

- SAFETY IN RAIL TRANSPORT
- MAX-RELAY COMPRESSION C7/C9
- INNOVATIVE SOLUTIONS WITH RIC
- TIME IS MONEY

EDITORIAL

Dear Readers,

Safety in rail transport!

Our main concern when travelling on public transport is that we should arrive at our destinations on time. Linger on the platform, we are more likely to be devising strategies to snaffle one of the coveted seats than considering the safety aspects of train travel. Or have you ever really pondered the issue of «safe rail transport»? Probably not. We simply assume that our transport from A to B will pass without incident. True as this may be, it is far from self-evident. Potential hazards are lurking everywhere, and the various systems need to work hand in glove to guarantee safety in rail transport.

For instance Autech AG from Rapperswil. The company ensures that the rail network quality remains as it needs to be. To do this, it develops and manufactures grinding and welding machines for individual rail systems. The immense weight of the rolling stock, the weather and environmental factors all produce significant wear in the tracks. Identifying and repairing these defects is the core business of the mid-sized enterprise from Switzerland. Its work helps to cut noise pollution and prevent accidents. Find out on page 2 how the products by the innovative company from Rapperswil make a noticeable difference.

As manufacturers of robust industrial electronics, we are a reliable partner for applications deployed in harsh environments. This issue of update also investi-

gates the C7 and C9 industrial relays and highlights innovative solutions in the range of RIC installation contactors. The C7 and C9 belong to an industrial relay family with a 22.5 mm contact gap. Here, the C7 is truly outstanding as a double pole power relay with 10A switching current or a high-performance relay for switching current up to 500A. These characteristics are unique in the category of miniature industrial relays. The C9 is a highly functional miniature industrial relay with four changeover contacts. A variety of sockets are available for wiring.

The RIC installation contactor series is expanding continuously. We recently presented a rail-compatible variant with blowout magnet technology and a maximum switching capacity of 4A at 110VDC, wrapped up in a 17.5 mm housing. Now we are delighted to present yet another recent addition to the RIC family in this brochure. Besides the standard variants, we presently offer a power contactor with two changeover contacts in the 35 mm housing as well. Check them out.

We hope you find time to settle down and enjoy browsing through these pages.

With our best springtime wishes,



Daniel Herren



Daniel Herren
Vice President Sales

AUTECH AG SAFETY AND COMFORT IN RAIL TRANSPORT

The track maintenance machines by Autech AG are used for tasks that we barely know exist. This mid-sized enterprise builds tailor-made machines for national and international customers and is considered an industry benchmark. The track maintenance machines mounted on municipal vehicles and lorries licensed for

use on public roads deserve particular mention, as they increase the flexibility of work deployment and significantly reduce the overall cost of use.

Track maintenance

Why is the maintenance and upkeep of tracks in cities and conurbations so important? The maintenance work helps to reduce noise, as worn tracks, damaged frogs, potholes and striation on the rail surface cause a substantial increase in noise emission. This is a sensitive issue for many residents, who advocate quieter trains. There are also important economic considerations, besides safety and accident prevention. Most of the tracks in urban settings are installed in the roads. The costs of renewing worn track systems are several times greater than those required for Vignole rails mounted on their own track bed. The welding used to repair wear and other damage is therefore more cost-efficient and significantly extends the service life of the tracks.



Measurement technology

The geometry of tracks is measured before they are hard faced and ground. Railmonitor by Autech measures and evaluates track and switch profiles. The device is approved by Deutsche Bahn DB Netz AG for its highest speed class $v > 280 \text{ km/h}$.

Large measurement trains are used to record the condition of standard gauge tracks in regular intervals. There are also suitable measurement devices for local transport and tram systems.



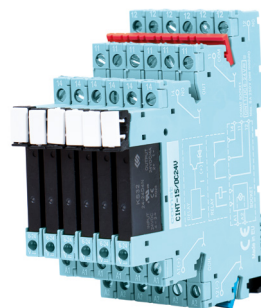
Combined with welding and grinding machines, Railmonitor guarantees efficient track maintenance processes.

