INTERTRAFFIC
innovationsGuide

LATEST PRODUCTS FROM AROUND THE WORLD

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Welcome to the Intertraffic Innovations Guide!

You are probably at home reading this so need no explanation as to how the world has changed in the last couple of months

Among the many restrictions on daily life is the rescheduling of international gatherings such as Intertraffic Amsterdam. Many of us have had to radically adapt our plans and look for different ways of doing business.

Faced with that reality, Route One Publishing, the RAI's official Intertraffic Amsterdam publishing partner, has transformed the intended *Official Intertraffic Preview* and the on-site *Daily News* publications into this *Intertraffic Innovations Guide*. It will be followed by three digital newspapers, called *Intertraffic Innovation News*, which will be available to you in May and June.

These will keep you fully informed of the latest products and technologies that would otherwise have been premiered in Amsterdam. I am sure you will find them interesting and useful.
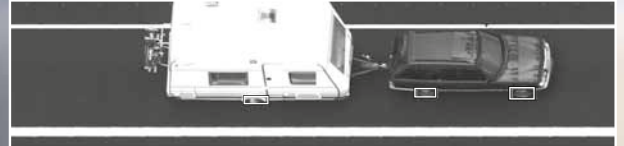
We know it is not the same as meeting face to face but hope that these four publications will help to bridge the gap between now and 2021 - when the Intertraffic team looks forward to welcoming you to Amsterdam once more.

Adam Hill
Editor-in-chief

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Redefining smart mobility

A message from the Intertraffic team to its friends from around the world

If it wasn't for the corona virus outbreak, most of you would be either heading to or already be in Amsterdam for our April 2020 event.

900 exhibitors were ready to share their latest solutions and insights. The 120 session-strong Summit & Demonstration programme lined up was loaded with essential tools to facilitate and make the most of the current exciting phase in the smart mobility transition. A 30,000+ crowd of professionals would have flocked to the Netherlands to gather information on mobility innovations and the latest product developments, finding solutions to the many mobility challenges, seeking business opportunities or potential partners, asking questions of experts and debating with other stakeholders.

However, the COVID-19 pandemic meant Intertraffic Amsterdam had no other option but to reschedule for 23-26 March 2021.

The Intertraffic team is dedicated to help the industry and the Intertraffic community in whatever way possible to get through these unprecedented times. And although we have all found ways to work and meet remotely via Teams, Zoom or online tools, to us there is nothing that beats a face-to-face meeting, a smile and a sense of camaraderie. We miss you all dearly and very much look forward to seeing you in person again next year. Stay safe, healthy and close to your loved ones!

Over the coming months, Intertraffic will facilitate a number of knowledge sessions and activities online, kicking off on 21 April, the original opening date of Intertraffic Amsterdam. We will highlight new aspects of the mobility transition, unexpected impacts and innovative re-modelling and re-engineering concepts in changing times. If you want to contribute in content, drop us a line at Intertraffic@rai.nl.

Our summit programme on the show floor has a strong focus on the ever-growing accessibility, safety and climate problems. A vast number of the original presentations, workshops and demonstrations will be forwarded to our 2021 event. We have kept the 2020 programme online for you to browse through but it will be subject to change. What makes Intertraffic special is that all these sessions are complimentary for attendees. In November we will re-open our visitors registration. In the meantime, you may wish to subscribe to our newsletter to stay tuned on all the developments and online activities and get your personal invite.

What to expect
The Dutch Ministry of Infrastructure and Water Management and Rijkswaterstaat - co-hosts of the Summit & Demonstration programme - will present a large number of informative sessions and workshops on current smart mobility developments, paying particular attention to the great mobility opportunities offered by digitisation and data. Their participation emphasises the importance they are
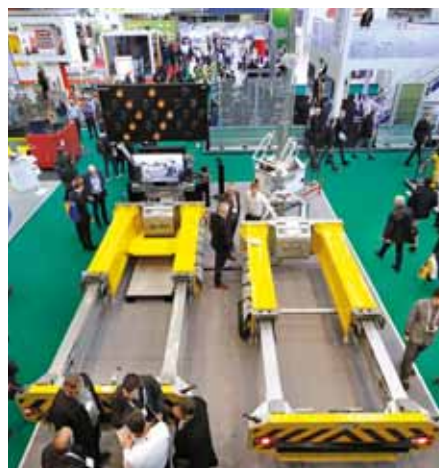
attaching to innovation, national and international cooperation, standardisation and upscaling. The focus is on tackling mobility issues in relation to today's urban problems: increasing urbanisation and pressure on available space, safety, climate change and sustainability. The numerous workshops will highlight the technological progress that has emerged from learning by doing and successful public-private cooperation resulting in multi-modal, seamless, flexible, reliable, user-friendly, inclusive and environmentally sustainable travelling.

The Summit Programme varies from the social impact of smart mobility deployment and disruptive new mobility modes in cities, to data collection and data sharing, mobility solutions that respond to climate change to how to obtain and use tools to prepare for connected, cooperative and automated driving, connecting smart infrastructure and autonomous vehicles.

Parking technology and smart tools
The presentations mainly focus on convenience for the traveller, creating smart parking solutions in order to improve the customer journey, advanced vehicle identification technology, dynamic pricing policy and smart tools for on-street parking.

There is particular emphasis on cooperating in an ecosystem. For instance, on how to change people's attitudes and travel behaviour. On Mobility-as-a-Service, (MaaS) feasibility studies; disruption in the automotive industry (changing business models and being part of MaaS); required infrastructure and creating mobility hubs for accessible and liveable cities; and a debate on the right governance for MaaS deployment between policy makers and MaaS providers. Big telecom companies also play a prominent role, elaborating

on 5G opportunities for mobility and creating smart digital infrastructures; and we haven't forgotten about artificial intelligence! Topics such as smart use of vehicle data to improve traffic flow and road safety and AI for highway management will also be high on the summit agenda.

Operational changes and sustainable alternatives

With ever-increasing digitalisation, roadside equipment being connected to road users and the emergence of self-driving vehicles, the role of the road operator will be, and indeed already is, changing. This means that at the same time traffic management is changing. At Intertraffic, visitors can participate in discussions on tolling versus data protection, smart cameras for automated traffic enforcement and high-precision axle counting at multi-lane technology without in-pavement installation. New data sources, spatial data as a basis for smart mobility insights as well as new directions in intelligent traffic management based on clearer, cleaner and safer mobility. Targeted road weather and air quality information for smarter traffic management and environmentally-friendly intersection control will also feature.

The Summit programme also zooms in on sustainability challenges such as meeting climate change goals and creating liveable cities; CO2 reduction and new sustainable urban logistics for the last mile; energy self-sufficient ground sensors for traffic and parking management; and sustainable alternatives for flights of up to 500km. The importance of a broad perspective on all infrastructures to create a sustainable mobility environment will also be underlined.

Future-proof roads - smart, safe and sustainable

The summit sessions also inform visitors about C-ITS deployment and making steps towards automated driving. There will be a workshop on how central government, service providers and shippers have teamed up to accelerate the digitalisation

of the logistics sector. If you are keen to hear about automation and human factors or real-world testing with connected infrastructure, then you need to look no further. All under the same roof, at Intertraffic Amsterdam in 2021.

The same goes for smart and sustainable infrastructure with practical use cases for smart road infrastructure and the use of AI for smart asset management. Or what about using vision sensors to map traffic signs and lane markings a special workshop on Realizing the Smart Infra transition and creating future-proof roads?

Moreover, visitors can learn of various ways and new technologies to improve road safety, such as automated speed enforcement, a new generation of Weigh-In-Motion and easy-to-install safety barriers and guardrails. But also on ways on how to avoid casualties, such as addressing illegal mobile phone use by drivers; dual vision technology for automatic incident detection and fire detection; and new safety barriers and new road concepts able to support connected driving and, in perhaps the near future, autonomous driving.

Step into the future at the demo area

Serious gaming in a hacker escape bus, sustainable and futuristic cars, virtual

reality and driving simulators, drone applications for traffic monitoring and road maintenance is what you can expect at the indoor demo area. The parking deck next to hall 8 will the starting point for a demo drive to the hybrid test track for connected and automated driving functions where visitors can experience how test cars communicate with the infrastructure using wifi, the cellular network and both (hybrid). And what about a two-part demonstration of how direct communication between car, traffic light and bicycle can improve safety on the road?

Startups in the spotlight at dedicated ITSUP pavilion

During Intertraffic, startups in the industry can join a special pavilion: ITSUP. In this pavilion, innovators and disruptors will have the opportunity to share their ideas with stakeholders across all modes and disciplines. It will be the perfect setting for startups active within the traffic, automotive, ICT, security or telecom industry that offer new mobility concepts or innovative mobility solutions. ITSUP is ideal for startups seeking to develop their businesses as we bring them in contact with business leaders, stakeholders, potential partners and investors.
The ITSUP programme has many components. Think knowledge and trend sessions; pitch sessions and dragon's dens; coaching sessions from successful scale-ups and accelerator organisations; a job market and other network and matchmaking activities. More information about ITSUP can be found on the Intertraffic website.

Last but not least, the Intertraffic Awards. Check out the Q&A interview with our jury chairman, Peter van der Knaap, on page 13. You may want to join the race to grab one of the coveted awards and get the recognition you deserve!

We will serve you in various ways in the coming months. Solutions, insights and experiences will literally be at your fingertips again from 23-26 March 2021 at Intertraffic Amsterdam. We look forward to meeting you there.
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CAMERA LOWERING SYSTEMS FOR TRAFFIC ITS AND SECURITY CAMERAS

We Bring CCTV Camera Technology Down To Earth.

CE

Camera Lowering Systems experience in lowering devices dates back to 1967. Their engineering and marketing know how has been a major force in the industry dating back to the pioneering efforts in the development of the first raising and lowering High Mast system in the United States. Based on a proven design, we offer the world's best camera lowering system with three major features:
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Maintenance done safely and easily at ground level.

Our system uses a patented design capable of disconnecting and connecting cameras, utilizing CAT6 or CAT5e Ethernet or analog cable with separate power, without signal loss. All servicing is done at ground level. Hazardous, expensive, and time consuming high lift maintenance trucks and lane closures are eliminated. The efficiency of cameras mounted at 50 meter heights need not present a problem in servicing the CCTV camera or other equipment. Mounting applications include pole, tower, and wall mount.

All signal/electrical contacts are gold plated over nickel over copper, providing the BEST signal and corrosion free contacts in a water-proof disconnect unit.

Gold plated pin and socket contacts with stainless steel alignment pins.

Wojciech Goj

How ITS solutions are beneficial for society

Traffic jams and overcrowded buses – intelligent transport systems (ITS) are a key factor in making cities attractive, and companies thrive. Wojciech Goj, marketing manager at Swarco's ITS Division, outlines why the company is making big investments in new technology for clean and efficient transport

Alot of urban areas have problems with traffic jams, housing shortages and overcrowded public transport. Big cities struggle with the fact that if attractive job talents are to choose certain metropolitan areas and populate growing companies, the cities themselves need to be attractive for both the employees and employers. A city that can't offer a good quality of life will scare off qualified labour from working at the companies in such a city – and in the end, push companies away to establish themselves elsewhere. Therefore, it is vital for both cities and companies to have a reliable transport system, where both the traffic and people can easily move and thrive.

How can ITS help?
In the context of efficient cities and the costs to society, integrating ITS solutions and subsystems can make a great impact. This includes reducing traffic congestion, traffic accidents and air pollution, all of which cause high costs to society and poor quality of life.

ITS is utilising the existing infrastructure without building new roads. Building new roads is not possible in most cities not only because of the lack of space, but as it is also proven to be an ineffective, short-term solution as new lanes fill up fast with more traffic.

The challenges with traffic congestion and dangerous emissions are a tough nut to crack, but ITS solutions can help in getting the best out of our resources. It also gives authorities the tools to prioritise some type of traffic over the others and make public transport more attractive while simultaneously creating smoother flows in the existing network. That is what congested, and air polluted cities need all over the world.

