Edition 20

LÜTZE-REPORT

The international magazine of the Lütze Group

CRUISING WITH LÜTZE

USA VIP VISIT TO LÜTZE

NEW PRODUCTS

INNOVATION AT AREVA

LÜTZE TAKES THE IRON OUT OF THE FIRE

RAILWAY ENGINEERING – NEW KEY ACCOUNT SECTION

GUIDING LIGHT IN ROAD TRAFFIC

PLC REFIT SAVES INSTALLATION TIME

TRION «AUTOMATES» LIBRARIES

TRAY CABLE REQUIREMENTS IN THE USA

LÜTZE
Systematic Technology

EDITORIAL

Udo Lütze
CEO Friedrich Lütze
International Group

And where is the shoe pinching you?

Now as before, innovation is the most important thing for machine and system constructors all over the world. And it's not just a case of big inventions and new technologies here. Quite often an ingenious solution lies hidden in the detail and therefore, almost inconspicuously, improves a complete system or machine.

Many of our customers have improved their products by means of lots of small innovations, so they are now amongst the best in the world. Not only does innovation help to improve products, but it also helps strengthen your market position.

Lütze staff have frequently been involved in these success stories. Working in close cooperation with our customers, we attempt to find out exactly where the «shoe is pinching» and where we can usefully apply our experience. Sometimes the answer lies in optimising a product that already exists. However, it is far more often the case that our technicians are requested to solve challenges with specific new developments.

In this edition of Lütze Report you will also find some interesting approaches to solutions that we have worked out in close cooperation with customers.

I hope you enjoy reading it.

Yours sincerely,

Udo Lütze

INDEX

IMPRINT

Published by
Lütze INTERNATIONAL GmbH
Bruckwiesenstrasse 17–19
D-71384 Weinstadt
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 SZ
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 • CH-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
p.c. of + FOTarena Bern
Tel. 0041 31 313 30 36
E-mail: info@fotarena.ch

Printed by
Hertig Druck AG, Biel

CRUISING WITH LÜTZE

D. Killmann, Germany

Soaking up the sunshine on holiday on the top deck of a cruise ship: lying in a deck chair, enjoying a cool drink … what's this got to do with Lütze?

Lütze is not active only in the fields of mechanical engineering, the automobile industry and railway engineering. Since 2006 Lütze products have also been in use in «Aida» cruise ships.

Although cruise ships certainly are gigantic, space is still mostly at a premium. H. Jaspers of Funa Nachrichtentechnik in the German seaport of Emden, who, working in cooperation with Meyer Werft in Papenburg, equips cruise ships, was looking for ways of saving space. Slim standard switch cabinets are used for supersonic sounding and lighting systems in order to accommodate the hardware judiciously. Thanks to the LSC wiring system from Lütze it was possible to save lots of space.

All components previously housed in the side walls are now on the frame. Also the LSC frames are fully mounted and wired before being fixed in the cabinet. Our Ethernet switches are also built into the cabinets. As cables on ships have a larger external diameter, they wanted to change over to RJ 45 connectors. Lütze was able to offer its 6-way miniswitch with two crimped connectors, as well as a very slim design.

But Lütze also has a presence in the command centre of the «Aida» with its built-in USB sockets. They are used as an interface for the pilotage laptops in the Panama canal. The great advantage of these components is that they can easily be installed in a 22.5 mm hole. In other words, we are right on course.
If you were soaking up the sunshine on a deck chair aboard the «Aida», would you know that Lütze was accompanying you on the cruise?

VIP VISIT AT LÜTZE INC.

Juergen Seybold, USA

From right:
Hans-Joerg Brunner, Hannelore Brunner, Kurt Waldthausen, Juergen Seybold.

On February 2007 the General Consul of the Federal Republic of Germany, Hans-Joerg Brunner, accompanied by his wife Hannelore and the Honorary Consul of Germany, Kurt Waldthausen, made it a priority to visit our facility during his latest Southeastern business trip. Mr. Brunner, who is wellknown for his excellent support work for the German businesses in the United States, was very pleased and impressed by the vast improvements our company has implemented in the past few years. Mr. Brunner and Mr. Waldthausen took time to learn about our customers and the industries we work with. They were happy to see another privately owned company from Germany succeed in the US and assured us their continued diplomatic support.

