

# Next-Generation Systems



## FenLock - The Next Generation in Train Facility Control

**Systems are now certified up to CENELEC SIL 4  
with advanced capability**

# Why Fenix Rail Systems?

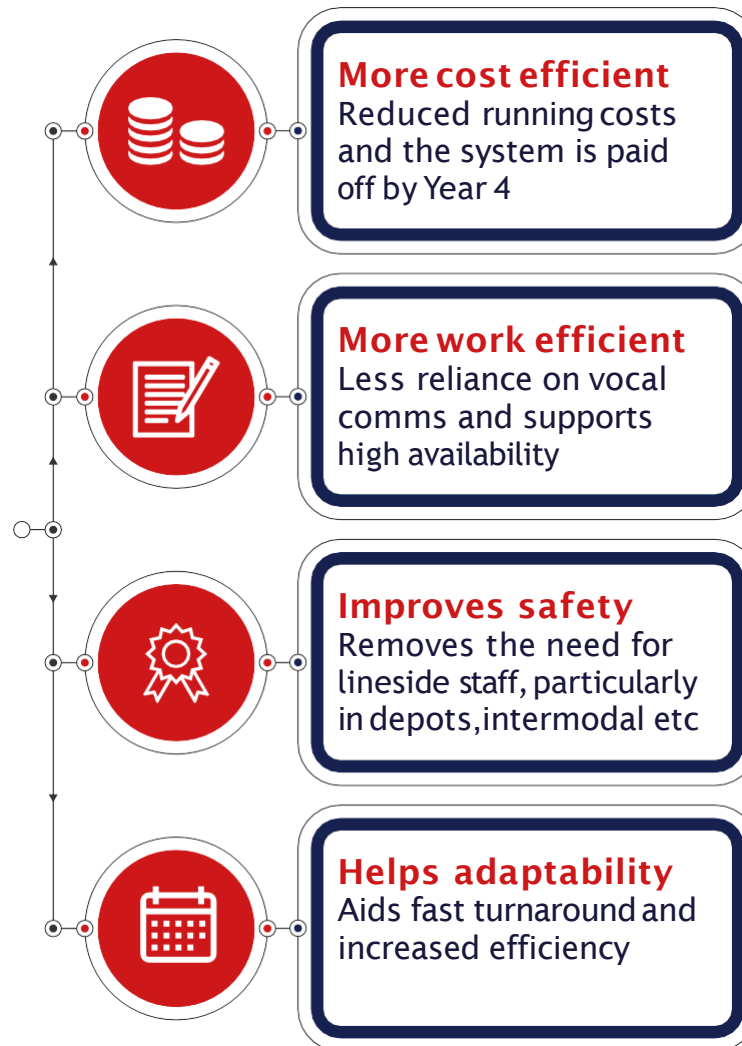
## Fenix Rail Systems are unmatched in providing quality Train Facility Control Systems in the UK.

Since 2016 Fenix has introduced SIL 2 VDU systems to the UK market, which have proven the concept and provided a marked improvement in safety, however as train facilities become more and more complex the demand for higher safety integrity with greater operational functionality has increased and the need for the Next Generation of systems is upon us!!

Today Fenix Rail Systems is the sole provider of the FenLock Train Facility Control System, put simply, Fenix now supplies the NEXT Generation in train control, the new systems can be certified up to CENELEC SIL 4 with advanced capability for all train facilities, making for a reliable, cost-effective and safe environment, these are available today at a cost comparable to SIL 2 System!

Ultimately, we can save the average facility controller £2.7m by Year 10, based on certain factors. Payback in 4 to 5 years typically  
Find out how on page 5.

### Benefits\*



\*These benefits are in line with the RSSB Guidance Note for the Development and Design Considerations of Passenger Rolling Stock Depots, GIGN7621 issued Sep. 2018.

# An introduction to Fenix Rail Systems

Since 2016 Fenix has introduced SIL 2 VDU systems to the UK market.

Now our Systems and functions can be certified up to CENELEC SIL 4 with advanced capability, interfaced with any other depot systems

With lifetime 24-hour support available and Real-Time online monitoring an option, System maintenance is simplified and made extremely cost-effective.

We have a proven Track Record of or delivery of some of the most complex Train Facility Control Systems throughout the UK.