Grinding and welding

The most frequent kind of work on the rails involves hard facing the worn flanks of curved tracks. The substantial lateral acceleration – usually accompanied by a lack of cant in tram systems – causes severe wear to the systems. Wear occurs not just on the running edge, but on the live rail as well. In most cases, track wear of 12 to 15 mm will be considered acceptable. But more substantial wear will require hard facing. It is sensible to use a welding machine when dealing with longer route sections.

What connects Comat and Autech?

Pint-sized high-tech! Autech is an experienced developer and manufacturer of track grinding machines. Comat possesses similar expertise in the area of industrial electronics. Comat systems that are currently in use include the new industrial contactor RIC20-xxx-R4A110V, which catches the eye with its compact mass of 17.5 mm and a switching current of 24VDC/20A (utilisation category DC-5). It is used to control individual infrastructure systems, as well as the fan motor to cool the diesel generator unit. Temperatures in the vehicle control cabinets frequently exceed 60°C. The four-pole, pluggable C4-A40 power relays are used for smaller group controls. "The plug capability of the industrial relay ensures a high degree of service friendliness. But we have not had to use it much so far", smiles Tobias Waldvogel, in charge of control equipment at Autech. The CRINT15 – a single pole interface relay with semiconductor technology – is used as a member of the coupling relay family. Its switching capacity of 2A/24VDC protects the PLC outputs that may otherwise feel the pinch due to the high loads. Without a coupling relay, they would certainly be damaged. The available space on these mobile systems is fairly limited, so compact and innovative products by Comat are extremely welcome.



CRINT-15, the single-pole semiconductor interface

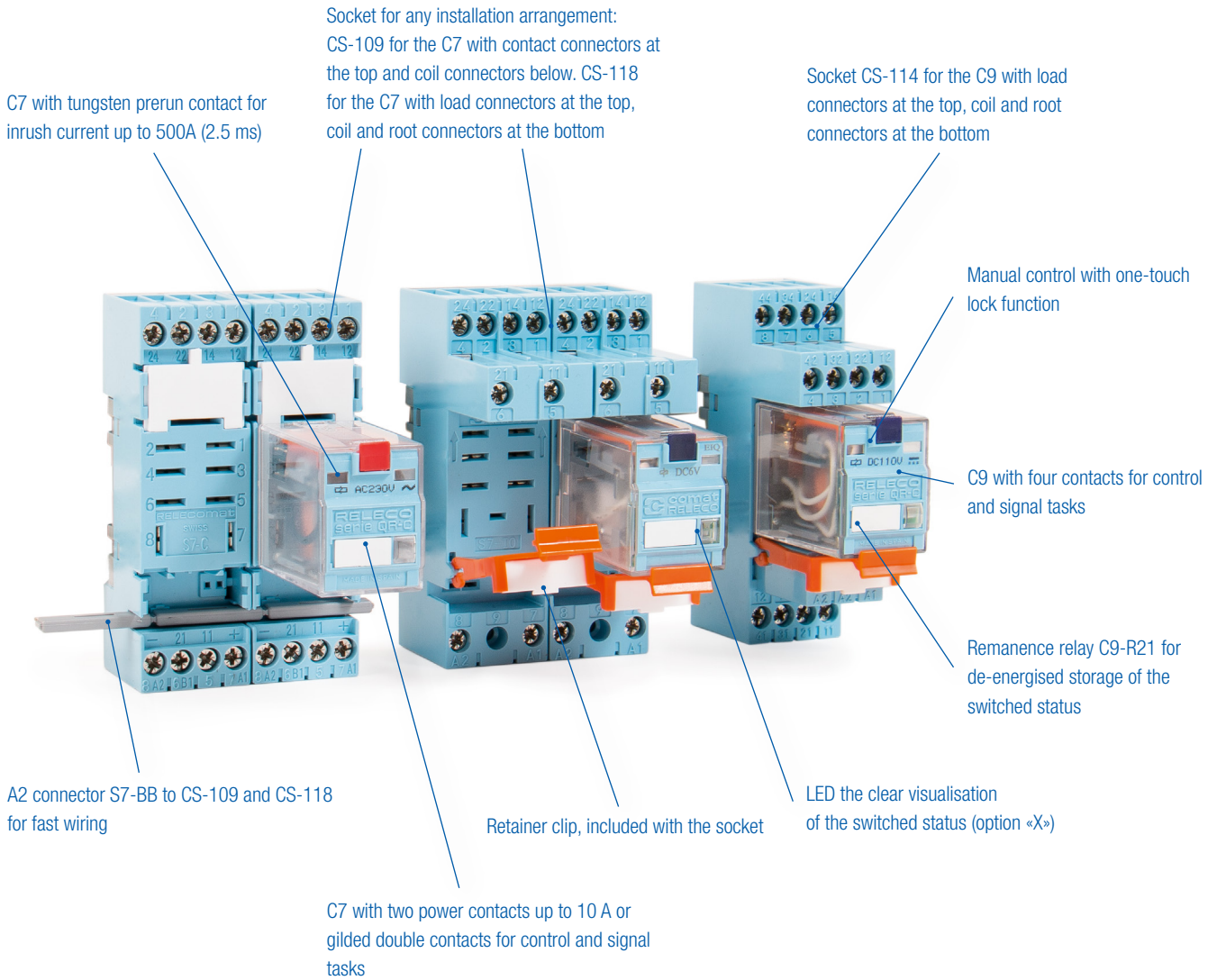
Autech AG was founded 1990 in Auenstein as a public limited company for the manufacture of welding and grinding machines for track systems. The company has a current workforce of 220 employees. Successful on the national and international markets, it has advanced to become one of the leading manufacturers of two-way track grinding vehicles, used to maintain tram and suburban railway networks.



