise on any aspect of the installation thanks to the tailor-made PLC I/O modules from Lütze».

The interface modules are essentially DIN-rail mounting units, based on the standard product designs that are already available from Lütze. PCB layout modifications and component changes have allowed the flexibility required to deliver the exact requirements of the customer. Both input and output boards are 32 channel products with individual LEDs indicating the operation of each channel. The output modules feature plug in relays for improved system maintenance and the relays are electrically isolated into two blocks of 16. This means that part of the system may be controlling 24Vequipment with other relays switching 48V or 110V as required.
Being DIN-rail mounted means that the modules can be located anywhere in the panel to allow for convenient field wiring. As they are constructed as a single board design, wiring back to the PLC is simplified by the use of simple, plug-in, interface cables. **Lütze was also able to help at this stage by manufacturing interface cables to the exact length required by the customer for the panel wiring.**

Although the actual product flexibility as outlined above was hugely important, ultimately it was the close collaboration offered by Lütze and its distribution partner LC Automation that crucially persuaded Kay-Metzler of the success of the entire plan when determining its requirements profiles. **This project clearly demonstrates that tailor-made product solutions can often be more suitable and just as cost-efficient, even for smaller orders, than products from the standard range.**