Including but not limited to:

- Banbury Depot
- Soho Depot
- Feltham Depot
- Central Rivers Depot
- Howden Train Maintenance
- Gosforth Maintenance and Depot
- Kirkdale Carriage Wash
- Daventry International Freight Terminal
- Morden Depot
- Northampton Gateway Rail Freight Terminal

## Clients Include:



SEGRO

MALCOLM  
LOGISTICS



winvic



NORTHERN



# A more cost efficient Train Facility Control Systems (TFCS)

## Fenix Rail Systems works hand in hand with you to help reduce operational costs and meet your KPIs.

We know many depots and train facilities rely on improving performance and reducing operational costs to meet KPIs.

### Manual systems will not result in cost reductions and are more operationally intensive

Depots operated by manual hand points are more expensive to run.

Manual systems increase:

- Management costs to administer training, rostering and HR
- Costs to maintain mechanical handpoint levers
- Costs to maintain regular monthly inspections and maintenance

Mainline signalling systems are prohibitively expensive to install in depots - resulting in many unsignalled depots with manual handpoints.

### Digital systems improve performance and reduce costs

Train Facilities operated by an automated TFCS provides:

- Reduction in operational staff required per shift allowing these resources to be employed elsewhere.
- Reduction in planned and reactive maintenance, with only annual inspection and maintenance needed.
- Reduction in risk of penalties for train delays.
- Reduction in training, safety clothing and equipment costs.
- Reduced running costs and may need fewer units as a result of faster turnaround within the depot.
- Supports the achievement of a high availability of rolling stock for service by the avoidance of collisions during shunting.
- Typical investment payback within 4-5 years

See the next page to find out the typical investment payback and potential cost savings.



# Example Cost Benefit Analysis on FenLock Control System vs A Hand Point System (12 Points)

Cost - BDCS	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Initial purchase (project) cost	c£2,500,000										
Planned & Reactive Maintenance #1		£2,500	£2,500	£2,500	£2,500	£2,500	£2,500	£2,500	£2,500	£2,500	£2,500
Electricity		£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500	£1,500
Operational staff (5x Shunters)#2		£300,000	£300,000	£300,000	£300,000	£300,000	£300,000	£300,000	£300,000	£300,000	£300,000
<b>TOTAL ANNUAL COST</b>	<b>c£2,500,000</b>	<b>£304,000</b>	<b>£304,000</b>	<b>£304,000</b>	<b>£304,000</b>	<b>£304,000</b>	<b>£304,000</b>	<b>£304,000</b>	<b>£304,000</b>	<b>£304,000</b>	<b>£304,000</b>

Cost - Hand Points	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Planned & Reactive Maintenance #3		£25,000	£25,000	£25,000	£25,000	£25,000	£25,000	£25,000	£25,000	£25,000	£25,000
Operational staff (10x Shunters)#4		£600,000	£600,000	£600,000	£600,000	£600,000	£600,000	£600,000	£600,000	£600,000	£600,000
<b>TOTAL ANNUAL COST</b>		<b>£625,000</b>	<b>£625,000</b>	<b>£625,000</b>	<b>£625,000</b>	<b>£625,000</b>	<b>£625,000</b>	<b>£625,000</b>	<b>£625,000</b>	<b>£625,000</b>	<b>£625,000</b>

Cost /Saving (-)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	£2,500,000	-£321,000	-£321,000	-£321,000	-£321,000	-£321,000	-£321,000	-£321,000	-£321,000	-£321,000	-£321,000