C7 / C9 LONG LIFE – FUNCTIONAL INDUSTRIAL RELAY IN MINIATURE FORMAT

The miniature industrial relays C7 and C9 come with one to four contacts for all switching tasks ranging from control to high-performance applications. With a width of just 22.5 mm, these relays are predestined for use in cramped spaces.

Together with their extensive accessories program – comprising sockets with various pin assignments, retainer clips and contactors – the C7 and C9 provide a modular system for control engineering.



Typ	C7-A20	C7-T21	C7-T22	C7-W10	C9-A41	C9-A42	C9-R21
	Universal power relays 10 A	Control relay with double contact 6 A	Signal relay with 5µ gold plating	High-power relay for 500 A inrush current	Universal control relay	Signal relay with 5µ gold plating	Remanence relay with AC- or DC coil
⎓ Kontaktmaterial	AgNi	AgNi + 0,2µ Au	AgNi + 5 µ Au	AgNi + W	AgNi + 0,2µ Au	AgNi + 5 µ Au	AgNi + 0,2µ Au
Minimum load	10 mA/10 V	5 mA/5 V	1 mA/5 V	10 mA/10 V	10 mA/10 V	5 mA/5 V	10 mA/10 V
Load AC-1	10 A/250 VAC	6 A/250 VAC	6 A/250 VAC	10 A/250 VAC	5 A/250 VAC	5 A/250 VAC	5 A/250 VAC
Load AC-15	6 A/250 VAC	–	–	6 A/250 VAC	–	–	–
Load DC-1	10 A/30 VDC	6 A/30 VDC	6 A/30 VDC	10 A/30 VDC	5 A/25 VDC	5 A/25 VDC	5 A/25 VDC
Switch on current	30 A (20 ms)	15 A (20 ms)	15 A (20 ms)	500 A (2.5 ms)	15 A (10 ms)	15 A (10 ms)	15 A (10 ms)
⎓ Operating voltage	0.8...1.2U _N	0.8...1.2U _N	0.8...1.2U _N	0.8...1.2U _N	0.8...1.2U _N	0.8...1.2U _N	0.8...1.2U _N
Voltages	C7-A20X/AC230V C7-A20DX/DC24V	C7-T21X/AC230V C7-T21DX/DC24V	C7-T22X/AC230V C7-T22DX/DC24V	C7-W10X/AC230V C7-W10DX/DC24V	C9-A41X/AC230V C9-A41DX/DC24V	C9-A42X/AC230V C9-A42DX/DC24V	C9-R21X/AC230V C9-R21DX/DC24V