TRADE FAIRS

Lütze goes around the world

Exhibition	Date	Place
Hannover Messe	16 – 20 April	Hanover
AM-Expo 2007	24 – 27 April	Atlanta
ElectroSalon	08 – 11 May	Budapest
MSV	22 – 25 May	Nitra
go automation technology	04 – 07 September	Basel
Motek	24 – 27 September	Stuttgart
ILMAC 2007	25 – 28 September	Basel
MSV	01 – 05 October	Brünn
Smart	03 – 05 October	Linz
TIB	02 – 06 October	Bucharest
efa	24 – 26 October	Leipzig
SPS/IPC/DRIVES	27 – 29 November	Nuremberg

Limit switch
SEVEN AT ONE STROKE!

With its new, programmable MICRO-COMPACT limit switch, interface specialist Lütze combines seven operating modes.

The Lütze programmable MICRO-COMPACT limit switch is used for monitoring the limit values of standardised signals. Depending on the particular application, you can select from seven different operating modes: limit value, window, tendency+, tendency–, tendency+/–, inverting or error memory. This means the MICRO-COMPACT can be used for all types of automation task, for example as a threshold switch, monitoring relay or for temperature, pressure, overflow, motor protection and speed monitoring.

User-friendly handling and installation

Lütze calibration software is used for the parameterisation, management and display of limit values. The status of contacts is indicated by means of an LED status display on the front panel. An external relay coupler with a switching capacity of 6 A can also be switched in as an option. Thanks to the compact design of only 6.2 mm, the Lütze limit switch can be mounted in the distribution cabinet using TS 35 top hat rail fittings, therefore saving space. This limit switch satisfies the requirements of protection classification IP 20.

Highly developed

The process values to be monitored can be present at the input end as a direct current signal of 0–20 mA or as a DC voltage signal of 0–10 V. After the internal conditioning of the input signal, it is compared with the digitally set limit value. If the measurement signal is exceeded or fallen below, a transistor output is energised. Two switching functions can be performed via the transistor outputs which each have one output. Each switching function can be parameterised with an individual hysteresis of 0.1 to 90%, an on/off switching delay of 0 to 999 seconds, inverse operation and with a safety switching state in the event of signal interference.

Compact desing –
INTELLIGENT CABLE ENTRY SYSTEM

Lütze will be exhibiting its new Cablefix® Vario cable entry system for cable assemblies. With a minimum of effort spent on mounting and installation, it will be possible to create compact cable installations, even with the connector already fitted.

Lütze's new cable entry system Cablefix® Vario is ideal for a leading-through, separation and strainrelief of cables, conduits and air hoses. Assembly is quite simple and is similar to a tongue and groove system; it consists of solid frame element and TPE rubber modules. A wide range of rubber modules is available for cable diameters from 4.5 up to 34.5 mm. Thanks to the very small hole spacing it is possible to achieve a high cable packing density. There is also no problem in retrofitting existing cable installations with the Cablefix® Vario system.

The advantages of the Cablefix® Vario system lie in its compact design and stable frame construction. The clamping frame is manufactured from high-grade glass-reinforced nylon (Polyamide 66 GF30) with additional internal brass reinforcement – or alternatively entirely from aluminium. The Lütze Cablefix® Vario has a temperature resistance of –40ºC up to +135°C, good flexibility, even at low temperatures, and meets IP 65 protection requirements. Thanks to the use of high-quality materials, Cablefix® Vario possesses good flame-retardant properties and is resistant to UV, ozone, oils and fuel, acids and alkalis, solvents as well as sea water.

Solid state relais
TWO PROBLEMS, ONE SOLUTION!

The interface specialist Lütze is introducing a new solid state relay (SSR) that can switch both AC and DC voltages, and can thus be used to replace separate AC or DC relays.

The key benefit: lower inventory due to a reduction in the number of models. The new Lütze SSR offers high load capacity when switching AC and DC loads. A further advantage lies in the high galvanic isolation between the input and output circuits. With its isolation voltage of 4 kV, the new Lütze SSR ensures high immunity to electromagnetic interference and voltage spikes. Thanks to the integrated MosFET technology, only very low switching losses occur, and no chatter. The maximum switching current (AC/DC) is 2 A and the switching voltage (AC/DC) lies between 2 and 253 V. The Lütze SSR is supplied as an enclosed design with a width of just 6.2 mm and includes a status LED. The assembly is extremely simple using screw terminals or cage clamp connections followed by DIN rail mount.