Benefits	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Time savings #5		£75,000	£75,000	£75,000	£75,000	£75,000	£75,000	£75,000	£75,000	£75,000	£75,000
Safety (staff removed trackside)#6		£45,000	£45,000	£45,000	£45,000	£45,000	£45,000	£45,000	£45,000	£45,000	£45,000
Safety - preventing incidents		£35,000	£35,000	£35,000	£35,000	£35,000	£35,000	£35,000	£35,000	£35,000	£35,000
Saving of additional cleaning and maintenance staff		£35,000	£35,000	£35,000	£35,000	£35,000	£35,000	£35,000	£35,000	£35,000	£35,000
Reduced maintenance of walking routes and lighting		£10,000	£10,000	£10,000	£10,000	£10,000	£10,000	£10,000	£10,000	£10,000	£10,000
<b>TOTAL ANNUAL BENEFITS</b>		<b>£200,000</b>	<b>£200,000</b>	<b>£200,000</b>	<b>£200,000</b>	<b>£200,000</b>	<b>£200,000</b>	<b>£200,000</b>	<b>£200,000</b>	<b>£200,000</b>	<b>£200,000</b>
<b>YEARLY COST - BENEFIT</b>	<b>c£2,500,000</b>	<b>-£521,000</b>	<b>-£521,000</b>	<b>-£521,000</b>	<b>-£521,000</b>	<b>-£521,000</b>	<b>-£521,000</b>	<b>-£521,000</b>	<b>-£521,000</b>	<b>-£521,000</b>	<b>-£521,000</b>
<b>CUMULATIVE COST - BENEFIT</b>	<b>c£2,500,000</b>	<b>£1,979,000</b>	<b>£1,458,000</b>	<b>£937,000</b>	<b>£416,000</b>	<b>-£105,000</b>	<b>-£626,000</b>	<b>-£1,147,000</b>	<b>-£1,668,000</b>	<b>-£2,189,000</b>	<b>-£2,710,000</b>

#1 - Two points maintenance shifts per annum plus one callouts

#2 - Assumes five staff to provide three 8-hour shifts of one shunter per day. Assumes an annual cost of one shunter to be £60,000 that includes salary, pension, employee benefits, employer taxes etc.

#3 - Monthly planned maintenance

#4 - Assumes 10 staff to provide three 8-hour shifts of two shunters per day. Assumes an annual cost of one shunter to be £60,000 that includes salary, pension, employee benefits, employer taxes etc.

#5 - Nominal figure, assumes savings for e.g. improved fleet availability due to lower downtime, ensuring all trains enter service on time each morning, reduced need for backup drivers and operations staff etc.

#6 - This is the saving in lost staff time due to sickness and injury from slips, trips falls, back strain from pulling points levers etc.

# Improving Operational Efficiency

**A FenLock System makes the best possible use of the time through effective management and manoeuvring.**

The FenLock system comprises up to SIL 4-rated computer-based interlocking, with split functionality! the first implements the safety and failsafe requirements of the train facility, and the second section, implements "non-vital" controls and indications to the operating system, continuously checking the current traffic and operations within the facility, monitoring for potential conflicts or dangerous situations.



**MOVEMENT AUTHORITIES FOR TRAINS PROVIDED - MEANING THERE IS LESS RELIANCE ON VOICE COMMUNICATIONS**

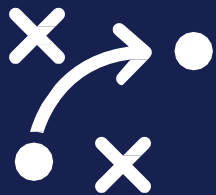


One operator can manage all train movements within the depot - workload is decreased

**MANAGEMENT TIME CAN BE FOCUSED ON OTHER OPERATIONS RATHER THAN ROSTER MANAGEMENT**



Enables train moves to be set up quickly and efficiently, typically within a few seconds (circa 5 seconds), with multiple, non-conflicting movements carried out simultaneously.



**SUPPORTS ACHIEVEMENT OF A HIGH AVAILABILITY OF ROLLING STOCK FOR SERVICE BY AVOIDANCE OF COLLISIONS DURING SHUNTING**



Improved KPIs for on-time dispatch, quality of servicing, and repairs

**ALLOWS MORE TIME FOR SERVICING AND REPAIRS AS TRAINS CAN BE MOVED QUICKER**



# Improving Operational Health and Safety

## Reduce any risk of danger by implementing a safer system which automates and enhances procedures

In any train facility, whether a Shunt Yard, Maintenance Hub, Intermodal, or indeed a Port Terminal, it is essential that train running movements in and around the facility are Safe, effective, and efficient, saving valuable time whilst increasing productivity.

The TUC biennial survey of safety representatives identified the main reasons for loss of working hours for operational staff were due to:

- Back strains (35%)
- Slips, trips and falls (40%)
- Manual Handling injuries

It also reports an estimated 35% of incidents or close calls are not fully captured by SMIS11 and there are issues with reporting.