Saving lives
Another vital question regarding traffic is road safety. A status report from the World Health Organization (WHO) states that about 1.3 million people die on the world's roads, and as many as 20-50 million are injured yearly. Road traffic injuries are the second biggest cause of death for all age groups, behind the total sum of various kinds of diseases in the first place. For children and young adults aged 5-29 years, it is the leading cause of death. On top of the personal trauma caused by accidents, road

traffic crashes cost most countries approximately three per cent of their GDP. ITS has, over and over, proven to be a lifesaving technology, which should not be underestimated in the context of societal costs. Highway, tunnel and traffic light solutions are the more obvious ones. Still, as society is switching more and more to alternative ways of transport, we also place a high focus on the vulnerable road users, such as cyclists, pedestrians and e-scooters.

Besides road safety, traffic has another big issue by being a contributor to dangerous air pollution. According to the WHO, air pollution kills an estimated seven million people worldwide every year. Of these, 4.2 million deaths are a result of exposure to ambient outdoor air pollution. In other words, air pollution is a significant contributor to public health problems worldwide. The healthcare costs of congestion-related dirty air in Europe have been estimated to be around $79 billion, a number that includes diagnosis and treatment of illness, lost productivity and investment in different types of public health initiatives.

Traffic congestion, road safety and air pollution are all factors that play a role in how attractive a city or region is and how citizens perceive their quality of life.

Reducing environmental impact
The climate crisis is acute, and we must reduce carbon dioxide emissions by 90 per cent to meet the 1.5-degree climate target set by the Paris Agreement. The transport sector itself stands for almost 30 per cent of the carbon dioxide emissions in the European Union. Being a big part of the problem does not exclude the transport sector from also being a part of the solution.

In 2015, the 193 member states of the UN adopted the 2030 Agenda for Sustainable Development. The global goals are the most ambitious agenda adopted by the countries for a sustainable future for all, and an important starting point for battling the acute climate crisis. ITS is a way for the transport sector to contribute.

How can ITS help reduce climate impact?
Fuel consumption and thus emissions strongly depend on the number of times vehicles stop and accelerate, and of course, the actual number of vehicles. Ensuring that cars arrive at their destinations as smooth and quick as possible is vital for reducing environmental impact. Studies show that up to 30 per cent of the traffic in urban areas are vehicles looking for parking spots. With proper guidance solutions, drivers can be guided to a parking spot faster, which improves the traffic capacity on the road, while smart and well-functioning traffic signals can reduce fuel consumption and CO_2 emissions by 10-20 per cent while getting the drivers to their destination.

Prioritising buses and bikes are other ways to support the switch from private cars to alternative modes of transportation. A more attractive public transport system can lead to more people taking the bus and leaving the car at home. Bus priority solutions create more reliable timetables, fewer unnecessary stops and overall faster and smoother rides. Allowing cities to prioritise bikes in the traffic will make biking more attractive as biking will be a safer, smoother and less chaotic experience.
www.swarco.com

> **The transport sector accounts for 30 per cent of the emissions, and ITS is an important piece of the puzzle to create a fast and real change**

Intertraffic Awards

Dr Peter van der Knaap, managing director of SWOV (Institute for Road Safety Research) and chairman of the international judging panel for the Intertraffic Innovation Awards answers questions on their establishment and growth

1. What was the genesis of the Intertraffic Innovation awards?

Intertraffic Amsterdam is the world's largest trade fair on traffic technology. Every two years, it is the celebration of state-of-the-art solutions to today's traffic and mobility needs. In order to showcase the pioneering nature of our exhibitors, what could be more fitting than organising a competition? It helps in the objective of Intertraffic to provide a complete overview of the very latest products, services and total solutions offered by traffic technology suppliers.

Lukáš Duffek of Cross Zlin

2. When were the first Awards held and what was the response like?

The emphasis on innovation at Intertraffic has always been a high priority, hence the introduction of an Intertraffic Innovation Award in 2002, open to all exhibitors. For this first award contest, we did not yet have categories. From the 60 entries and 10 shortlisted products, the Tele Traffic System of Holophane (France) was chosen as the winner.

3. How has winning an award benefitted a company?

Wait a moment: these are not just awards, we are talking about the Intertraffic Innovation Awards. Of course winning benefits a company. For starters, the week starts off with the announcement of the winners. Throughout the exhibition, both winners and nominees get the 'red carpet' treatment from the Intertraffic promotion team. Then there is the publicity and the prestige. After all, the

Cross Zlín dazzled the Intertraffic Innovation Awards international jury back in 2016 with its InVipo product to scoop the overall Intertraffic Innovation Award

winners are selected from many other contestants by an international jury of experts in their fields.

4. Looking back over the years, can you name just three memorable winners and explain why they stand out in your memory.

I am always impressed when people really succeed in making dreams reality: to see something that used to be an abstract notion actually work in practice, delivering real value to road authorities and travellers. Take for instance Czech Republic's Cross Zlín, who really dazzled the jury back in 2016 with their innovative platform for use in smart cities and ITS projects, capable of data visualisation, aggregation, and monitoring. I also remember Parkmobile Group with its system to find a parking spot and really easily pay for it. In my own field, that of safety, there are many important innovations. Better enforcement and more effective protection can't do without innovation. Period! But perhaps the UK's WheelRight Tyre Pressure Technology system, capable of measuring tyre pressures on any vehicle without the need for any mechanical intervention, really stood out. The vehicle only needs to drive over imbedded sensors for a reading to be made.

5. You chair an international jury. How hard is it to select the finalists and then the winners?

Well, it is really hard, in fact. Not because it is an international jury – what is not international, nowadays? The hard part is the final stage of the selection process where we have to make judgements on

7. **Looking forward to the next Intertraffic Amsterdam in 2021, will there be any change to the Awards and why?**

With the unprecedented change of show dates from 2020 to 2021 we were already full on in the process of judging entries. We truly feel one of the assets to both the content and its contestants is being part of the grand opening of Intertraffic. We have therefore reopened the competition and moved the revelation of nominees and winners forward to 2021 as well. The number of nominee positions per category has gone from three to five to accommodate newcomers.

So whoever feels they fit the bill, I warmly invite you to join the competition!

which products will be nominated and which products not. Generally speaking, this may take some time. We use criteria and after initial scores and, in the next stage, video or 'live' demonstrations of the entries, we sometimes discuss well into the early hours. This is hard work. But good humour and fair debate always lead to an outcome that is unanimously supported by all jury members.

6. **How have the Awards evolved since the first one?**

The Intertraffic Awards were first introduced in 2002 to reward innovation, first as non-categorised, later subdivided into a number of product based categories in line with the original segmentation of the Intertraffic show floor. Our biggest change really came this year with the introduction of fully altered classifications and an opportunity for non-exhibiting organisations to join the competition. The classifications are now thematic rather than product segmented to reflect

the current industry dynamics where collaboration, partnerships and a purpose driven approach are instrumental to be future proof. The awards competition is also lowering its threshold by opening the doors to a broader range of contenders. Innovation doesn't stop at the show floor, so we are happy to welcome entries from non-exhibiting, market related, organisations.

Entries are welcomed for the following award categories:

■ **Intertraffic Green Globe Award** - This award recognises solutions, products and working practices that are helping to create a sustainable transport system for the future. The winner will be making a positive contribution to reducing carbon emissions or cutting pollution, or perhaps will even have created a product or practice that enables a higher level of recycling or reuse than ever before. With transport producing around 25 per cent of the world's manmade carbon emissions, there is an urgent need for all stakeholders in the industry to focus on environmental concerns. This award will recognise the leaders in this field.

■ **Intertraffic User Experience Award** - Creating hardware and software that is easy to use, easy to understand and easy to install is a challenge for technology developers across all industries. In transport, where speed and accuracy are not simply important but can also help to enhance safety, this need is perhaps more urgent than anywhere else. This award will showcase the transport systems that break new ground in the way they seamlessly

interface with their human operators. The winner might be the developer of an advanced piece of traffic or city management software, a consumer-facing app, or an easy-to-install camera. Whatever the winning solution, it will enhance user experience, thereby bringing added value and helping to deliver a more streamlined and efficient transport system.

■ **Intertraffic Inspiration Award** - Smarter communities rely on safe, durable, easy-to-maintain transport infrastructure assets and management tools as a foundation. This award recognises companies who have developed essential solutions while pushing innovation to the next level. Whether it be through enhanced performance, improved safety or greater efficiency, these new solutions are enabling government authorities and system integrators to set the standard for future mobility, while also empowering cooperation with an ever-growing network of stakeholders.

See the Intertraffic website for further details

SMART PARKING MANAGEMENT
DELIVERING SMOOTH AND INTUITIVE PARKING EXPERIENCES

EFFICIENT CAR PARK MANAGEMENT

- Automatic detection of available parking spaces
- Automatic control via license plate recognition and under-vehicle screening systems
- Video surveillance for vehicle-related security events
- Robust parking log with vehicle data and alarm info

SMOOTH CUSTOMER EXPERIENCE

- No congested entrances or exits
- Available parking spaces indicated by arrow & colour
- Find-my-car terminals
- Effortless navigation through the car park via the shortest, most convenient routes

Being more direct – making in-lane weight enforcement a reality!

As governments and roads authorities around the world look to use WIM to provide direct enforcement, a better understanding is needed of what works – and why. All is explained in a White Paper from International Road Dynamics (IRD)

Around the world, as traffic volumes increase and infrastructure budgets tighten, there is increasing interest in the use of Weigh-In-Motion (WIM) technology for direct enforcement in live traffic lanes.

The reasons are obvious. Disrupting traffic flows by flagging down suspect vehicles for manual inspection can compromise safety and has an economic penalty in that it disrupts free movement and trade. Also, generating anything approaching the volume of inspections needed for enforcement to be effective is both labour-intensive and extremely costly.

For many national and regional governments, direct enforcement is still a nascent concept. This means that a common, accepted definition is still some way off — and, by extension, so are fully formed international and regional standards.

Nevertheless, engaging now with an established, knowledgeable WIM partner enables Departments of Transport (DOTs) and other roads authorities to protect their infrastructure investments against the damage caused by overloaded vehicles, and to address safety concerns associated with overloaded vehicles. They can also successfully prepare now for that point in the future when direct enforcement standards achieve maturity and universal adoption.

Direct enforcement: the challenges
The prime aim of any enforcement solution has to be integrity — accuracy and dependability influence credibility in the eyes of the road-user, and so overall public acceptance.

Because it is being employed in place of more costly static weighing facilities/inspections, direct enforcement using WIM faces the prospect of spurious assertions of cost-cutting and degraded performance. There will likely be some very swift and high-profile legal challenges to the effectiveness of the technology in service, as well as accusations of revenue-generation.

Solution providers are going to have to prove that in-lane systems perform consistently and within tolerances which meet or exceed legal requirements.

Accurate axle and vehicle weight measurement is more difficult in a dynamic as compared to a static environment as a multitude of factors can affect readings.

Weather can influence negatively in any number of ways. These include ambient temperature variations and the presence of snow and ice on sensors/surrounding pavement surfaces. Strong winds or gusty conditions cause high-sided vehicles to lean and sway, and so cause the readings from the tyres on one side of a vehicle to appear to be outside acceptable tolerances.