With semiconductor relays, also called solid state relays (SSR), the loads are switched with the help of semiconductor components. Electromechanical moving parts and contacts can be dispensed with. This ensures extremely fast switching times and wear-free operation, leading to high reliability and a virtually unlimited service life. Semiconductor relays are thus ideal for high switching frequencies and for unfavourable environmental conditions (such as environments with explosive gas mixtures).

LÜTZE – INNOVATION AT AREVA

Armand Patte, France

Lütze SA in France has been cooperating with the entire Areva Group for many years. The latest innovative value-added solution was brought to fruition for this customer with the Areva T&D company (energy transmission and distribution) in Villeurbanne in the Rhône valley. The products manufactured in this company's facilities include, amongst other things, switch cabinets for managing power failures in high-voltage power distribution networks (cabinets with automatic units, relays and various electric and electronic components). These cabinets bear the name of second generation FKG automatic generator-switching units.

The special thing about this cabinet is that it is fixed in a frame to accept all materials (isolating gases, isolating switches, etc.). These new equipment generations have improved product functionality and have more components, whilst the cabinet size does not have to be bigger – or smaller for that matter! Areva also mounts the cabinets in the machine frame to save floor space.

LÜTZE TAKES THE IRON OUT OF THE FIRE

Frank Nicolaizik, Germany

With a workforce of 40, Henschel Industrietechnik Handling Systems GmbH from Kassel manufactures so-called ANDROMATS®. These manipulators take over the feeding in and out of workpieces in foundries and forges. They can handle loads of up to 4,000 kg. Since 1967, almost 500 of them have been built and they can be found working «around the clock» all over the world.

Various hydraulic valves and pressure switches are in operation on the manipulator arm to grip the workpiece. Previously, the connecting cables were laid in a terminal box and then fed to the controller via a trailing cable. This terminal box has now been made «pluggable» by means of an actuator-sensor box from Lütze. Using preassembled connecting cables, all signals are now applied to standardised M12 plug connectors. Time-consuming and therefore cost-intensive processes, such as assembling valve plugs by hand or the mechanical processing of the terminal box are now a thing of the past. The Lütze actuator-sensor box saves space and, thanks to the integrated LED display, also offers visual control of individual switching states.

And Lütze's actuator-sensor box has yet another advantage to offer: Thanks to its removable connector cap, cables with a customer-specific design or different cross-section such as 1.0 mm² can be used. The box is completely encapsulated and, complying with protection classification IP 68, offers a secure electrical contact for all connected signals.

Therefore, for the customer this means a high level of operating reliability and safety whilst simultaneously reducing manufacturing costs. And should a cable need replacing at a later stage, this can be done quickly and without complications by the company's own staff.

We present an LSC wiring solution to benefit from the space and time gained during wiring and installation. The frame consists of three equipment mounting surfaces in the cabinet (a main frame and two vertical frames on the cabinet sides), which would make wiring in this small cabinet very laborious. Lütze developed a solution with hinges to link the frames under one another. Therefore the wiring can be carried out outside the cabinet and the frame is then built in as a whole (no problems plus time gained). Areva provided us with a cabinet to test our solution. Once the prototype was completed, the LSC solution was accepted and integrated.

We would like to take this opportunity to thank Areva for its help in this search for an optimal, customer-specific solution.

From left:
A. Kengerter, J. Clemens, D. Koutrouvis

RAILWAY ENGINEERING – NEW KEY ACCOUNT SECTION

Andre Kengerter, Germany

A new key account section has been created at Lütze, to be able to look after customers in the fast-growing railway market more comprehensively in future.

Fluctuations in temperature, impacts, vibrations and strong electromagnetic fields: electronic modules on rolling stock are subjected to many outside influences. In spite of this, they have to be exceptionally long-lasting and reliable. Lütze has been developing and supplying products for rail applications for almost two decades. Many locomotives, railcars and control cars currently travel safely around the world's rail networks thanks to Lütze know-how.

It all started with the reinforcement of relay couplers and suppressor modules for the increased environmental demands in rolling stock. Gradually, products from the entire Lütze range found their way into this demanding field of application. In the meantime, virtually the entire control equipment in modern rolling stock can be built using Lütze components. Thanks to this product range, our customer base has also developed further, with almost all rolling stock manufacturers in Europe putting their trust in Lütze, and railway products made by Lütze have also long since found their way «across the pond» to the US. To cope with the rapid development in organisational terms, since the beginning of 2007 all worldwide activities relating to the railway industry have been coordinated centrally in the Railway Engineering key account section. The staff there deal exclusively with the further development of this product range.

