



WORLD OF RELAYS

REMOTE CONTROL AND MONITORING | SOLID STATE RELAY | RAILWAY RELAY

EDITORIAL

Dear Reader,

After a complicated 2020 for many of us, we have started 2021 with a lot of enthusiasm. Nevertheless, we soon found ourselves facing the same challenges as in March 2020, especially with regard to home office. Compared to last year, the transition was smooth this time, as the first lockdown has prompted us to accelerate internal digitization processes in the second half of 2020. This included the introduction of IP telephony, tools for collaborative working and a workflow system. Of course, new tools only bring added value if they are used sensibly in everyday work. However, thanks to the experience gained during the first lockdown, the implementation of these tools was very straightforward. All employees recognized the benefits both for internal use and for our customers and partners. We have seen the same kind of dynamic with most of our partners. The exchange has even intensified in the last few

months, with the difference that people talked on the screen instead of in person.

We hope that we have met your expectations in every respect during this extraordinary time and we look forward to seeing you again in person. Enjoy reading it.

Yours faithfully,
Alexandre El Soda, CEO



ELECTRICITY AND SERVICE – APPLICATION IN THE FIELD OF ENERGY CONTRACTING

Have you ever had your nerves frayed from being sent from pillar to post because of something as trivial as a defective outdoor light?

An energy supply model known as «energy contracting» is gaining acceptance in the real estate industry. In this model, one company offers all services, from the construction of the supply lines to commissioning and maintenance. Customers have a single point of contact for the energy supply to their property.

To illustrate this supply model, we will use a fictitious apartment building with ageing infrastructure. The owners decide on a total renovation of the building. In order to minimize the organisational effort, they enter into a contracting agreement with the municipal utilities that covers the replacement of all energy systems – from heating to cooling to electricity. The subsequent maintenance of the equipment is also part of this overall package. Owners have a single point of contact: the project manager. This person organizes and coordinates the work and responsibilities in the departments.

For the subsequent maintenance of the infrastructure components, the interfaces must be defined and designed consistently. Careful planning and clarity about who needs what information at what time are prerequisites



for smooth operations. Once the information channels have been defined, they can be implemented using remote monitoring and telecommunication systems.

The ComatReleco CMS-10R messaging system is perfectly suited for this task. In principle, a transmitter module can monitor any type of sensor or actuator and report status changes to a defined receiver. The monitoring of in-house facilities is possible in any number and combination. The CMS-10R can be used to monitor heating systems, ventilation, power, access control and more.

In case of changes of state, the configured CMS-10R system will report them accordingly. There are different scenarios possible. The message can be sent via push message to a smartphone, or as an e-mail or SMS message. Furthermore, it is possible to inform the recipient via voice message. An initial check of the message is possible with the app on the smartphone. Often, the functionality can already be restored by simple acknowledgement or by an on or off command. The message can also be sent to an alarm server, which then notifies the appropriate persons. Thus, the CMS-10R remote monitoring and control system enables optimal use of resources for safeguarding infrastructures.



REMOTE CONTROL AND MONITORING – USE IN SECONDARY RESIDENCES

The shutdown through Swisscom in Switzerland of the 2G mobile network will not be without consequences for existing systems. The usual remote control of heaters, pumps and other equipment will be switched off. New solutions are therefore needed.

At the end of 2020, 2G mobile technology, which is more than 25 years old, was switched off in Switzerland. Plants or heating systems can therefore no longer be operated with remote controls that use 2G technology. That's why Comat Releco's new remote control devices CMS-10R for industrial and building applications offer 2G, 3G and 4G connectivity.

A SIM card is already integrated and selects the best possible mobile network from around the world for the device at the point of use. Programming and configuration also work remotely. The remote control relay conforms to the common standard, is easy to use in the field of cloud and SMS technology and ensures secure communication. Current inputs and output states can be monitored via the web browser or via the app. Alarm messages are sent via push message or e-mail, or are also issued as SMS messages. The IoT platform is operated by ComatReleco.

Vacation apartment in Valais

The Müller family from Rheinfelden has a vacation apartment in Valais. Until now, using the conventional 2G system, they could switch the heating on or off via SMS. To be able to continue controlling the heating remotely using the new wireless technology, they chose the new CMS-10R system from Comat Releco. The software integration was performed by Intech-ICS AG and programmed according to the customer's specifications. «We were able to import the existing configuration file in just a few steps,» father Manfred

Müller told us. Now the Müller family controls the heating via an app. This app also offers functions such as live parameter monitoring. In the IoTPortal, the values of the inputs and outputs can be continuously monitored or changed.