Another factor which has to be considered in a dynamic environment is vehicle position within the lane. A vehicle being measured on a static scale can be precisely
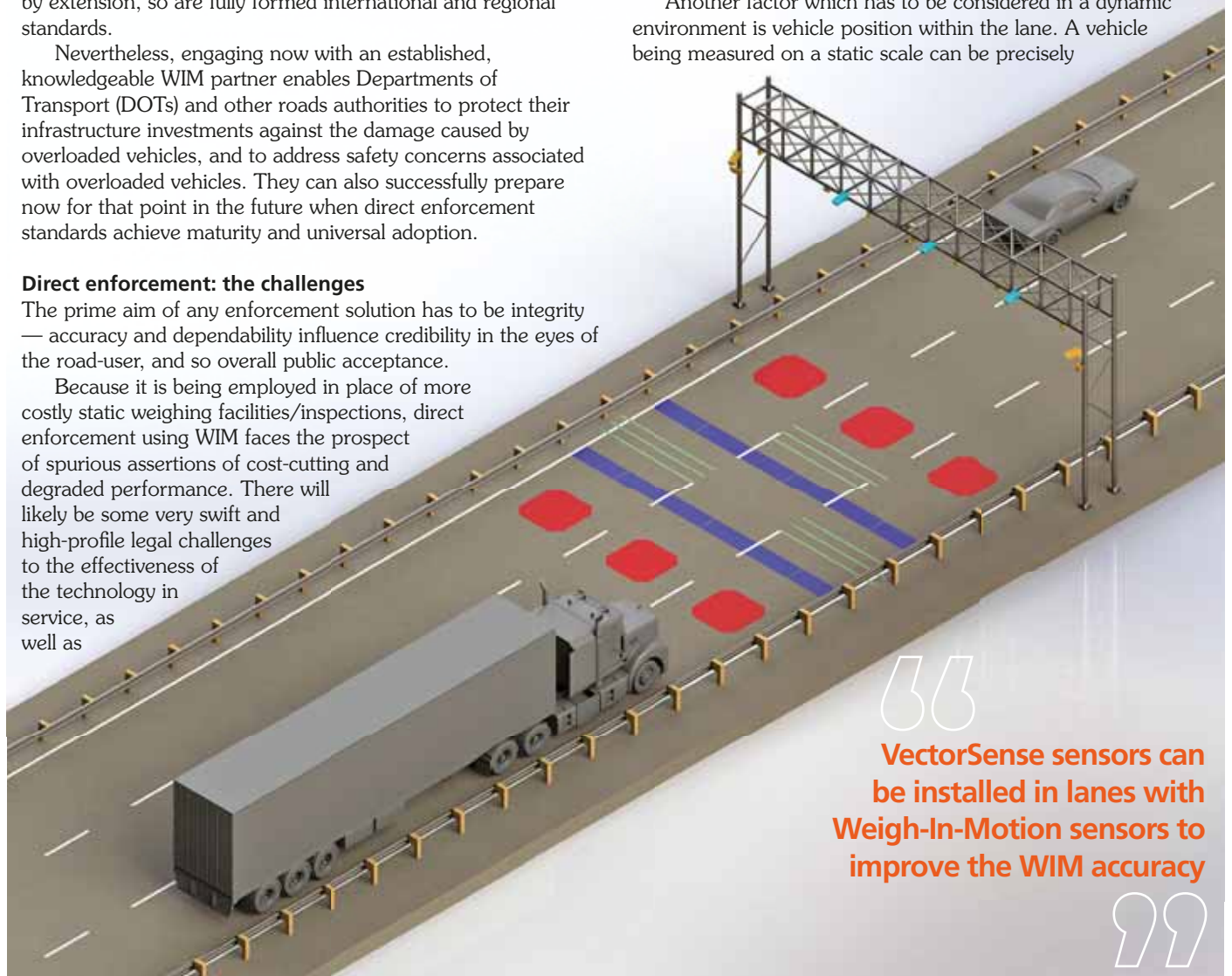
> **VectorSense sensors can be installed in lanes with Weigh-In-Motion sensors to improve the WIM accuracy**

positioned in order to ensure reading accuracy, whereas a vehicle moving at speed can wander within its lane and therefore meet an embedded sensor anywhere along its width. A sensor's uniformity therefore becomes a factor in operational accuracy.

It may be that a combination of environmental factors will combine to make direct enforcement unreliable, and it may be that at certain times and under certain conditions it becomes advisable to suspend direct enforcement in order to preserve service integrity and reputation. A multi-sensor approach will identify when this has to happen; it can also help to keep service interruption to an absolute minimum.

Sensor accuracy

The aim in operation is to achieve an installation which is of sufficient accuracy (typically, equal to or better than ±2% of actual value), which is unaffected by ambient temperature, other environmental factors or vehicle speeds, and which displays a high degree of consistency right across the sensor width.

At a fundamental level, the accuracy of the WIM sensor itself has to be up to the task. The additional challenge for WIM for direct enforcement is to be able to prove ongoing in-specification performance without interruptions to infrastructure operations.

One way to do this is to link the in-lane technology to a nearby weigh station and continuously adjust and confirm the WIM calibration based on very accurate static scale weighings. This can provide a common base level for system operations in a local area. The frequency of cross-referencing necessary to provide the necessary affirmation will need to be ascertained. In practice, once a week may prove to be adequate, daily may be desirable, or constantly/in line with each static check may prove technologically to be no greater a burden.

Information from other sensor types has an important role to play in guaranteeing or increasing accuracy. Within the WIM controller/processing algorithm, IRD's next generation of WIM systems takes into account a series of external parameters.

Specific technology from IRD's portfolio can help to further improve overall system accuracy.

The VectorSense-based Tire Anomaly and Classification System (TACS) is a safety screening tool which uses an in-ground sensor suite to detect tyre anomalies in real time and at highway speeds of up to 100 mph.

For vehicle classification/identification applications, TACS can identify single or dual tyres on an axle. For direct enforcement and safety applications, it can identify flat, missing or mismatched diameter tyres on a dual tyre set — these all present a vehicle performance compromise and a safety risk.

In addition, TACS can also pinpoint lane position. This is useful because although uniform performance across the width of a linear sensor is desirable, in reality multiple factors can cause this not to happen. A sensor's performance characteristics can be ascertained through testing/monitoring and then combined with highly accurate vehicle positional information provided by TACS to give a truer reading of axle weights.

Civil engineering considerations

The symbioses conferred by a multi-sensor approach to direct enforcement consolidate and improve WIM sensors' performance. However, all of this can be undone if the technology is not considered in its fuller context.

A continuing and very common problem in terms of overall system integrity is failure to comprehend, at the procurement stage, that WIM is not just about the purchase of technology. Rather, it is about gaining and then guaranteeing a capability over a period of time — typically years.

A high-specification WIM sensor might be expected to offer a decade or more of good service. However, the designed

environment and quality of installation will have an effect — if a sensor is poorly installed or if the road surface integrity can only be guaranteed for four or five years, then that 10-year service life is unlikely to be achieved.

The ideal, in terms of longevity and stability, is installation within a concrete rather than an asphalt road surface but this cannot always be guaranteed. There may be cost implications and in some locations, particularly those with higher population densities, concrete is frowned upon because of road surface noise. A concrete raft within a stretch of asphalt road is one solution. However it has to be accepted that for some cost-pointed projects even this might not be possible.

Whichever the solution chosen, good civil engineering practice at the point of installation has to be supported by a credible maintenance regime which extends across the life of the sensor itself. For many deployments, this is at least as important as the choice of technology.

IRD is not alone in stressing this 'system' thinking and the idea that a WIM installation is only as good as its roadway/maintenance/audit regime. The International Society for Weigh-In-Motion has published guidelines on WIM basics, and in the US, the Federal Highways Administration has also produced a pocket guide. Both of these make similar points.

The technology cost is not the only consideration if successful direct enforcement using WIM is the ambition. However, the cost of not getting things right can be considerably greater and two things can help to address that: the appointment within DOTs and other jurisdictions of WIM champions; and engagement with a systems-level supplier with the requisite knowledge to guarantee success.
www.irdinc.com

International Road Dynamics, Inc. (IRD) was established in Canada in 1980. The company is a pioneer and specialist in the development and delivery of technology solutions which gather and interpret high-quality data with the intention of making road travel safe, efficient and enjoyable. Worldwide, IRD has been a major contributor to the monitoring and safe operation of vehicles, and in particular commercial/heavy goods vehicles, and critical infrastructure such as bridges.

With four decades of WIM expertise, the company positions itself as a consultant and educator as well as equipment supplier.

In addition to expert advice, it offers a comprehensive range of highly adaptable solutions which in qualitative terms matches or exceeds anything else currently on the market. This includes both scale and strip sensor products and a WIM controller which is modular and readily scalable.

IRD has also engaged in significant R&D and grown its portfolio to incorporate a number of complementing technologies which significantly increase the overall performance of vehicle inspection operations. These include in-ground solutions for in-lane tire safety screening and next-generation Artificial Intelligence (AI)-based vision systems for positive vehicle identification.

LED LAMPS WITH CHARGING OPTION
POWERED BY LI-ION BATTERIES

Battery charge indicator
placed in charging socket of lamp, then it shows the battery charge status.

Lamp holder

Li - ion

Li-ion battery:
- fast charging
- long life of lithium-ion batteries (twice longer than in gel batteries)
- cell damage protection against full discharge
- no memory effect (capacity does not decrease)
- rechargeable solution is ecological

Batteries with other parameters than in offer are made on order.

Type: LOD
- Light source: LED PCB (10 cd), 30°
- Lamp class: L6
- Working time:
  1 x battery li-ion: 4,2V / 6,6Ah = 50 days
  1 x battery li-ion: 4,2V / 13,2Ah = 100 days
- Operating mode: day/night or twilight

Type: LOD FLASH
- Light source: LED PCB (1x58 lm), 120° ≈ 20 cd
- Lamp class: L7
- Working time:
  1 x battery li-ion: 4,2V / 6,6Ah = 15 days
  1 x battery li-ion: 4,2V / 13,2Ah = 30 days
- Operating mode: days/night (twilight for order)

Type: LOD SUPER FLASH
- Light source: LED PCB (2x58 lm), 120° ≈ 40 cd
- Lamp class: L8G
- Working time:
  1 x battery li-ion: 4,2V / 6,6Ah = 12 days
  1 x battery li-ion: 4,2V / 13,2Ah = 24 days
- Operating mode: days/night (twilight for order)

Type: LOD-L8G
- Light source: LED PCB (4x58 lm), 120° ≈ 80 cd
- Lamp class: L8G
- Working time:
  1 x battery li-ion: 4,2V / 6,6Ah = 250 h
  1 x battery li-ion: 4,2V / 13,2Ahh = 500 h
- Operating mode: days/night (twilight for order)

Type: LOD-L8L
- Light source: LED PCB (18xLED) ≈ 250 cd
- Lamp class: L8L
- Working time:
  1 x battery li-ion: 12,6V / 6,6Ah = 200 h
  1 x battery li-ion: 12,6V / 13,2Ah = 400 h
- Operating mode: days/night (twilight for order)

Type: LOD-L8M
- Light source: LED PCB (60xLED) ≈ 600 cd
- Lamp class: L8M
- Working time:
  1 x battery li-ion: 12,6V / 6,6Ah = 140 h
  1 x battery li-ion: 12,6V / 13,2Ah = 280 h
- Operating mode: days/night (twilight for order)
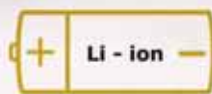
Type: LOD-L8H
- Light source: LED PCB (96xLED) ≈ 2000 cd
- Lamp class: L8H
- Working time:
  1 x battery li-ion: 12,6V / 6,6Ah = 120 h
  1 x battery li-ion: 12,6V / 13,2Ah = 240 h
- Operating mode: days/night (twilight for order)

Battery lamps can be placed on a cone using universal handle.

Battery charge indicator
placed in cone.

Charging socket

Metal box
for easy transport and storage.

Chargers:
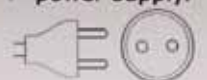- for charging 1 lamp on 12V or 230V
- for charging 5 lamps on 12V or 230V

12V power supply from the car lighter socket.

230V power supply.

LI-ION battery is inside the lamp or a cone.

Battery parameters are adapted to the lamp parameters.

Charging socket allows to charge rechargeable batteries placed in the lamp without pulling them out.

WEKTOR

www.wektor.sacz.com.pl

TDS highlights upgraded WIM enforcement

Florian Weiss, president and CEO of Traffic Data Systems (TDS) says it is still the only manufacturer in the world capable of supplying low- and high-speed weigh in motion (WIM) systems complying with the OIML R134 standard for enforcement and tolling applications.

The latest design of its WIM-DSP 32/ TMCS-IP WIM enforcement/tolling system is now available. The TMCS also comes in a solid, all-aluminium enclosure to protect against dust and water, called TMCS-IP, similar to TDS's proven WIM-DSP 32.

TDS is also promoting its

Florian Weiss

collaboration with the city of Hamburg – host of the ITS World Congress in 2021 - to set up Germany´s first fully automated WIM enforcement system to be certified by the Federal Institute of Metrology (METAS), Switzerland. TDS also hopes that the system will be given the green light by PTB, the German metrological institute.

This highway installation will not only be equipped with WIM sensors, but also with ANPR and overview cameras, laser scanners and profilers, as well as a fully-equipped road weather information system (RWIS). Meanwhile, TDS points out that it is currently capable of providing OIML R134-certified low-speed and high-speed WIM systems for a speed range of 5 km/h to 120 km/h for HGVs (heavy goods vehicles) and for 5 km/h to 140 km/h for LGVs (light goods vehicles).

