System overview

SAFEMASTER W

Radio controlled safety system -
Wireless Functional Safety
in **group mode**

DOLD

Our experience. Your safety.

SAFEMASTER W – Wireless Safety in group mode ...

SAFEMASTER W

Safe wireless modules – reliably protect safety zones wirelessly

The radio controlled safety system UH 6900 in group mode offers new options and solutions in the field of functional safety. Even in areas where classic safety technology confronts its limits:

- Whether you need to wirelessly activate an emergency disconnect for a remote high bay shelving unit,
- or need to safely stop a control system to complete maintenance work on a conveyor belt or other moving equipment.

Problem solved, the radio controlled safety system UH 6900 uses the latest radio controlled technology to achieve a high level of safety and a long transmission range.

Wireless, Safe, Reliable

The radio controlled safety system UH 6900 from the SAFEMASTER W series comprising a group controller and up to 255 group receivers, for safe data transmission of emergency-stop and control functions, providing a high degree flexibility when securing dangerous areas

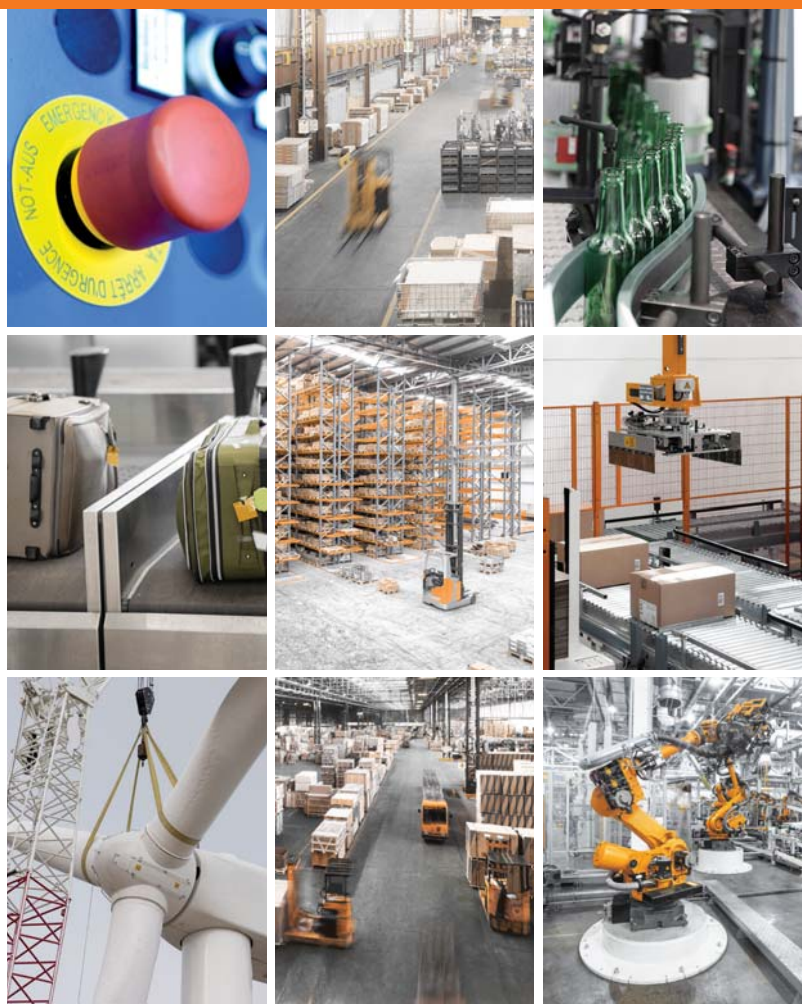
The group controller can be used to allow several receivers to be securely shut down via a unidirectional safety radio transmission. Furthermore the controller together with a single receiver in the group, can exchange indication, control and status information. The main application areas include, mobile systems such as completely-automated floor conveyors and automated guided vehicles.

Easy set-up procedure, configurable modules

Quick set-up is possible as the modules are pre-configured. The free SAFEMASTER W Manager software makes it easy to adapt the modules for different functions and the built in diagnostic functions aid set up in the field.

Certified safety

The SAFEMASTER W series is approved for use in safety applications up to Cat. 4 / PL e or SIL 3. The latest radio controlled technology ensures reliable protection for people, machinery, and the environment.