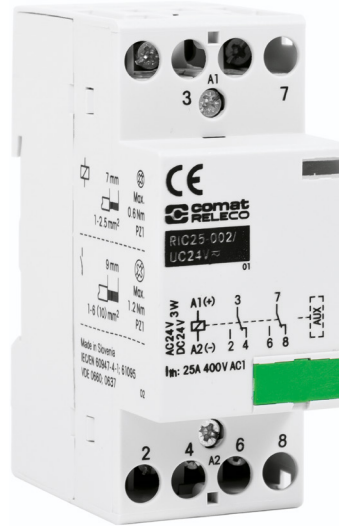
MADE BY COMAT AG FROM THE IDEA TO THE FINISHED PRODUCT

Things that take time cost money. Even minor modifications can improve the handling or technical properties of a product significantly. We pay particular attention to customer wishes when looking to find solutions. An innovative partner,

technical optimisation is not our only goal. We spare no effort in our quest to improve product handling and hence to reduce the cost of assembly and other factors.

The installation contactor was changeover contacts

Traditional industrial relays are not suitable to switch the direction of rotation in direct current motors (utilisation category DC-5). But it is still necessary to install an electromechanical switching device in these applications. The compact design, quick assembly and not least the assembly costs are all good reasons. Nevertheless, the unavoidable compromises in terms of service life present a significant disadvantage. It was this aspect that prompted the unusual idea of fitting an installation contactor in the RIC-25 series with two changeover contacts instead of four make or break contacts. The large contact surface and the two interrupter contacts are ideal for switching DC motors in a suitable performance range. These properties guarantee the required service life and therefore the system availability as well. The flexibility of our engineering allowed us to deliver a preliminary prototype for initial field testing inside of three weeks. The product is now available off-the-shelf under the reference RIC25-002/UC24V.



RIC25-002/UC24V, the contactor with changeover contacts

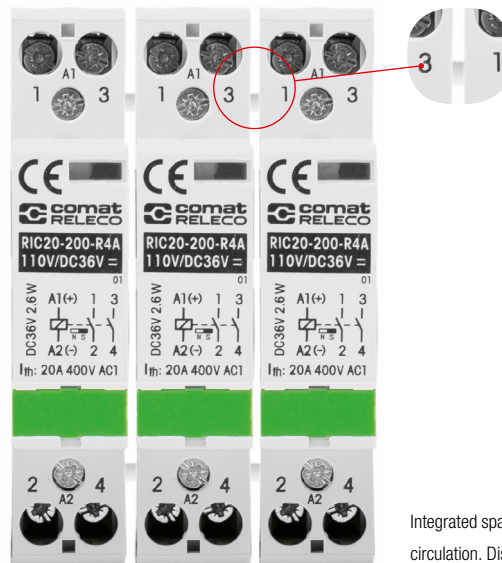
Saving time during assembly

Equipment power loss produces heat that has implications for adjacent devices or the switching capacity of the actual components in the switch cabinet. For this reason, it is necessary to ensure that air distribution close to the device is ideal. There are different methods of exerting a positive influence on air circulation. In many cases, this will involve installing small device groups and fitting spacers. But using spacers costs money, as they add to the assembly work load and require management of an additional component. Creating groups takes up space that is often in short supply. Comat takes an entirely different approach, integrating spacers directly in the housing of the relevant devices. This means that the devices can be placed next to each other without any restriction, and ideal ventilation is automatically guaranteed, even at maximum switching capacity. This reduces the assembly costs without any further ado.

The integrated spacers are used for the first time in the installation contactor RIC20-xxx- R4A110V. Providing an immense DC switching capacity of up to 4A at 110V (utilisation category DC-5) and measuring just 17.5 mm in width, these extraordinarily compact switch devices can be used for a broad variety of applications, for instance in the railway sector. Besides shock and vibration, the requirements placed in the fire protection capability of applications used in rolling stock are very high as well. Our installation contactors satisfy the criteria of the EN 50155 and EN45545 standards and are characterised by particular reliability, entirely in keeping with the acronym RAMS for Reliability, Availability, Maintainability and Safety. Communication is important. We seek to establish close ties with our customers, transforming ideas into finished products. We see ourselves as service providers, and do everything in our power to use innovation to the benefit of our customers. Ensuring your competitiveness is good for us as well. Developing solutions in the spirit of a partnership is our motivation.



Pascal Schneider
Product Manager



Integrated spacer for improved air circulation. Distance: 3mm