Accuracies of ±5% (initial verification) and ±10% (inservice inspection) according to OIML R134 have been achieved (temperature range -30°C/+75°C with a relative humidity of up to 85%).

TDS's latest research and development aims to improve accuracies to ±2.5% (initial verification) and ±5% (inservice inspection). **www.traffic-data-systems.com**

Safer and brighter with Jenoptik Light & Safety

With global experience based on more than 30,000 delivered systems worldwide, in-house engineering along with local know-how supported by a strong partner network in more than 80 countries, Jenoptik Light & Safety is promoting a whole range of solutions that it says make lives safer and brighter.

Deterring drivers from illegal behaviours and capturing evidence that allows road authorities to secure prosecutions is a global challenge. The company's extensive product portfolio includes comprehensive systems for traffic law enforcement (spot speed, average speed, red light monitoring and other violations) including extensive services.

Just recently, Jenoptik secured orders from the US and Canada totalling over US$21 million that help support Vision Zero initiatives. These orders will consist of TraffiStar road safety equipment and Jenoptik's latest release of the Vector camera platform incorporating deep learning ANPR software and 3D tracking radar.

"Jenoptik is committed to helping improve the safety and security in communities and our solutions represent a step forward to safer cities," said Dr. Stefan Traeger, Jenoptik president & CEO.

Many crimes include the use of a vehicle. Jenoptik says its solutions, combined with a powerful and intelligent back office system, support authorities in prosecuting and preventing crime efficiently through the use of real-time predictive data analysis.

The company also offers applications such as tolling, Weigh-in-Motion, prohibited vehicle monitoring and congestion charging. Indeed, Jenoptik says it is the first choice for free-flow road user charging applications.

In terms of environmental protection, Jenoptik highlights its smart roadside solutions. Emissions and poor air have a huge impact on the health of citizens. By harmonising speed and improving traffic flow with efficient technologies, emissions can be significantly reduced. **www.jenoptik.com**

Autonomous shuttle system allows for profitable public transport operations

One of the greatest challenges of our time is to combine quality of life and individual mobility in large cities. Siemens Mobility has a broad portfolio of digital solutions, technologies and systems that enable environmentally friendly traffic management. Each of these products helps communities to proactively manage urban and freeway traffic and considerably reduce environmental impact.

For instance, Siemens' Mobility Operating System provides all the services required for preparatory phases: from consulting and IoT data integration to management systems and data analyses, which allows cities, regional authorities and logistics hubs to manage their mobility flows. The system includes control elements for traffic signals, scenario management and coordination elements, simulation models, tolls and tolling systems, data integration tools, and analytic and diagnostic apps. By integrating and coordinating complex subsystems in one integrated solution, quick and automated incident responses, a comprehensive situation overview, an efficient utilisation of traffic management resources and the implementation of strategic mobility goals are being enabled.

Siemens also points to its Shared Autonomous Mobility solutions. Its autonomous shuttle system for public transport, with on-demand or fixed scheduled first/last mile services, works on a cloud-based software platform with simulation, intermodal solutions and fleet management. The intelligent infrastructure enhances environmental perception of a shuttle, which makes cities and PTOs more competitive against services like Uber, Lyft, and others. Other the benefits are faster homologation processes and a significant OPEX reduction, as costs are more than 60 per cent lower, compared to a conventional bus. Altogether, the autonomous shuttle system from Siemens Mobility allows for profitable public transport operations.
www.mobility.siemens.com

Advancements in vehicle weighing technology

Intercomp has announced that its Weigh-in-Motion (WIM) strip sensors have attained an OIML R134 certification unmatched by any other manufacturer of vehicle scales. The company has added Class 5E certification up to 40km/h to Intercomp's previous Class 10F certification which was achieved previously with two, three, and four rows of sensors up to mainline speeds of 100km/h.

Using technology based on strain gauge technology, commonly recognised for its accuracy and stability over time and various temperatures, Intercomp manufactures strain gauge based scales and sensors for system integrators and end users throughout the world. In a unique position amongst providers of vehicle scales and sensors, it has a wide portfolio including several. certified portable scales, the company's in-ground LS-WIM Axle Scale, and the WIM Strip Sensor certified for use at low and high speeds.
www.intercompcompany.com

Swarco SafeLight protects vulnerable road users

Swarco has always had the role of pioneer and innovator in the field of traffic signalling. This includes the inclusion of previously separate trades and domains as well as the creation of new interaction possibilities between infrastructure and road users. The creation of solutions for the integration of sensor technology can create a mobility system in which intelligence and sensor technology is installed at the "edges", directly at the pulse of traffic. In this way, novel functions can be offered at intersections, which were previously not possible due to the centralisation of the traffic management system. Users can thus be offered an optimisation of traffic flows and in some cases safety advancements.

"These next steps include the integration of detection and new sensor devices into the signals for making roads a safer place in general and for monitoring air quality in the signals' vicinity," says Jochen Haspel, Swarco product manager for traffic signals. "We are adding several new products which add intelligent features to the conventional red-amber-green."

The first of these is SafeLight to protect vulnerable road users. Swarco has equipped its new Combia traffic light family with an "intelligent" feature to facilitate the perception of red traffic lights. With the SafeLight application, the red traffic light is additionally projected onto the pavement, producing a larger red spot that – depending on the position of the pedestrian – is also reflected on their smartphone display. SafeLight thus not only fulfils the function of a ground light, but also draws the attention of the so-called "smombies" - smartphone zombies who cannot take their eyes off their mobile phones - back onto the road. SafeLight has already been installed in many European countries as well as in Saudi Arabia and makes a significant contribution to pedestrian safety.
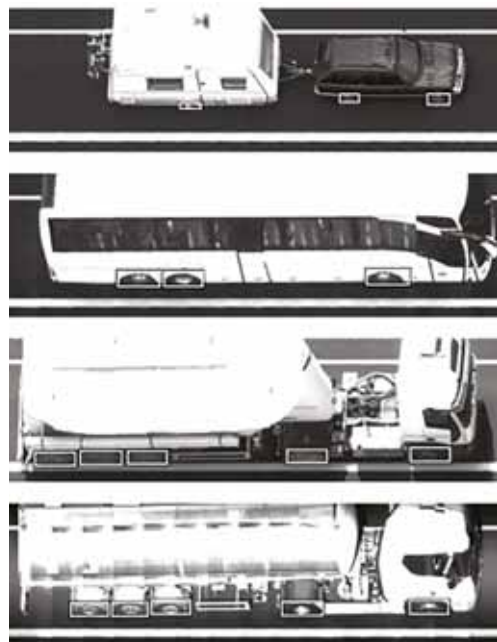
www.swarco.com

TSS VMS WORK ZONE SAFETY

Traffic Safety Services by Janschitz (TSS) is a specialist in mobile variable message sign (VMS) solutions for work zone safety. As the company points out, a work zone is always a danger zone. The TSS MobiLED roof mount VMS signs help to improve the safety level for workers and provide highly visible warning in advance for motorists around the world. In addition, the company's smart automated intelligent transportation system (ITS) detects and warns motorists in real-time when traffic slows down or stops ahead.
www.traffic-safety-services.com

Exciting innovations from Tattile

Tattile has launched two new products: the Axle Counter, for ETC applications, and the BCCM (Brand, Class, Colour and Model recognition) algorithm.

Tattile's Axle Counter is an exciting innovation that automates key information on the number of axles. ITS and ETC systems have long been capable of automatically reading licence plates and measuring the speed of a vehicle. Until now axle counting lacked a smart solution since existing systems usually require human interpretation of a picture taken at a toll station.

The company's new Axle Counter automatically counts the axles of vehicles, with 99.9 per cent accuracy, of any vehicle driving at a speed up to 180km/h on a highway. It is mounted on a gantry above the highway and this standalone system is capable of analysing the side of the passing vehicle with its internal processing AI algorithms. It thus fills the missing link of providing all relevant vehicle information automatically to determine the correct toll for a given vehicle.

Meanwhile, Tattile has introduced the BCCM recognition algorithm, based on Artificial Intelligence (AI), running inside the ANPR camera. It creates a "vehicle fingerprint" in a single report with evident advantages as all information is provided by a single source. There are no extra costs for external software, processing server and integration time. Applications include security, crime prevention, tolling, and smart city initiatives.
www.tattile.com

Filling in road weather gaps

German meteorological specialist Lufft's award-winning MARWIS (Mobile Advanced Road Weather Information Sensor) is an innovative mobile road weather sensor that monitors road conditions in passing, installed on a car or truck.

As the company points out, slippery and icy roads are a major safety risk for drivers in winter, in some regions even from autumn to spring. Therefore, reliable winter services are a matter of life and death, but even well-equipped teams cannot be everywhere at once. To do their job in the most efficient way, winter services rely on current data on road conditions that help them to prioritise tasks and efforts.

Typically, data comes from road weather sensors that are installed permanently, either integrated into the road (invasive) or monitoring it from an installation above (non-invasive). Obviously, those sensors provide data limited to their static position.

When installed on a car or truck, MARWIS is a major advance in road safety by filling in gaps within a road weather observation network. It turns vehicles into driving weather stations by detecting several critical road and runway weather parameters. It can be installed on vehicles with a distance of 1 - 2m above the surface and delivers information about temperatures, water film heights, dew points, road conditions (dry, moist, wet, snow, ice), ice percentages, relative humidity and friction with a frequency of up to 100 times per second and a maximum output rate of 10Hz. It serves as an important decision support with regard to preventive gritting. Due to the open interface protocols, MARWIS can be easily integrated into existing winter maintenance monitoring networks. Similarly, the mobile road sensor can communicate directly with the control system on gritting vehicles via Bluetooth, RS485 or CAN Bus. The measurement data output supports the protocol UMB binary.
www.lufft.com

More sustainable traffic sign printing

Across the globe, consumers are demonstrating their demand for sustainable products - and a preference for dealing with companies that have integrated a culture of sustainability.

Sustainability has many facets - but at its core is the safety and quality of life for the planet's inhabitants, while limiting negative impacts on the environment with a focus on renewable resources. Traffic sign screen printing, with its unavoidable use of high VOC solvent inks, and wastewater streams generated by producing and cleaning screens, has long been in our sights for a sustainability makeover.

Avery Dennison began the digital traffic sign revolution in 2014 with its introduction of the TrafficJet Print System. Quickly becoming one of the best-selling printers for specification compliant traffic signs with warranties exceeding industry standards, TrafficJet is in regular use in nearly 500 locations across 50 countries. This printer has been instrumental in the elimination of more than 1.5 million gallons of wastewater worldwide.

"With the introduction of our new TrafficJet Pro printer - a truly sustainability-enabling solution is available as a viable alternative to screen printing," says Scott Chapman, senior manager, global market development & communications, reflective solutions,

Avery Dennison. "This affordable printer featuring UV LED instant cure and True Traffic Color spot inks, delivers print speeds comparable to high-volume screen printing, while eliminating the complexity and multiple waste streams associated with screen printing. In addition, the print production process can be housed in an area less than one-third required by screen printing, conserving valuable space and associated costs.

For government agencies, longer-life TrafficJet Pro signs reduce their replacement cycles and maintenance costs, lessening the impact on the environment."
www.reflectives. averydennison.com

Published by

TagMaster releases XT-5, long-distance RAIN RFID Reader

TagMaster, whose business areas include traffic and rail solutions for smart cities, is launching the new XT-5 UHF Reader. The XT-5, a new member in TagMaster's UHF family, is the next generation of RAIN (RAdio frequency IdentificatioN) RFID Reader for vehicle identification solutions.

The XT-5 Long Range Reader has built in "plug and play" protocols for all major system manufacturers and is very easy and quick to install. It has a high-performance 33 dBm radio with self-jammer cancellation and polarisation switching. The XT-5 is built on a Linux platform with PoE+ and it comes in versions with internal antenna or up to four external antennas. A new and often asked for feature, is the double Wiegand connections, saving time and money when using external antennas. Furthermore, the XT-5 can be set up and programmed as a standalone unit, without any additional software or connections, able to manage up to 1,000 RFID users.

Like other products in TagMaster's cutting-edge range of products, the XT-5 is designed to meet high demands, featuring long-reading distance, high reading speed and a robust design. The reader has very high resistance (IP 66) towards all kinds of weather conditions, dirt, magnetic and electrical fields. It is also vibration and shock resistant and at the same time ensuring reliability, high performance and security.