UH 6900
Group controller

... for long transmission ranges up to 800 m

SAFEMASTER W - Your advantages at a glance:

Unidirectional with indication signals
Wireless safe signal transmission ensures a high level of availability, even in rough wide ranging and difficult to access plants

Safe signal transmission
Safe radio transmission of emergency stop functions offers additional flexibility in protecting hazardous areas

Highest safety standards
Suitable for use in safety applications up to Cat. 4 / PL e or SIL 3

Range
The range in open areas is up to 800 m allowing exceptional signal coverage

Signal strength
Adjustable transmission power offers variable area coverage

Spectrum analysis
The integrated Spectrum Analyzer provides a quick overview of all available channels

Group mode and start options
Adjustable group mode with several start options allows customized system adaptation

Diagnostic options via USB
Status display and data logging via the free SAFEMASTER W Manager software, extends functionality and simplifies set up

2-Channel safety inputs
Connect up to 3 two-channel safety functions (E-stop, light curtain, safety gate, two-hand mode, etc.)

Control functions
Up to 8 function inputs and outputs

Indication contact (Group controller)
One indication output with 3 contact paths

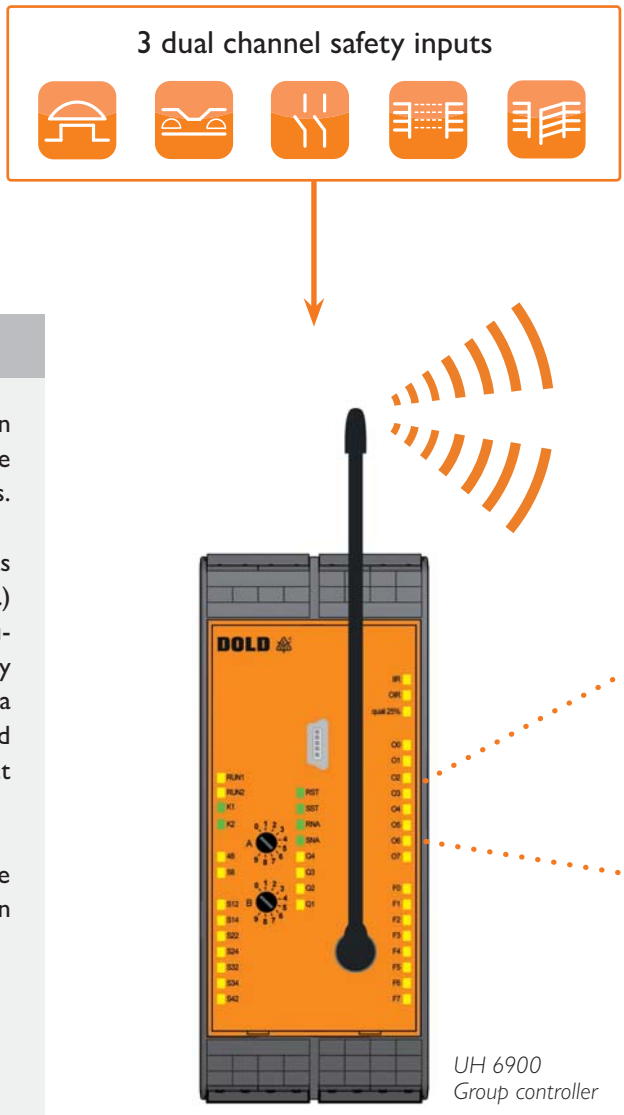
Forcibly guided contacts (Group receiver)
One safety output with 3 redundant contact paths

UH 6900
Group receiver

UH 6900
Group receiver

Basic function:
safe shutdown of all group receivers ...