Access for several people

Thanks to separate access, several users can access and control the same device via the app. The Müllers have set up two accounts, one for the parents and one for the adult daughter. «If I spontaneously want to spend a weekend in our vacation home in winter, I can turn on the heating before I leave,» says daughter Yasmine Müller. The remote control can be used to monitor various parameter applications. In the vacation apartment in Valais, the heating is monitored so that any malfunctions are detected early and consequential damage can be avoided. The rainwater tank is now also monitored by means of water level sensors. The sensors report a high or low level from the tank. If the water level is low, the pump is deactivated via internal programming in the device itself. When the water level has risen again, the device reactivates the pump. This makes it easier and more accurate to control automatic irrigation in summer – and the Müller family not only save on heating costs with the new remote control unit, but also protect the environment.



The multifunctional remote control device is well suited for vacation homes.

PANEL MOUNT SSR / SOLID STATE RELAY – THE «WORLD OF RELAYS» IS GROWING

ComatReleco is expanding its family of semiconductor relays to include panel mount solid state relays (SSR) in the medium and high power segments. The extensive portfolio, including accessories, provides users with the basis for creating customised solutions at attractive conditions.

Applications:

Solid state relays are used in a wide range of applications, including machine and plant construction, building services and power engineering, as well as in the railway sector. They switch high currents in fractions of milliseconds and this also synchronised with the zero crossing of the load current to avoid mains feedback. Their insensitivity to shock and vibration makes them ideal for reliable use, even in harsh environments. Their freedom of wear and tear reduces system maintenance and repair costs.

Range overview:

ComatReleco Panel Mount Relays are available in 2 series. The SP1M series for the medium power range switches load currents up to 25 A under voltages up to 440 V~, while the SP1P series in the higher power range switches currents up to 125 A under voltages up to 660 V AC. Both series are available in either instantaneous switching or zero-crossing switching versions. Designed for rugged, long-lasting use with high availability, the use of ComatReleco Panel Mount SSRs has a favourable impact on system operating costs. The integrated overvoltage protection also guarantees reliability during voltage peaks.

Both series are available with screw terminals or faston connections for different cabling requirements.

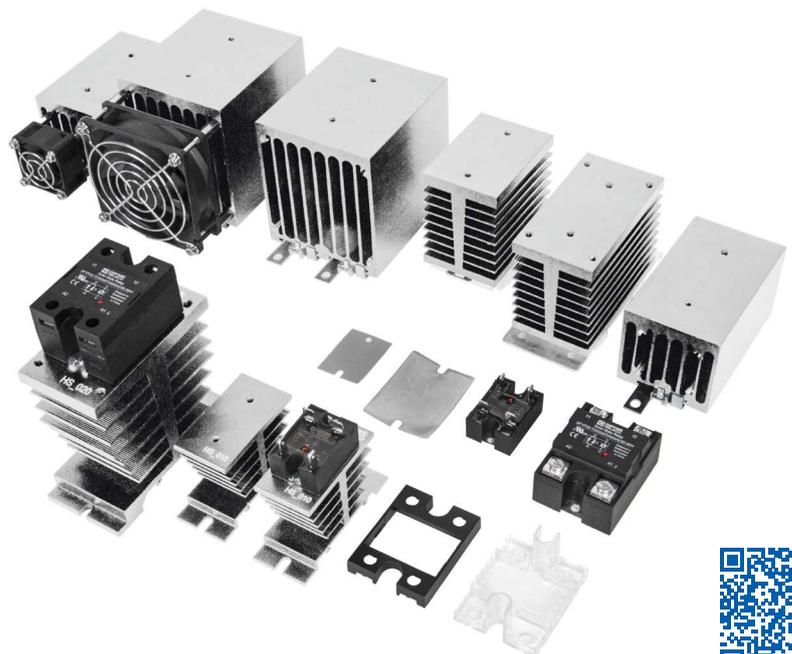
	SP1M series		SP1P series		
					
	SP1MXN	SP1MXF	SP1PXN	SP1PXF	SP1PXS
control voltage range	4 V DC.....32 V DC		4 V DC.....32 V DC or 90 V AC.....280 V AC		
AC Load currents	10 A, 15 A, 20 A or 25 A		10 A to 125 A	10 A to 40 A	up to 80 A
Operating voltages load circuit	24 V AC.....440 V AC		48 V AC to 660 V AC	48 V AC to 280 V AC	up to 660 V AC
Switching characteristics	Immediate or zero crossing switching				
Overvoltage protection, integrated	varistor (MOV), Protective diode (TVS) or RC element				
IP class	IP 00				IP 20
Terminal type	Screw	Faston	Screw	Faston	Screw
Operating temperature	-30 °C to +80 °C				
Dimensions (W x H x D)	29 mm x 39 mm x 16 mm		46 mm x 59 mm x 27 mm		

«ComatReleco offers the complete solution package for panel mount SSRs»

Heat sinks of various sizes with passive or integrated fan-assisted cooling are available for the optimal dissipation of thermal losses. Depending on the application and installation, the desired thermal resistance can be selected. The heat sinks can either be snapped onto DIN top-hat rails with a click or screwed onto panels.