Thanks to TagMaster's top-class quality, accuracy, unparalleled performance, ease of use and versatility, combined with a wide range of potential applications, the possibilities of TagMaster's RFID solutions are practically endless. The company is a trusted and safe choice with over 100,000 installations integrated in smart cities all over the world.
www.tagmaster.com/traffic-solutions/rfid/xt-5-eu/

Blockchain, a game-changer for open cities

Many cities rely on Internet of Things platforms to enable smart services, including parking management and traffic video surveillance. Most innovative solutions are based on standards, so they grant full interoperability: this means multiple urban applications can be managed through one single network, with less complexity and costs, and huge benefits in terms of effectiveness and scalability.

The security of open infrastructures is sometimes negatively perceived, but they are not necessarily a synonym of vulnerability. An interesting viewpoint comes from Swiss technology company Paradox Engineering (PE), part of the MinebeaMitsumi Group, a leading global provider of Electro Mechanics Solutions, also controlling Tinynode, which specialises in smart parking technologies.

Since the inception of its flagship solution PE Smart Urban Network, back in 2011, the company has always envisioned interoperability together with security-by-design principles. Today, it is moving one step forward by integrating blockchain technology.

As PE Smart Urban Network allows any city object to be connected and operated remotely, the blockchain links all devices to each other by the same cryptographic chain of trust. Granting the highest possible levels of data integrity and validity, this makes commissioning and operational procedures intrinsically cybersecure.

Moreover, thanks to the blockchain, data from parking lots, streetlights, and other sensors can be transformed into tradable tokens. Parking operators can buy "info-tokens" generated by car lots being vacant or busy to design and offer their own smart services, for instance. These can fuel private businesses, while cities turn their parking sensor investment into revenues, at the same time benefitting from lower traffic and pollution, and higher quality of life. The blockchain is increasingly challenging cities to change their game, and Paradox Engineering is ready to support this transformation by providing technologies to enable urban innovation and new business models.
www.pdxeng.ch

Pavement marking equipment

MRL Equipment Company manufactures fast, efficient, durable pavement marking equipment. The Mini Mac detail striper's compact design is highly manoeuvrable, perfect for intersection and lane markings, as well as road marking application in congested, urban areas. With 400 lb/181kg capacity material tank and 100 lb/45kg bead capacity, the unit is available in both left-hand and right-hand drive models and with multiple die configurations. Additional options include electronic skipline timing system, laser guidance, double drop beads, transport trailer and many more.

Partnering the Mini Mac with an MRL pre-melting kettle or set will provide superior productivity on the job. MRL's pre-melting kettles are air jacketed, which is proven to yield numerous advantages over the competition. Air jacketed kettles heat rapidly, provide consistent, high output, and maintain heat as material is throughput. Without waiting for material to heat, users will avoid costly

down time in operations, and material homogenisation is never compromised. MRL's kettles are offered in single or sets, and in capacities from 1,000 lbs. up to 8,000 lbs. Kettles may be self-contained in a skid mounted unit, or truck or trailer mounted.
www.markritelines.com

NEW BARRIER IMPROVES WORKZONE

Highway Care has announced the new HighwayGuard portable workzone barrier technology which is said to be easier to transport and install than traditional equivalents. HighwayGuard is tested to MASH 16 TL-3 and TL-4 and according to the company, a single truck, trailer-mounted crane or excavator and crew can connect two barrier sections in less than 30 seconds using a bespoke T-connector. Two designs are available to cater for anchoring at each 12m section or at every 60m, depending on the project requirements.
www.highwaycare.com

Radar for every application

Houston Radar is highlighting its standing as a leading supplier of Doppler and FMCW radars for the traffic industry. With an OEM portfolio of over six different speed and presence detection radars, the company caters to a wide range of requirements. Its products are widely used in speed awareness signs,

VATCS signs (electronic vehicle speed activated LED road side signs), traffic counters, vehicle flow detectors, speed triggered stop signs and chevrons.

Radar units from Houston Radar are also used in industrial applications such as ultra-low speed measurements, conveyor belt speed

measurement, train presence detection and streetlight dimming.

The company points out that it offers a wide variety of OEM sensors for integrating into its customers' products, as well as a complete suite of ready to deploy traffic data collectors.

Houston Radar's retail products, such as our SpeedLane Pro, offer an unprecedented level of vertical integration. Bluetooth and 3G wireless access coupled with Android and Windows App and out-of-the-box integration with cloud server, provide easy data collection and reporting. With product offerings in different sizes and features, Houston Radar says it sets the standard in every category including unmatched ultra-low power, size, pickup range, performance, ease of use and quality. The company's products are also shipped to over 55 different countries.
www.houston-radar.com

Houston Radar's Stephanie Hilton

Committed to the success of your parking

Smart, reliable and future-proof parking solutions

WPS brings together best-in-class technology and practical innovations. We offer integrated parking solutions and high quality services that make parking easier.

With parking solutions which are smart and reliable, and service concepts you can rely on, we are fully committed to the success of your parking.

WPS parking solutions

wpsparking.com

Signal Group and Peek Traffic are now Oriux

Oriux is a united force in ITS and traffic management solutions. Globally known Peek Traffic, a subsidiary of Signal Group, launched a rebranding initiative highlighted by the change of the company name to Oriux.

The purpose of the rebranding initiative is to unite Peek Traffic and Signal Group into a single brand and identity. The new name represents human talent, innovation, technology, mobility and global strength and reflects the group's constant evolution and international growth. Today, the group of companies has presence in more than 500 cities with more than 60,000 traffic intersections deployed and over 25,000 traffic counters and classifiers used worldwide.

"We decided to embark on a new identity initiative that will solidify and simplify our global presence, but will also serve to unite all of our teams under one banner", said Alejandro Brunell,

president and CEO. "For more than 60 years, our organisation has worked tirelessly to innovate in traffic safety, develop new technologies for better mobility and create solutions to improve our quality of life. We will continue to build a safer and brighter future in mobility and technology, with cutting edge solutions from a multidisciplinary organisation, and committed to become a global leader in ITS technology development."

"Since the acquisition of Quixote Traffic 12 years ago, Signal Group and Peek Traffic have been working in the amalgamation of several companies and brands such as Traconex, US Traffic, Multisonic and Northwest Signal to name a few. So, in order to enhance our global standing and presence in the industry, we are combining our identities into a single brand," added Rolando Garcia, VP of operations.
www.oriux.com

Alejandro Brunell, president and CEO OF Oriux

Park and Ride at Taiwan High Speed Rail Taichung Station

Parkxper is highlighting a deployment that makes the best use of the company's intelligent parking products and systems.

The company has already worked with Taiwan High Speed Rail for its other two big stations, and earlier this year began work on a third project at Taichung Station.

Taichung Station has a huge parking lot with four levels, totalling some 1,482 parking spaces. Parkxper was tasked with relieving the stress of finding parking spaces during rush hour. With the help of the company's intelligent parking management system, Parkxper has made it even easier for drivers to finish

parking within three minutes.

Widespread use of dynamic LED signage, placed at each important junction, guides drivers to the area with most spaces available. It uses text, numbers, and symbols, depending on the need of the parking lot, all of which are customisable.

The facility also features a

camera-based parking system (PGS) with LEDs which guide drivers: the LEDs show green for vacant spaces; red for occupied; and blue for disabled parking; while pink denotes parent and child. A single LED can cover six spaces, considerably saving energy but also easy to see.

For outdoor parking areas, Parkxper deployed its PGS cameras which undertake licence plate recognition. The system not only makes it quicker for drivers to find their vehicles, it is also easier to manage by knowing the occupancy rate.

Another feature of the Parkxper deployment at Taichung Station is camera-based PGS and Car Finder Kiosks, which the company says is the essential combination for large parking lots. It prevents the driver from walking around the lot looking for their vehicle, taking way longer to exit the lot than they should.
www.parkxper.com

ROAD INFRASTRUCTURES
GLOBAL SERVICE PROVIDER

NOTIFIED BODY

- CERTIFICATION
- INITIAL ASSESSMENT
- FACTORY PRODUCTION CONTROL CHECK
- CE CERTIFICATION
- ANNUAL SURVEILLANCE

VIRTUAL LAB

- COMPUTATIONAL MECHANICS
- FOUNDATION ANALYSIS
- INSTALLATION STUDIES
- SOUND ABSORPTION
- INSULATION PROPERTIES (LABORATORY/IN SITU)

TESTING

FULL SCALE CRASH TEST
- ROAD RESTRAINT SYSTEM • MOTORCYCLIST DEVICE
- SUPPORT STRUCTURES FOR ROAD EQUIPMENT
- VEHICLE SECURITY BARRIER SYSTEMS

ON SITE
- PULL-PUSH TESTS
- ABSORPTION MEASUREMENT OF ANTINOISE DEVICES USING THE ADRIENNE METHOD

SMART ROAD
- ITS TYPE V2I, V2V AND I2X TESTING ON CIRCUIT LABORATORY
- ACCREDITED FOR OBU (ON BOARD UNIT), RSE (ROAD SIDE EQUIPMENT) RADIO DEVICES CHECKS
- ADAS TESTS ON THE ROAD WITH AUTONOMOUS VEHICLES

Hikvision's holistic approach to intelligent transportation management

Hikvision, a world leading provider of innovative security products and solutions, has introduced an integrated suite of intelligent transportation solutions that make the travel experience safe and convenient.

The company has developed a series of innovative traffic cameras for checkpoint, intersection and highway uses, boasting violation detection, licence plate recognition, vehicle feature recognition, and speeding capture. The cameras observe and monitor traffic flow, when traffic build-up at an intersection is identified, and Hikvision traffic signal control solutions allows traffic lights to be coordinated to keep traffic flowing as freely as possible.

The company's range also includes a set of smart mobile devices for road patrolling and enforcement purposes, including a Hikvision vehicle-mounted panoramic PTZ kit, and Hikvision's rugged, wearable body cameras and the corresponding Dock Station for charging and data collection.

Also important is Hikvision's state-of-the-art smart parking solution. It gives customers precise parking guidance using indicator lights and displays, straightforward vehicle search at kiosks, and quick entry and exit with ANPR systems.

Hikvision has also developed an artificial intelligence (AI) algorithm training system which enables ITS partners to

train algorithms for specific customer application needs and deployment.
www.hikvision.com

Making work zones safer for everyone

Peter Berghaus GmbH, Germany, is a well-known manufacturer of innovative safety products for working zones which includes traffic lights, with bright signal colours, reflective warning signs, mobile crash barriers.

The company's products are anything but inconspicuous.

As Germany's leader in professional traffic safety, Peter Berghaus ensures that all road users arrive safely through the danger zone of a construction site.

The company's technical facilities are used worldwide. Relying on the highest quality standards, everything Peter Berghaus offers its customers has been tested hundreds of times by the company's teams in the field.

For over 50 years, Peter Berghaus has developed and produced its own products at various sites in Germany. The company's ProTec mobile crash barrier systems have been further developed many times and tested in accordance with current standards. Signs with LED technology can be adapted from the desk to

the traffic situation on site. The firm also offers mobile traffic jam warning systems that use special detectors to determine traffic density. Or GPS devices for construction site maintenance.

With the arrival of digitalisation and the Internet of Things, the company's latest development, the EPB 24 Multiprocessor mobile traffic light controller controls temporary large inter-section traffic signal systems, requiring a minimum of time and cables.
www.berghaus-verkehrstechnik.de

Flowbird facilitates environmental monitoring

Providing policy-makers with pollution and noise level information is set to become easier and cheaper with the launch of Park & Breathe, according to its manufacturer Flowbird – the company formed by the merger of Parkeon and Cale.

Park & Breathe is an environmental monitoring device designed to fit on top of the company's Strada parking meters and measures noise, NO_2, ozone photochemical pollution, particulates (PM10), CO_2, temperature and

hygrometry. The unit is powered from the existing terminal's 12V battery and sends data to the servers via the modem fitted in each parking terminal.