We always like to hear about your new product ideas, coordinate innovations, make sure that our railway products always comply with the latest standards and regulations and provide you with up-to-date product information. However, product management for Lütze railway products is not our only job: the Key Account team is there for you to answer all technical and commercial queries relating to railway technology. Thanks to this new structure, our customers are given the best possible support, even for complex projects, from individual products to complete applications. We also look after OEM customers from the automation sector. You can reach us either locally via your qualified Lütze field executive or direct by e-mail at: railways@lutze.com. We look forward to dealing with your queries.

GUIDING LIGHT IN ROAD TRAFFIC

Luzia Haunschmidt / Konrad Gniegler, Austria

These days, safety and electronics go hand in hand. A fine example is the manufacturing company Swarco Futurit in Austria, which has been able to improve its production with the aid of Lütze components.

Traffic control equipment is part and parcel of today's roads. They play an increasing role in getting car drivers safely to their destinations. Apart from static items, such as road markings and signs, alternating text displays are now essential elements as modern, dynamic aids to traffic flow. Used with greater frequency, they give travellers vital messages, for example about road conditions, dangers ahead or other information essential to road safety in general.

Swarco Futurit (www.swarco.com) is part of the Swarco Group (HQ in Wattens, Tyrol) and a worldwide leading producer of traffic lights.

Dynamic traffic management

Variable message signs from Swarco Futurit can be found, for instance, on the A10 in the Katschberg and Spittal area, on the A9 in Germany and on the A12 Inn valley motorway. A matrix made up of hundreds of individual dots of light creates symbols and text in traffic control systems. Within the framework of its traffic management and information system, Austrian motorway operator ASFINAG controls variable displays centrally, influencing traffic speeds, warning of jams and giving information on diversions. As traffic signs are not identical around the world, they have to be adapted to suit each market. Michael Schuch of Swarco Futurit comments: «Everyone understands traffic signs in different countries – it's just that they are changed a little in each country. This is where the challenge lies for us in meeting market requirements (internationally as well) and approaching things flexibly.»

Modern production

When it came to the production of a new line of these innovative electronic systems, Swarco Futurit Verkehrssignalsysteme GesmbH went into partnership with Lütze. The LSC wiring system from Lütze was used, its frame replacing the otherwise commonplace subplates. The Lütze system can be put together from prefabricated aluminium parts extremely quickly. All the switching elements can be mounted on the integrated snap-on or screw-in fixings about three times faster than on a normal subplate. These advantages led Swarco Futurit to use the system in the form of pivoting frames in its lane indicators. For Swarco Futurit this means its production processes are speeded up, because preassembled power supplies, fuses and automation components can be built in quickly. Preassembled wiring also contributes to the efficient assembly of these systems. Michael Schuch, manager of the Optical Displays department at Swarco Futurit, tells us: «Amongst other things, the efficient design using the Lütze system makes our products easier to maintain. Thanks to access on both sides, the LED modules, for example, are easily accessed. But our personnel can also achieve results more cost-effectively where the wiring is concerned.» All in all, with the pivoting frame, handling is much easier and more ergonomic. The Lütze frame means that assemblies can be kept very compact.

Technology for professionals

Complete LSC frames produced according to customer specifications reduce both space requirements and installation times. Other benefits are improved heat dissipation thanks to excellent ventilation and an easier layout for servicing and subsequent wiring through generous cable ducting. Reductions in both installation times and overall costs are features that clearly speak in favour of the Lütze system. Finally, Michael Schuch of Swarco Futurit emphasises a few points from his point of view: «It is certainly a great advantage being able to preassemble externally. Easier maintenance is just as important to us. Also the system has a more advanced and more innovative appearance. In a nutshell, it looks better and the design in the switch cabinet is more pleasing.»

SOLUTION FOR PLC REFIT SAVES INSTALLATION TIME

Nigel Broad, Great Britain

The PLC has long been established as the preferred controller for industrial applications. The early products have been around for over 20 years and many are beginning to show their age, many manufacturers are being forced to withdraw products due to component obsolescence. PLC manufacturers often have a well supported upgrade path with respect to PLC code compatibility; therefore, the replacement of the software is relatively straightforward.