Customized heat conduction pads ensure reliable heat transfer between the semiconductor relay and the heat sink. They also allow quick assembly of the relay without the use of thermal paste.

Optional transparent protective covers for the screw terminal versions provide the appropriate protection against accidental contact and complete the package.





1970s Relay control
(1971 the microprocessor is invented in the USA)

ELECTROMECHANICAL RELAYS IN THE RAILWAY – STATE OF THE ART OR ANTIQUATED TECHNOLOGY?

The electromechanical relay is the most frequently used switching element in the world. Its roots lay in the 19th century and had their origins in the telegraph era. In the relay stations, signals weakened by long lines were refreshed. Today's relays are electromechanical masterpieces of the highest precision and perform a variety of tasks in all conceivable industrial sectors, including the railway industry.



2021 Electro-mechanical relay with 4 changeover contacts

and a 230 V AC circuit. Relay coils are almost immune to overvoltages and EMC. There are also no software malfunctions. Due to the mechanical nature and simplicity of a relay, it has predictable behaviour in the event of a fault.

However, there is no such thing as a one-fits-all relay. Knowing the application exactly is crucial for optimal dimensioning. Usually, the actuation of the relay is manageable. It is more challenging when it comes to the load. It is not only important to know the voltage and current of the load, but also whether the load is resistive, inductive or capacitive. The switching interval, the switching frequency and special ambient conditions have an influence on the selection of the relay. The utilization categories according to IEC/EN 60947 help to characterise the application cases considering the operating conditions.

Depending on the application and when specified correctly, relays offer reliable solutions in railway applications in many cases and are therefore state-of-the-art even today. Relay-based designs are usually simpler than electronic controls with software and this also simplifies certification.

ComatReleco offers specialised products for the railway sector. Products for installation in rail vehicles comply with the current EN50155 and EN45545 standards. Country-specific standards can usually also be met but may require more detailed clarification.



Relays are used in the railway industry for lighting, heating, door control, etc., in rolling stock, where they are exposed to fluctuating supply voltages, shock and vibration and must therefore comply with railway standards EN 50155 (IEC 60571). Other applications are current brakes (DC load, harsh environmental conditions), controls at the track and track crossing, controls in interlockings, etc.

Relays have some very good properties that make them ideal components for coupling between systems. The galvanic separation between the coil and the contacts makes isolation between systems easy. The choice of coil voltages is wide and does not limit the voltage and current values of the contacts. It is relatively easy to select a relay to interface between a 24 V DC control circuit



WEBINAR – BROADEN YOUR KNOWLEDGE

Because of the current Covid-19 situation, trainings and seminars are difficult to hold. That's why we offer our free web seminars where it's most convenient for you: online at your location.

To further broaden your knowledge, we will present innovative products and services from ComatReleco during 45 minutes. Following the hands-on Webinar, you will have the opportunity to ask our experts questions and get answers directly.

How can I participate in a webinar?

Here's how a web seminar works and how to participate:



1. General Requirements: In order to participate in an online seminar, you will need a working PC, laptop, smartphone or tablet with speakers and an internet connection (preferably a DSL connection).
2. A headset or headphones with microphone. If you only want to listen, normal speakers are also sufficient.
3. You will receive an invitation by e-mail from ComatReleco. The webinars will also be published on our website under News and on social media.

As soon as the situation allows us to do so again, we will offer training and seminars at your site or in our special training room.

TRADE FAIRS IN 2021 – VISIT COMATRELCO

ELECTRO-T

19 – 20 May 2021 | digital

SINDEX

31 August – 2 September, 2021 | Bernexpo

TRAKO

21 – 24 September 2021 | Gdansk Poland

ElettroESPO
ESPO CENTRO BELLINZONA

6 – 7 October 2021 | Bellinzona

**Mass-Trans
Innovation Japan 2021**

24 – 26 November 2021 | Tokyo

eurasia rail
a Hlyve event

25 – 27 November 2021 | Istanbul