Park & Breathe can a create network to study noise and pollution in real time via the monitoring server web portal. This can also be used to display monitored data from outdoor environment on a daily, monthly and yearly basis.
www.flowbird.group

First-class retroreflectivity assessment solutions

RoadVista has over four decades in providing first-class retroreflectivity assessment solutions for transportation safety. The company says its flagship product, the Laserlux G7, is the world's first and only truly portable, dynamic vehicle mounted retroreflectometer which enables continuous pavement marking assessment and evaluation with the flow of traffic, without requiring an integrated, dedicated vehicle. The instrument comes with a wide range of options, including versions to measure the retroreflected colour of the marking, the infrared retroreflectivity for CAV system compatibility, and optimisation for airfield marking surveys.

In addition to the Laserlux G7, RoadVista offers the model 932 multi-geometry handheld retroreflectometer for full assessment of retroreflective sheeting, safety clothing, conspicuity tape, and other retroreflective materials. Also notable is the model 922, which the company says is the best-selling, field portable traffic sign inventory management tool. Additionally, the StripeMaster handheld pavement marking instruments are specifically geared towards ensuring markings are of the good quality needed for human drivers and automated vehicles with asset management features and measurements of retroreflectivity (RL), daytime luminance factor (Qd) and night-time colour (CIE1931xy).

Coming later this year, RoadVista will announce its latest innovation, keeping in the tradition of offering high quality, reference grade instruments, to improve roadway visibility and safety.
www.roadvista.com

EKIN'S SMART LIGHTBAR RECOGNISES FACES ON THE MOVE

A second generation of Ekin's Patrol light bar sees face recognition being added to the list of functions this smart accessory can add to police and other authorised vehicles. Said to be the first and only compact smart patrol unit in the world, the G2 has a wider (360°) angle of operation making it able to detect all number plates across up to seven lanes of traffic and nearby parking areas. This latest plug-and-play version is compatible with any kind of vehicle and using a tablet

readout which means there is no requirement for any components to be installed inside the vehicle or the luggage compartment. With additional cameras integrated on all four sides it is said to provide 100% coverage and be an economical, mobile alternative to investing in fixed surveillance units. With the G2, Ekin's facial recognition software captures all faces within its field of view (illuminating the inside of vehicles ahead and behind if needed) and compares them with the police agency's database of wanted suspects. The system can also provide on-the-move speed enforcement, mobile parking enforcement, even between closely parked vehicles, and automatically cross-checks all licence plates with a blacklist.
www.ekin.com

Wektor shows the way

Poland-headquartered Wektor, a manufacturer of warning equipment for road works, is highlighting a wide range of products, including battery lamps, warning lamps, road waves, traffic lights and road signs, as well as road boards on trailers.

Wektor says its products are made according to PN.EN 12352:2010 standards and that the dynamic development of the company allows for constant widening of the range of products and services. Moreover, the company's products are subject to warranty and post-warranty, with repairs carried out either at the client or Wektor's headquarters. As the company points out, its design solutions, high-quality materials and precision workmanship allow it to produce exceptional products at competitive prices, straight from the manufacturer.

Wektor, formed in 1993 to specialise in the road sector, says its many years of experience allow for fast and comprehensive execution of orders.

The company is also able to assist in the implementation of large road projects, advising and selecting the right road equipment. Indeed, Wektor, which treats each client individually, will modify its products to individual customer needs.
www.wektor.sacz.com.pl

ISS INTRODUCES RADAR WITH INDUSTRY-LEADING DATA ACCURACY

The RTMS Echo, from Image Sensing Systems (ISS) is the key component to getting the data needed to provide drivers with safe, congestion-free roadways. "The RTMS Echo creates traffic data that is an asset for roadway performance analysis rather than an obstacle," said Seth Anderson, radar product manager for Image Sensing Systems. "Transportation professionals around the world make important decisions every day that impact the effectiveness of our complex, multi-modal transportations systems. With RTMS Echo, transportation professionals can be confident in the data-driven decisions they are making today, and into the future." ISS says the RTMS Echo radar is a powerful IoT-ready device that provides access to more actionable traffic data than any radar on the

market. The installation of the device has never been easier with built-in aiming guidance, auto configuration of the sensor, and wireless management via smart device. The per-vehicle data accuracy of the RTMS Echo is industry-leading and can be easily formatted to deliver the insights needed to meet an agency's objectives. RTMS technology provides insightful and reliable data maximising existing infrastructure and optimising the safety and efficiency of every community.
www.imagesensing.com

For Parifex, road deaths and injuries are not inevitable

For France-headquartered Parifex, road deaths and injuries are not inevitable. The company has been involved with the development of innovative road safety and traffic management solutions, Doppler and 3D Lidar-based systems, for more than 30 years. It says the last few decades have demonstrated that effective and comprehensive road safety strategies can reduce the number of people killed or injured on the road, despite increasing traffic levels. Speed limit enforcement is one key strategy.

Parifex, which currently has some 400 of its solutions deployed in France, with 200 more to be installed by 2020, helps to improve speed limit enforcement by offering the adequate solution to address each issue efficiently. The company has a range of innovative speed traps, including stationary, mobile, multi-violation, and red-light. Moreover, Parifex can rely on

Nathalie Deguen of Parifex

its experience and expertise to offer the most effective and efficient speed enforcement system.

Nano-Cam is the company's latest sensing solution for intelligent transportation, advanced traffic management, vehicle profiling, speed enforcement, and many other applications. This ultra-light and compact Lidar-based equipment combines several functionalities, resulting in rapid, continuous and accurate detection and ranging at 360°. Indeed Nano-Cam detects all static and moving objects, including pedestrians, cyclists and vehicles. It can track and gather all of the following information for each target in real-time: dimensions, direction, speed, distance, and classification. As Parifex points out, with this array of functions, the possibilities are endless.
www.parifex.com

Intelligent speed bump that only activates for speeders

Sweden-headquartered Edeva has launched the Actibump, an intelligent speed bump that only affects those who speed, making it an invaluable safety system.

Actibump is a dynamic traffic safety system. A radar unit measures the speed of an oncoming vehicle and if it is above the set speed limit, a hatch is lowered a few centimetres into the road surface, giving the speeding driver an uncomfortable physical reminder of the speed limit. Vehicles driven at a legal speed pass on a level road without discomfort.

Edeva says that using the Actibump, will provide a robust piece of equipment to create a safe and accessible traffic environment for all. The device is connected to EdevaLive, a software as a service (SaaS) system that handles both data collection and storage as well as remote monitoring of the hardware.

A web interface presents the data, both in real-time and over the lifespan of the system and provides proof that the Actibump affects driver behaviour. Additional data, such as vehicle classification can be collected and presented using the EdevaLive system.
www.edeva.se

WPS committed to the success of car parks

WPS, well known for its flexible parking software on well-engineered hardware, has announced several new functionalities that will improve the customer journey and with that, the success of a car park. As the company points out, its ParkiD parking management platform is highly adaptable and connectable to be the best fit for years.

WPS, was the first to use barcode technology in parking. Now, the company says goodbye to the barcode and replaces it with much more versatile identification technologies. This enables the company to create more touch points with consumers, for instance with WPS-Pay, offering easy and instant payment of the parking fee by mobile phone. Searching for a pay station or waiting in the queue now belongs to the past. It also enables the flexibility to offer extra products at the pay station. With enhancing the customer convenience in mind, the pay station had a redesign with a new special feature.

New techniques, for instance ANPR only/ticketless solutions, either with or without barriers, are applied to let vehicles enter and leave the car park faster and smoother. Also, WPS can give parkers a more personalised experience with functionalities like Business Parking, a self-managed, self-sufficient solution for multi-tenant sites that alleviates the burden of admin duties. Pre-registration of visitors makes it possible to give visitors a VIP guest treatment.
www.wps-nl.com

TRL is bullish about the future

In his role as chief technologist at TRL Software, Christopher Kettell finds himself at the nexus point of what TRL Software has done, what the company is doing and what is to come in future. As he concedes, that's a pretty exciting place to be.

"What we have done, TRL, specifically TRL Software, is well known for the love of acronyms across the TRANSYT, ARCADY, PICADY and SCOOT as part of the portfolio of products, Safety as a core organisational value with iMAAP.

"What we are doing, it is no great secret that we are building our own UTC system based on SCOOT, right now," Kettell continues. "Likewise, we go from strength to strength with our road safety offering and have a measurable impact on casualty reduction – this is a powerful motivator for doing more. Even with all of this, there is much more to be done, to do this, we recognise the inherent intellectual capital of the organisation, our people and we push collaboration like never before."

Kettell is bullish about the future but, at this stage, is keeping tight lipped.

"Rather than telling people what we are doing is going to be a game-changer, and that we are going to disrupt the market, we are just going to get on with it instead. Watch this space for some upcoming announcements on what we have been doing at TRL Software, who we have been doing it with and what comes next. At the previous Intertraffic I made an open invitation to get in touch and talk; to my relish some did. Innovation needs collaboration, and I again invite people to talk with us," Kettell concluded.
www.trlsoftware.com

Christopher Kettell

Dear Readers,

in 1961 my father, Peter Berghaus, founded the company Berghaus Verkehrstechnik. We owe the first radio-controlled traffic light and many other traffic technology products to his pioneering spirit and constant endeavours to make our roads safer. Establishing a company that rents out materials that secure construction sites; M+V [now: AVS]; continuously new services and ideas for new products; being a trailblazer in relevant panels of this industry – those are the foundations the AVS Group is based on today.

The future needs its origin
Today the AVS Group, which originates from the Peter Berghaus family business, is represented internationally. I have continued to apply my father's pioneering spirit in the Berghaus traffic technology and AVS for several decades. We believe in the power and experience of small businesses with long-term traditions. As part of our corporate philosophy, the direct and personal contact with our customers is just as important to us as our focus on the services we provide. The development of the AVS Group is based on the association of small businesses with long-term regional experience. As of February 1st, 2020, I retired from the business operations I have been handling as the CEO, yet I will continue to act in my function as partner of the AVS Group. From now on, I will assume a new responsibility as a member of the Advisory Board of the Group and support AVS as a consultant. I am more than pleased that Hendrik Hucke (former CFO) – someone from our own ranks, who will bring his many years of experience to the job – will be my successor as CEO. I would like you to place your trust in Hendrik Hucke as much as you have done in me, and I wish Mr. Hucke lots of success in his new position.

Sincerely
Dieter Berghaus, Council Member

Hendrik Hucke, CEO

Developed for you: New products

Peter Berghaus, the founder, already experimented with radio-controlled traffic lights when there weren't any radio frequencies available for them yet. The first traffic safety products were already developed in the early 1960s. We have been keeping up that pioneering spirit.

You will find our latest developments, EPB 24 with panel PC (touchpad), the transportation device for tilting stands EE0760, and ProTec 161, on the following pages and of course on our websites, **avs-verkehrssicherung.de** and **berghaus-verkehrstechnik.de** as well.

Assembled for you: Our 2020 catalog

The new Berghaus product catalog will be available as of April 2020. You may look forward to our tested assortment and innovative new solutions.

The catalog, which contains more than 80 pages of information and over 200 pictures featuring the Berghaus product range, will be published in time for the Intertraffic. Several new products and further development of products complement our proven assortment. Arranged by product groups, our catalogue presents the following and more: temporary traffic control light system, mobile LED pre-warners, warning trailers, mobile traffic light systems as well as mobile road restraint systems used to secure construction sites on motorways and in downtown areas.

PRODUCT CATALOGUE 2018-2020

Innovative traffic technology from one single source.

purchase – rent – leasing

Safety by Berghaus

Starting at the end of April, the new catalogue as well as all product brochures and manuals may be downloaded from our homepage: berghaus-verkehrstechnik.de/download/produktkatalog

On location for you: Intertraffic Amsterdam, April 21st – 24th, 2020

Are you planning to visit the Intertraffic in Amsterdam and do you want to get informed about the product novelties offered by Berghaus Verkehrstechnik?

If you do, we will be happy to [ ] entrance fee by being our guest because in t [ ] e again provide free tickets in the form of a [ ] r loyal customers.
Please register in [ ] ation link on our homepage **berghaus** [ ] directly linked to the trade fair organiz [ ] to welcoming you at our booth **01.406 in** [ ]

POSTPONED 23 TO 26 MAR 2021

INTERTRAFFIC

WE EXHIBIT AT INTERTRAFFIC
21 - 24 APRIL 2020 AMSTERDAM

Traffic-light courses and product introductions for your qualification:

Our traffic-light courses were conducted in January and February of 2020. All available slots were booked very quickly.