End users often need only to replace the PLC, with the rest of their system being maintainable, so the fact that new controllers offer more power, are smaller and offer connectivity to modern field bus systems is often of no interest, as they are looking to use existing cabinets and field wiring; these are the major challenges when retrofitting PLC systems.

Working together – new Interface

A 20-year-old PLC is typically 3 times larger than today's equivalent and the connections to the I/O modules reflect this. The connection and termination points are radically different, as solid state outputs are far more common on today's PLC's, making the density of I/O and connections difficult to work with when trying to use existing field wiring. Lütze Limited has worked closely with system integrator partner LC Automation on the design of an interface to enable the use of existing field wiring when upgrading Mitsubishi A series PLCs, which have been in the field for over 20 years, to the latest-generation Q series.

Lütze designed an interface to plug directly underneath the replacement Q series PLC and then, depending on the original function of the I/O card, the customer can use a pre-wired cable assembly to connect to the new Q controller. Existing field wiring remains undisturbed. The commissioning of a new system is much easier, as wiring faults are eliminated.

Malcolm Chadwick of LC Automation commented: «Our customers' major concerns regarding the introduction of wiring faults resulting in increased commissioning time when replacing older PLC equipment have been addressed with this concept. The flexibility is further enhanced by using pre-wired cable assemblies ensuring many PLC modules can be installed quickly and easily.»

LÜTZE INTERNATIONAL

Think global, act local. Get in direct touch with your Lütze Partner.

Friedrich Lütze GmbH & Co KG
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
Tel. 0033/1/34 18 77 00
Fax 0033/1/34 18 18 44
E-mail: luetze@luetze.fr
www.luetze.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 3 Sandy Hill,
Sandy Way, Amington,
GB-Tamworth, Staffordshire,
B77 4 DU
Phone 0044/(0)1827/313330
Fax 0044/(0)1827/31 3332
E-mail: sales.gb@lutze.com

Lütze, S.L.
Avda. Coll del Portell, 53 local 7
E-08024 Barcelona
Tel. 0034/ 93 285 74 80
Fax 0034/ 93 285 74 81
E-mail: info@lutze.es
www.lutze.es

☐ Please send us more information about articles in this magazine.

Subject _____ Page _____

_____ Page _____

_____ Page _____

☐ Please send us information about your entire product range.

☐ We would like some advice. Please call us.

From:

Firm _____

Surname/forename _____

Address _____

_____

Phone/fax _____

E-mail _____

TRION «AUTOMATES» LIBRARIES

Karl Heberle, Switzerland

Trion AG from Volketswil near Zurich employs specialists from the fields of software development, machine design and system production with a great deal of know-how in automation.

The widespread appearance of «RFID technology*» has opened up new, efficient opportunities for the automation and optimisation of procedures and processes in libraries. Trion AG develops, constructs and supplies solutions and systems for this customer segment that simplify materials handling and make it considerably more efficient.

These modern systems from Trion put an end to boring jobs in these establishments and offer interesting, ergonomic and attractive places of work. Highly developed, up-to-date system solutions for putting goods in and out of stock, as well as modular sorting systems, have been developed in cooperation with the users and cover their requirements ideally.

Given the great demand, the people at Trion have also devoted some thought as to how they could improve production in their own company. Up to that point, Lütze AG had supplied cables and screw connectors (also UL-approved) for electrical installations in their systems. As the installation costs were relatively high, especially in the field of sorting systems, rationalisation measures were sought for these system parts.

In collaboration with Mr. Tutam, production manager at Trion, and Urs Hunkeler, Lütze AG, we were able to find a brilliant solution. Local distribution boxes have been completely reworked by Lütze and equipped with terminals and screw connectors. The connecting cables have also been extended by Lütze, prepared for fitting terminals at one end and fitted with plugs specified by Trion at the other. These cables are fed into the distribution boxes via the screw connectors and wired to the terminals. This results in complete kits, ready for connection, that the Trion staff can install quickly and without any problems.