Taking into account legal proceedings, medical charges, damage to equipment, loss of production and insurances, a cost per fatality of anywhere between £2 to £7 million has been suggested. An additional risk occurs in depots with 3rd rail traction with conductor rail run at ground level.

### A facility operated by an automated System:

- Takes staff off track, removing them from the primary place of danger, significantly reduced risk of injuries
- Reduces reliance on compliance with operational procedures, train movements controlled by a certified safety system
- Provides a centrally located VDU (typically in the control room) and provides operational staff with a real-time overview of each train's location / movements
- Logs all system and operator actions, essential data in the event of an accident / incident or misuse
- Reduces trip hazards through power-operated points installed in the 4'
- Prevents train derailment through trailable point machines if points accidentally trailed. The machines are CENELEC SIL-4 accredited, the highest safety level
- Improves KPIs for OHS

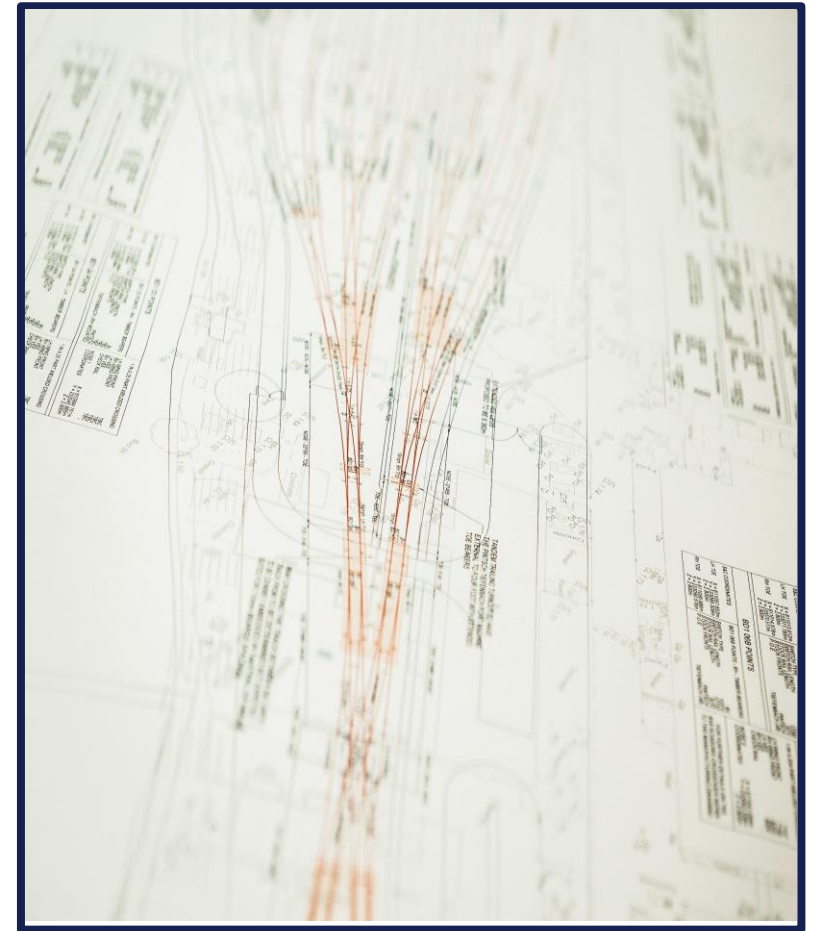
# A scalable and adaptable system

**Every train facility is different and has unique features, layout and operation. Our FenLock Systems futureproof your operations.**

FenLock is scalable and adaptable to extensions to facility track layouts, buildings, equipment, and facilities and can be modified and extended easily.

A depot operated by a FenLock System provides:

- A bespoke system for each facility, and designed based on operating requirements
- A modular system, can be easily modified/extended by fitting additional control cards, without requiring extensive redesign and testing
- Five different application levels are now available, ranging from a simple locally powered point to a full route-setting signalling system
- Bespoke technical interface that enables the system to be integrated with all UK-based interlockings
- System can be interfaced and interlocked with other depot systems DPPS, carriage wash etc.
- Passive provision for future expansion can be built in.





# Contact us today

Call us on 01926 358428 ext: 2003 for a consultation to see how we can help you.

Alternatively, please email:

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