If you are interested in undergoing traffic-light training or in an individual product introduction, please contact our organization:
Thomas Keller, thomas.keller@berghaus-verkehrstechnik.de

Put together for you: The latest information

You may find out more about the Berghaus News, training schedules and any other information on the internet.

berghaus-verkehrstechnik.de
avs-verkehrssicherung.de
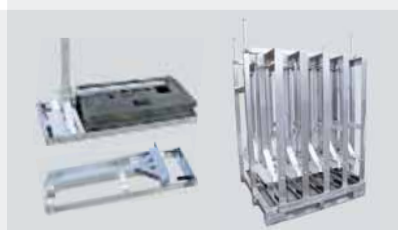
2
- Transportation device for tilting stands
- EPB 24 Multiprocessor P
- Traffic-light courses in 2020

3
- ProTec 161
- In-house production

4
ESG
- The development of the AVS Group
- Sustainability
- The management of the AVS Group

Now with touch screen!

EPB 24 Multiprocessor P – with innovative user interface

The mobile traffic light controller EPB 24 Multiprocessor controls temporary large intersection traffic signal systems, requiring a minimum of time and cables. This enables you to locally control up to 24 signal groups with a maximum of 48 power cards for 96 three-part, fully monitored LED traffic light signal heads with the master and slave controllers of the EPB 24 series.

The extended operating option of the new EPB 24 controllers is brand new. Now inputs and searches that used to require a laptop equipped with AmpelTools can easily be done on the controller on location via a built-in panel PC with touch screen.

Your new options:
- Operation of the system via built-in panel PC without requiring a laptop
- Touch screen for the input and operations directly on the controller
- Entering of data into the controller on location without requiring a laptop

- The technician can take the programme data along on a USB stick when implementing the signal system on site and upload it into, respectively from, the system
- The functions "light test" and "allocation test" can be triggered directly on the controller

- Modification/adaptation of programme data on site (such as green phase/progressive signalling)
- Additional novel option: modem for the encrypted and safe remote operation via the Internet
- Controller can be configured so as to send default information by e-mail (requires optional modem)
- The features print/copy of target/actual data, interim time and interlocking matrix, signal safety feature, etc. can be activated via the controller and stored as PDF files on a USB stick
- It is possible to send that date directly by e-mail from the system (requires optional modem)
- Data comes with unequivocal control ID number and can therefore be perfectly allocated regarding time/date and controller
- During the acceptance process on site, the persons in charge can get a close look at the data and can, if desired, copy data on a USB stick or have it sent to them by e-mail from the controller (requires optional modem)
- The internal logbook and detailed operating logbook can be viewed directly on the panel PC

Do you also want to profit from the new technical options of the handy touch screen when using your EPB 24 controller? We have the technical facilities to upgrade the panel PC as well as the new internet modem, even for existing EPB 24 controllers. We will be happy to give you an individual quote.

Storage and transportation rack for hinged sign stands

We manufacture various mounting devices – suitable for just about any application – for a fast and secure mounting of traffic and road works signs, laying signal cables overhead, as stand mast and cantilever for traffic signal systems, etc.

The tilting sign stand made of aluminium (EE0760) is particularly suited for one-day road works since it can be folded up and transported in vehicles without using much space. It has been approved for stability levels up to K6. Our product range has now been supplemented by a handy storage and transportation rack that guarantees the safe transportation of larger numbers of items. This compact rack, which is also made of aluminium, lets you transport up to 10 sign stands simultaneously and load them onto the vehicle with a forklift.

- Optimized safety during transportation – eliminating the need to secure each sign stand individually
- Quick and easy loading – 10 sign stands can be loaded at the same time
- Space-saving stackability – up to 3 transportation racks can be stacked in your warehouse
- Overview in your warehouse – up to 30 tilting stands can be stored in a space of 1 x 1 m

Measurements of storage and transportation rack: approx. 100 x 100 x 156 cm (length x width x height); stack height (on top of each other): 137 cm; weight: approx. 30 kilogrammes
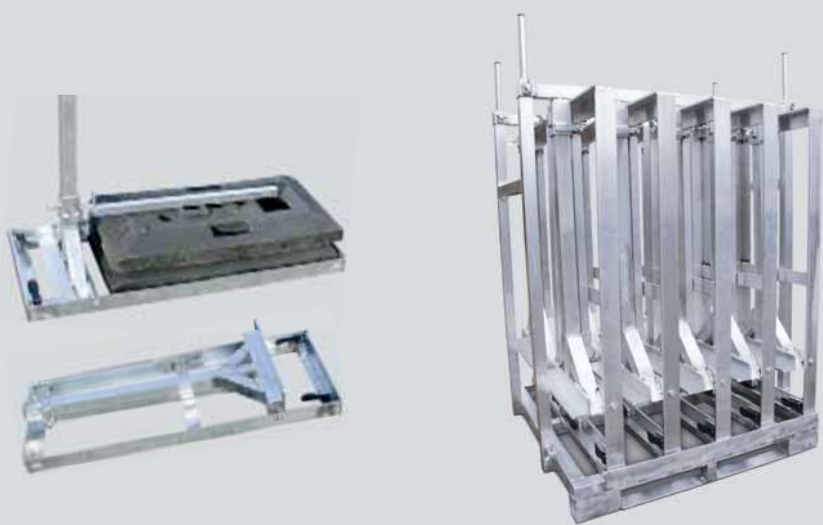
Berghaus Traffic-Light Courses: Full House

This year (Jan./Feb.), our tried-and-true traffic-light courses traditionally were again conducted at our head office in Kürten (NRW). A total of 80 members of renowned companies specializing in traffic safety and signalling technology, road traffic authorities, road maintenance depots and municipal building yards from all over Germany participated in our training courses.

Beginners as well as advanced participants learned lots of new things in the different two-day seminars that complemented each other. In addition to the technical provisions and guidelines for construction site traffic lights (such as RiLSA, TL-LSA), the preparation and implementation of signal timetables as well as the operation of traffic light controllers and on-site troubleshooting were course subjects.

The new test function of AmpelTools was a feature that was particularly popular with the course participants. This software carries out a fully automatic, complete signal safety feature test for any potential signal condition of the outdoor facility on site, which used to be rather time-consuming because it had to be done manually until now (See Berghaus News 61 for how it works).

The participants also greatly appreciated the introduction of the new panel PC with touch screen for the EPB 24. It provides technicians on site with many more options of how to operate the controller without a laptop.

Operations Manager Alfred Wurth and Technician Uwe Banischewski guided the participants through the various subjects while providing them with valuable advice and tricks learned in their 35+ years of professional experience on the subject of "mobile traffic light technology".

In addition to our standard traffic-light courses, we conduct individual seminars on the topic of "mobile traffic light technology" in our training and exhibition room. We will be happy to make you an individual offer.

ProTec 161 – the slimmest H1/W3 road restraint system!

ProTec 161 is a slim road restraint system that can be erected without supports – successfully tested according to DIN EN 1317 with an effective range of W3 for containment levels N2, H1 and L1.

Improvement of a tested solution: Higher containment level and a smaller effective range

By modifying ProTec 160 with patented connecting elements and a novel central stand, ProTec 161 was created: a slim crash barrier system that can be erected without supports, suitable for temporary use on construction sites. ProTec 161 passed the test in accordance with DIN EN 1317 and boasts a very small effective range W3 on containment levels N2, H1 and L1, i. e. more powerful restraint.

Containment level L1 with effective range W3 is a solid supplement of the portfolio particularly for the European market. In order to obtain the improved ProTec 161, the standard elements of the tried-and-true ProTec 160 were connected with newly developed central stands that are force-fit and screwed to the 10-metre elements with two additional central bases. This minimizes the pressure the crash barrier puts on the contact surfaces, sustainably protecting road surfaces.

The elements of ProTec 160 have been approved for the list of mobile crash barrier in accordance with TL-TS of the German Federal Highway Research Institute (BASt) since 2010.

Changed road conditions

This crash barrier system with its low weight and the rubber-padded contact surface reduces the risk of undesired pressure marks that may be caused when used for longer periods of time on porous surfaces or during hot summer temperatures.

Innovation meets safety

This innovation enabled the AVS Group once again to further develop the crash barriers that are part of the renowned ProTec Family and have already been tested many times in practical use. Successful impact tests have shown that, like the rest of the ProTec Series, the new ProTec 161 is suitable for higher levels of containment and has considerable safety reserves.

For safety is what impels our developers to give their best: By conducting periodical tests and impact tests, we make the road sites worked on still safer by providing high-quality, reliable and light-weight crash barrier systems with the slimmest widths possible.

An overview of the advantages of ProTec 161:
- Successful test according to DIN EN 1317 on containment levels N2, H1 and L1
- Narrow width of 25 cm – only little space required
- Reflectors mounted in a way that shields them from impacts
- Very permeable
- No risk of aquaplaning or compilation of dirt
- The rubber-padded stands protect the road surface
- Quick and easy mounting
- Transition elements available for all ProTec systems
- Light-weight, therefore a large transportation volume possible

Always better than the rest – products from our own development and production

Tinkerer, craftsman and always one step ahead of others: With his ideas, Peter Berghaus has created the nucleus of AVS Verkehrssicherung.

Peter Berghaus, the founder, already experimented with radio-controlled traffic lights when there were no radio frequencies available yet. We continue that pioneering spirit by developing and producing our own products at various locations. Digitization and the "Internet of Things" have long since become part of technical traffic safety – and we promote that development further. Signs with LED technology that you can adapt to the traffic situation on site while staying at your desk.

Mobile congestion warning signs that assess the traffic volume by means of special detectors. GPS devices for construction site maintenance.

Or our **ProTec mobile crash barrier systems**, which have been further developed and tested in accordance with common standards. While in the 1990s road restraint systems still consisted only of steel, the combination of steel and concrete used at AVS is today's standard. While road restraint systems used to consist of assembled 2-metre short components, we now deliver strands of up to 16 m in length. A logistic masterpiece we get on the road day after day and night after night with our vehicle fleet, which has been developed for that very purpose.

When manufacturing the road restraints, we accept nothing less than top quality. After all, the **ProTec mobile crash barrier systems** will later protect the road users on the one side and the construction workers on the other side of the wall. Only the best is good enough for us: The quality-tested material of our reliable suppliers, such as Heidelberger Beton, guarantees high-quality production and processing at different locations in Germany – making the road restraint systems always available near our projects.

Big steps taken by the AVS Group

Our EU-certified products for traffic safety are in great demand – we continue to expand our national and international presence in conjunction with our partners, co-operations and the long-term experience of small businesses.

The AVS Group has been expanding its full-coverage network in Northern Germany, the greater area of Fürth, Brandenburg and Neubrandenburg. In addition to new AVS locations, such as Sottrum near Bremen and Bielefeld, the following companies have enriched the AVS Group with their many years of regional experience since 2019:

- **AVS Fürth GmbH (formerly Schötz Verkehrs- und Arbeitsstellensicherung GmbH)**
- **WaKo GmbH, Hallstadt**
- **Lorenz GmbH, Wittstock/Döbeln/Duisburg**
- **AVS Saarbrücken GmbH (formerly Implenia SVA GmbH)**

Internationally, the AVS Group is present at more than 10 locations by now:

- **AVS Denmark with subsidiaries in Gadstrup and Fredericia**
- **AVS Latvia**
- **Fero Group Belgium**

In other countries, AVS enjoys co-operations with our long-term partners. For we want to make use of our reputation as a reliable partner and innovative leader abroad – the demands for more protection are becoming louder; more and more dilapidated roads and bridges are in need of being restored.

Our technical installations are also in use around the globe: Berghaus traffic lights control traffic for instance on the Airport of Auckland/New Zealand or in Dubai. Our ProTec crash barrier systems are even employed in Israel and overseas.

Whether small intersections or large projects – AVS provides everything from one provider

True to our motto, we have complemented our service portfolio by permanent markings and maintenance & control drives. Whether roads, intersections and tunnels in city centres or the restoration of whole freeway sections with a projected time frame of several years and supra-regional competencies – from the planning and consulting process to the preparation and assembly, we ensure worldwide that all road users will get through the danger zone of a construction site safely – and that the work on any construction site will run as smoothly as possible.