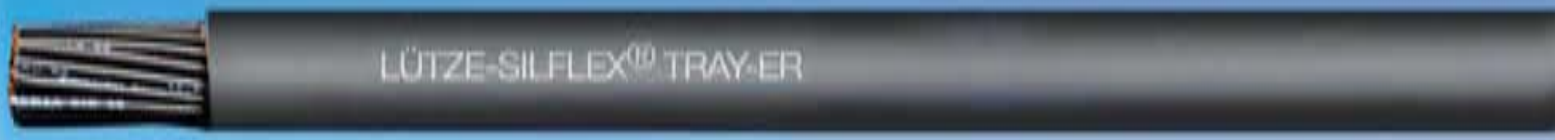
Projects
- Antwerp Central Library, Belgium
- Winterthur City Library, Switzerland
- Bergen University, Norway
- Karlsruhe Technical University, Germany
- Oxnard Public Library, California, USA
- Pasing City Libraries, Gasteig in Munich, Germany

Further information:
www.trionag.ch

In discussion with Mr. Tutam a few arguments for cooperation with Lütze came up which were also decisive when it came to using Lütze components: «With these kits, we are able to make enormous savings in the electrical installation of our systems. Over and above this, warehousing and purchasing costs could also be cut (everything from a single source). Furthermore, I have been most impressed by the excellent support from the Lütze team and by its readiness to get involved. Lütze is a partner and supplier I can recommend with full conviction.»

* *RFID = radio frequency identification technology*

✗ *Return*



TRAY CABLE REQUIREMENTS IN THE USA

Stefan Grunwald, USA

«When in Rome, do as the Romans do» is a phrase often used to advise someone who is traveling to a foreign country to look out for local behavior and to do things the same way as the locals do. When it comes to installing cable in cable trays, this phrase is also true, at least, if you plan to install the cable in the United States of America.

Most electrical installations are regulated by the «NEC», the National Electric Code. The National Electric Codebook is released every three years with updates. The purpose of the NEC is to make provisions focusing on safe installation and operation of electrical systems. The NEC is a consensus standard that is accepted and adopted by most local, county, and state governments in the USA as their own electric code. Among many other installations, it also regulates the use of cable in cable trays.

The typical types of tray cable are:

- Tray cable – type TC
- Power limited tray cable – type PLTC
- Metal clad cables – type MC
- Mineral insulated cables – type MI
- Optical fiber cables – types OFN thru OPC – table 770-50
- Multipurpose and communication cables – types CMX, CM, CMG, CMR, CMP, MP, MPG, MPR, MPP
- Fire alarm cables – type NPLF and NPLR

All the cables above are designed to be used in cable trays or conduits if outside the cable tray. Power and control cables type «TC» should not exit a tray for more than 6 feet without running through a conduit when connecting power to a device like a machine which is integrated into a production line. This could be a costly expense and may require further installation of another tray or conduit.

The 2005 NEC code introduced a new rating for tray cables: «TC-ER» (commonly referred to as «exposed run»). This type of cables comply with improved crush and impact requirements and must be identified for such use with the marking «Type TC-ER». Typically the crush resistance is achieved with a nylon overcoat on the PVC conductor insulation (also known as THHN).

«Type TC-ER» is the only type of tray cable that is permitted to be used outside a tray if the cable is secured at intervals not exceeding 6 feet. This change was released with the 2005 NEC 336.10(7).
In other words, all cable that is used in a tray must be marked «TC». If you are planning to use them outside a tray as well, they must be marked «TC-ER» and be installed as described in 336.10(7).

The Lütze A322 series represents a new and innovative generation of cables, which now combines the «TC-ER» capabilities with the performance of flexible control cables. This allows using the cable as control cable for machine tools as well as for tray applications. The main advantage is that the need for conduit is eliminated.

Please check with your Lütze Representative for further information.

NOTHING TOO HARD FOR LSC

Martin Brinkmann, Spain

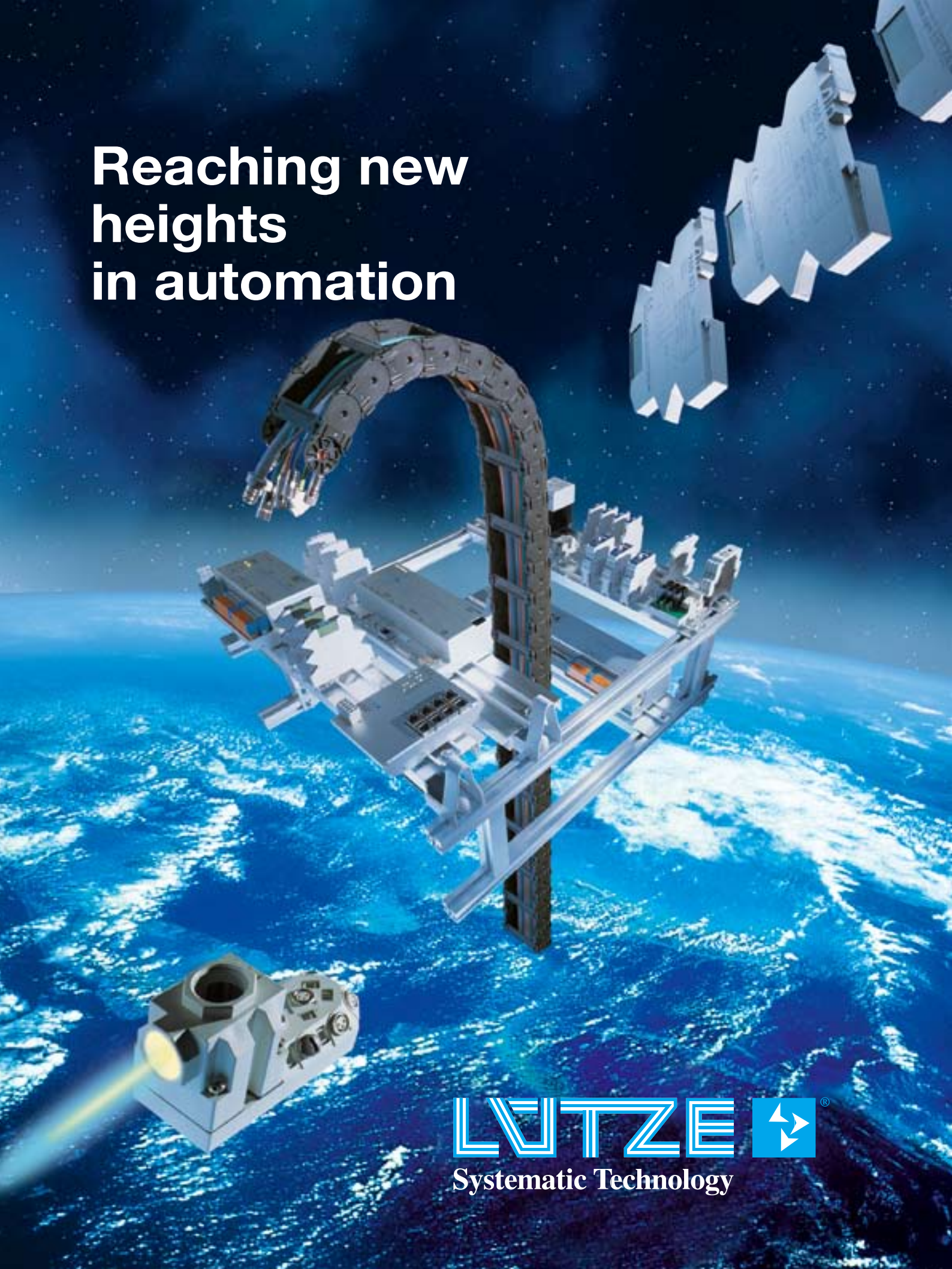
The electrical switchgear in the new container cranes of TCSA-Sotagus in the port of Lisbon are equipped with the LSC wiring system. Contact between TCSA and Lütze was first made at the Hanover trade fair of 2006. Technical support comes from Lütze Spain and local contact is handled by MVA, Lütze's distributor in Lisbon.

The crane system is supplied with medium voltage, transformed to 400 V in the switching cabinet that travels with the crane, rectified and transferred to the frequency converters on the traction and lifting drives via a track system. After the frequency converters, distribution and control is taken over by switch cabinets equipped with the Lütze LSC system. All of the drives and control components have a redundant design to guarantee interruption-free operation.

Saving space as well as wiring- and service-friendliness were decisive in the choice of the Lütze LSC system. «As system builders and operators we immediately recognised the advantages that this modern system offers us,» remarks Nuno Fernandez, the engineer responsible at TCSA.

As a first-time user of the LSC system, Mr. Fernandez has achieved some excellent results. He understood the wiring concept right away and implemented it in an ideal manner. This clearly shows that the LSC system is easy to put into operation – even for new users.

Reaching new heights in automation



LUTZE®

Systematic Technology