AVS – full coverage in Germany
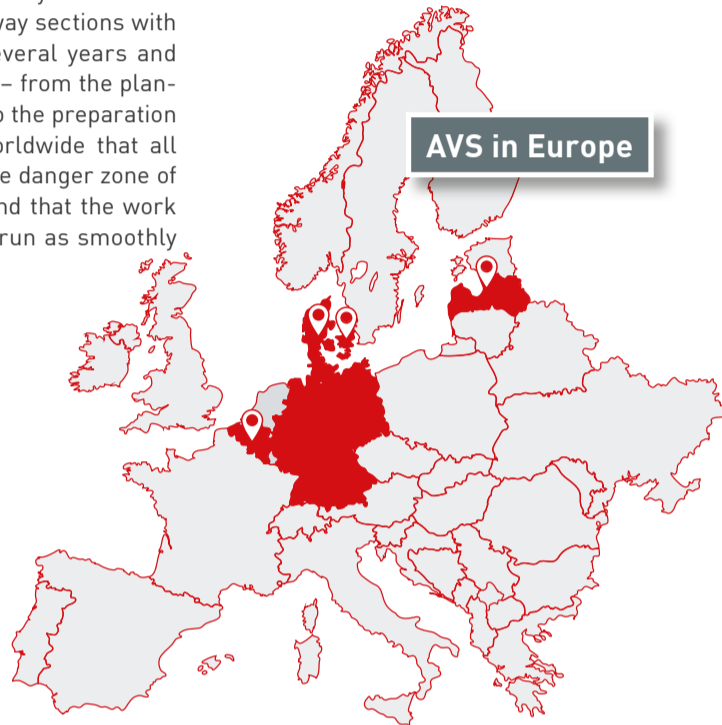
AVS in Europe

The management of the AVS Group

The AVS Group has been managed by experienced personalities for many years.

Effective February 1st, 2020, Hendrik Hucke has taken over the responsibilities of Dieter Berghaus, who will withdraw from business operations and work as a consultant. Andreas Schwingeler is in charge of Sales Germany, while Dirk Schönauer is in charge of Sales International.

Hendrik Hucke, CEO:
- Presidency and corporate policy
- Strategy
- Finance
- Mergers & Acquisitions
- IT

Andreas Schwingeler, COO:
- Operative business **in-country**
- Development of road restraint systems

Dirk Schönauer, COO International:
- Operative business **international**
- Marketing
- Mergers & Acquisitions

Sustainability in the AVS Group

ESG: Ecologic and social aspects as well as responsible management mark all of our actions.

ESG: Good for the environment. Good for society. Good for performance.
Everybody is talking about sustainability. It is also very important to the AVS Group to ensure sustainability in everything we do and to assume responsibility for people and the environment. With the aid of the ESG indicators (**E**nvironmental, **S**ocial, **Governance**), AVS actively supports the sustainability of the corporation. We apply sophisticated standards to ensure that AVS is a good and reliable partner, supplier and employer. AVS has already made active commitments in the following areas:

Environmental:
AVS has turned the use of raw materials, energy, water and waste into energy and environmental management and was able to considerably reduce the use just by making the data visible. We also count on sustainable behaviour when it comes to our suppliers, mainly purchase eco-friendly materials or use substances that do not strain the environment at all – for instance with the AVS PeelJet that only requires water to remove markings on the roads.

Social:
Work processes and working conditions have been optimized to increase labour safety and occupational safety even more. We have invested in advanced training and qualification measures of our employees by implementing our e-learning platform. We apply the AVS Code of Conduct so as to advocate versatility and equal opportunity as well as human rights.

Governance:
By establishing the AVS Guidelines on anti-trust law, money laundering, economic sanctions, compliance and anti-corruption, we have decisively contributed to making our processes transparent and lawful. Every employee, customer and supplier can report potential misconduct to the hotline for informants (Law Office AC Tischendorf Rechtsanwälte Frankfurt, Phone No. +49 69 2470 9783; hinweisgeber@actlegal-act.com) at any time. The IT and Privacy Act Guidelines as well as the appointment of data protection officers are also decisive factors that provide orientation and suggestions about these issues to every employee.

Sustainable commercial use:
Our most current project is the relocation of our subsidiary WaKo to a sustainable new building in Memmelsdorf-Schmerldorf in the spring of 2020. The heat for the building is provided by ground collectors. Brine heat pumps heat it in the winter and cool it in the summer. The energy for the heat pumps is created by solar energy. This system is one of the most effective and eco-friendly heating systems in the world. For us, the relocation is symbolic: Energy and the environment are our most valuable goods, and sustainable solutions are an important component of corporate development.

ESG
Environmental
Social
Governance

We are members of:

Fachabteilung Verkehrssicherung

www.pq-vol.de

CSI'S safety culture applied to testing and certification

Italian company CSI has a global reach, specialised in the analysis and verification of product safety performance. Part of the IMQ Group, one of the top international leaders in conformity verification activities, CSI is a world reference centre for the automotive sector.

Crash tests, impact tests, computational mechanics services, OBU (on board unit) and RSE (road side equipment) tests as well as ADAS tests are conducted by specialised personnel in a facility located near Milan. This centre brings together, in a single site, the ISO 17025 accredited test laboratories, the track with equipped areas, a protected environment for ITS track testing, as well as the certification area (as ISO 17025 accredited Notified Body) of all products related to the world of infrastructure.

With regard to testing and certification, CSI offers services on road safety devices - barriers, parapets, terminals, and shock absorbers according to EN 1317, AASHTO MASH Standard, GOST 33129-14 and JTG B05-13. It also provides testing and certification on motorcyclists' devices, support structures, road safety bollards, safety nets, and noise barriers.

On the track with four equipped zones it is possible to carry out tests on different surfaces (ground, asphalt, reinforced concrete), at different speeds and impact angles. It is also possible to carry out a full range of auxiliary tests.

For smart roads, CSI offers a protected environment for track testing of V2I, V2V and I2X type ITS. In particular, the laboratory is accredited and carries out OBU and RSE tests according to the requirements of the European Directive 2004/52/EC (EETS) and on all radio devices according to the requirements of the European Directive 2014/53/EU (RED), making use of the specialist contribution of IMQ, an IMQ Group company. It also offers ADAS testing and operates on the road with self-driven vehicles using experienced supervisors.
www.csi-spa.com

Aximum's illuminating road marking solution

Colas Group subsidiary Aximum has announced a light-emitting road marking and signalling solution called Flowell which has been designed to improve the safety of sensitive areas by using multilayer substrate paving slabs with embedded LEDs.

These slabs are connected to an electrical network via a control terminal, meaning they can take on different shapes, such a stripes, arrows, continuous/discontinuous road markings, depending on the location. The slabs can be either used for dynamic markings or be painted so that they remain visible even in 'off' mode. Several uses are being trialled including four pedestrian crossings in the town of Mandelieu-la-Napoule in south-east France; these were fitted with Flowell in March 2019. Once switched on, the crossings' appearance transforms from that of standard road markings to the white stripes emitting light.

This enhances visibility of both the crossing itself and any pedestrians using it and enables drivers to slow down well in advance.

Beyond testing the technical aspects of the system, the trials will also examine any behavioural changes brought about by implementing the technology and use that feedback to adapt the solution.
www.aximum.com

MAKING ROADWORKS SAFER AND MORE EFFICIENT

Innovative safety equipment companies PSS, Senn, and Frike have developed technology designed to make roadwork safer and more efficient. As PSS points out, it has been an innovative roadway equipment company providing safety solutions for over three decades and developed the revolutionary RoadQuake Temporary Portable Rumble Strip (TPRS) over 10 years ago. Since the introduction of RoadQuake, PSS has expanded the system to include the Raptor, the RoadQuake TPRS handling machine that deploys and retrieves strips from roadways, removing workers from the dangers of live traffic and making use of RoadQuake easier than ever. Senn Konstruktionswerkstätte, based near Basle, Switzerland has been manufacturing special machinery since 1980 for various industrial sectors. The company's machines for automatic rumble strip and cone handling have been successfully used on the Swiss motorway network in the past few years with keen interest being shown from international markets. Meanwhile, Frike Electronic, which has been producing safety products for over 30 years, has announced its latest innovation, the Profilactus Warning System. It provides warning for maintenance personnel; warning for those causing accidents; and reduction of injury to people and damage to materials. Sensors are mounted on the existing barriers and signalling equipment and sound an alarm in the event of vehicle impact. Those within the danger zone are alerted by lights, sirens, and the vibrating personal pager. **www.pss-innovations.com**

Latest iCITE evolution from EDI

Eberle Design, Inc. (EDI) has announced that its iCITE (Intelligent Cabinet Interface to Traffic Equipment) DA-400 data aggregator now comes with NTCIP 1202 and VPN security, to communicate with non-interconnected intersections. The device enables users to easily collect and manage performance measures data being requested from signalised intersections.

The iCITE DA-400 connects any Type 170/2070, NEMA TS-1, TE-2, ITS or ATC cabinet, controller, MMU/CMU, or communicating detector, to retrieve real-time data. The device interfaces with any iCITE Ready data analytics

provider. Users can now meet all of their ATSPM Performance Measures challenges easily and cost effectively.

The iCITE DA-400 is a communications and data-rich hardware platform that not only provides the FHWA-prescribed ATSPM data set, but is fully Utah DOT Performance Measures Enumerations compliant. A real-time data stream from a DA-400 can add remote intersection data, cabinet health, primary communications and cabinet power status alerts to an existing ATMS traffic data set, or enhance that already provided by an existing traffic data analytics provider using the EDI iCITE API. **www.EDItraffic.com**

A game-changer in the smart camera industry

DataFromSky (DFS) has announced Flow, a completely new solution that allows any camera feed to be converted into a valuable data source effortlessly, with an overwhelming number of applications, such as traffic monitoring, people counting, adaptive traffic lights, parking. Flow, a visual programming paradigm is unprecedented in the field and combined with DFS' proprietary traffic AI and real-time capabilities it brings disruptive change to the world of smart city sensors.

"Flow is a result of continuous development

of our award-winning AI traffic analytics engine and feedback from our industrial and research customers," says Lenka Šedivá, project manager. "We were constantly dealing with numerous requests to tailor our deep traffic AI to specific scenarios. So we created a powerful real-time platform that can cater for countless applications - with the customer being able to design any smart sensor easily. And reconfigure it whenever needed, without any further investments."

Flow is based on DataFromSky's widely

acclaimed analysis core that completely redefined traffic analytics in 2013. It has been used for more than 700 large-scale studies since then by leading engineering companies and research partners. DFS enabled unique projects such as the recent Open Traffic dataset based on 10 drones monitoring traffic simultaneously for several consecutive days.

"Compared to the traditional counting methods for traffic surveys, the AI-based approach is orders of magnitude more efficient and provides data of incomparable breadth and quality," says Lenka Šedivá. "Flow is compatible with any camera feed – even the existing ones - avoiding investment in new technology acquisition and installation. We can use existing camera networks and turn them into cooperative sensors of the AI cities of tomorrow."

Flow has already been incorporated into AI cameras (SAST ecosystem by Bosch), and DataFromSky's own products - Traffic Embedded, Real-time monitoring drone and Flow Enterprise. **www.datafromsky.com/flow**

Raising maintenance standards

Camera Lowering Systems, part of North Star Lighting, has been in business for a quarter of a century. The company was instrumental in the first-ever raising and lowering high mast system in the US. Last year, the company went through the European EC conformity certification process, giving it further access to foreign markets. Height or location are not an issue," says Donald Pike, sales manager of Camera Lowering Systems. "They can put it at exactly the height required for whatever application is needed, safe in the knowledge that our product means that location is not an issue." The company is highlighting two product ranges: the CDP and CEPM System Lowering Devices. The CDP is a pole-mount system with the raising and lowering cable and CAT6 signal/power cable running inside the pole. There are also multiple arms per pole available, as well as poles with a permanently-mounted lowering tool in the base of the pole.The CEPM is a pole- or tower-mount product which is used to install a camera lowering system onto an existing external structure, such as a monotube pole or communication tower. The products in the CEPM range include a composite (electrical/ signal) cable, length of cable and type of finish. In addition to accessibility, there are other advantages. "Installation and maintenance costs are reduced - all while using less power - so savings offset the cost of the system."
www.lowering–device.com

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Every Day.

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