Group mode



UH 6900
Group controller

Operating principle

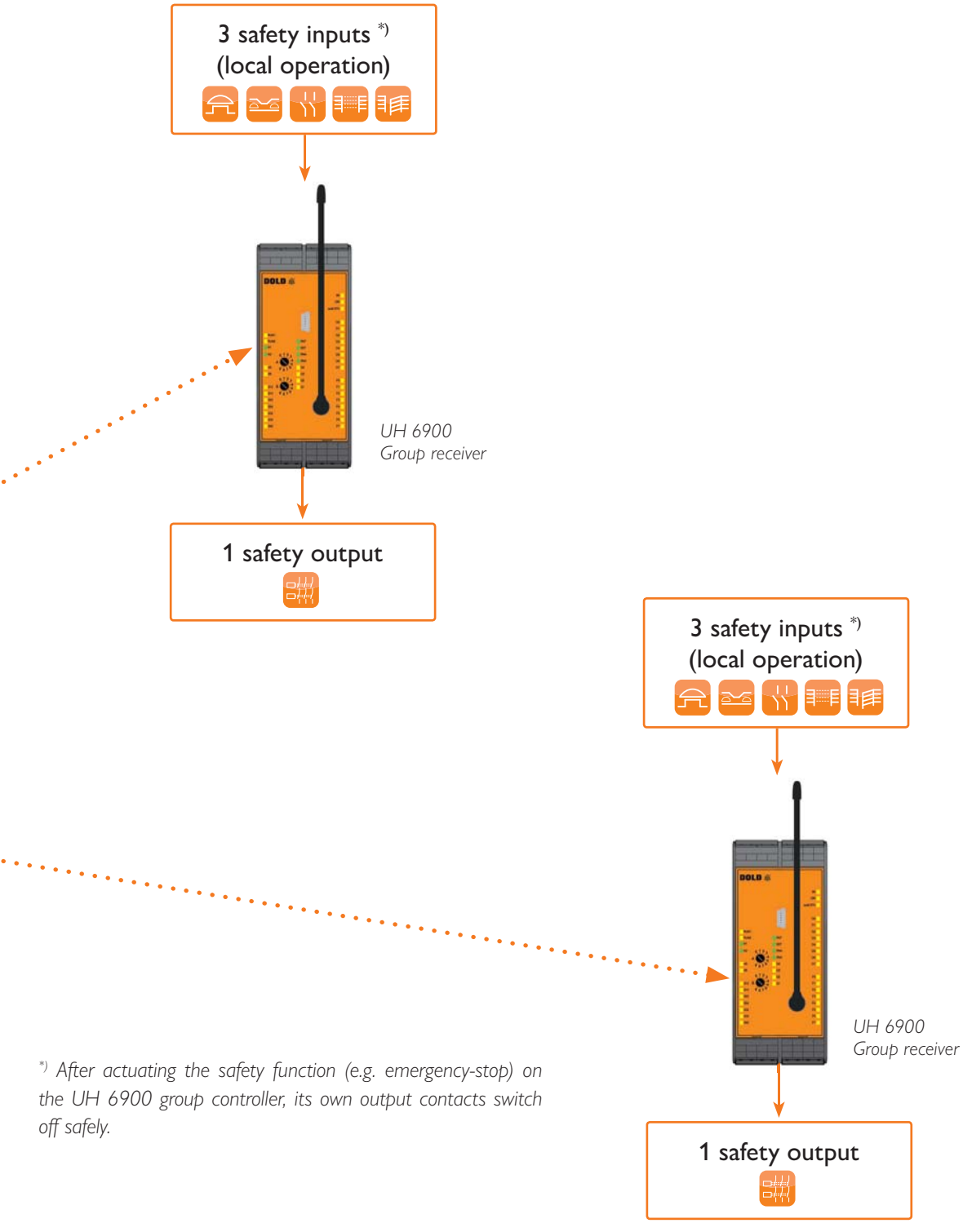
The radio controlled safety system UH 6900 in group mode, transmits safety signals from the group controller to one or more group receivers.

Up to three 2-channel safety sensors (such as emergency-stop, light curtain, safety gate, etc.) can be connected to the controller. After actuating one of these safety functions, the safety outputs of all group receivers shut down in a safe and reliable manner. This is accomplished by each receivers 3 x redundant safety contact paths.

Three hard wired safety sensors can be connected to each group receiver which can then operate its own safety contact output.

After actuating the safety function (e.g. emergency-stop) on the group controller, all group receivers switch off safely.

... shut down up to 255 group receivers with the group controller



*) *After actuating the safety function (e.g. emergency-stop) on the UH 6900 group controller, its own output contacts switch off safely.*

Function expansion: Control and report ...

Group mode with feedback

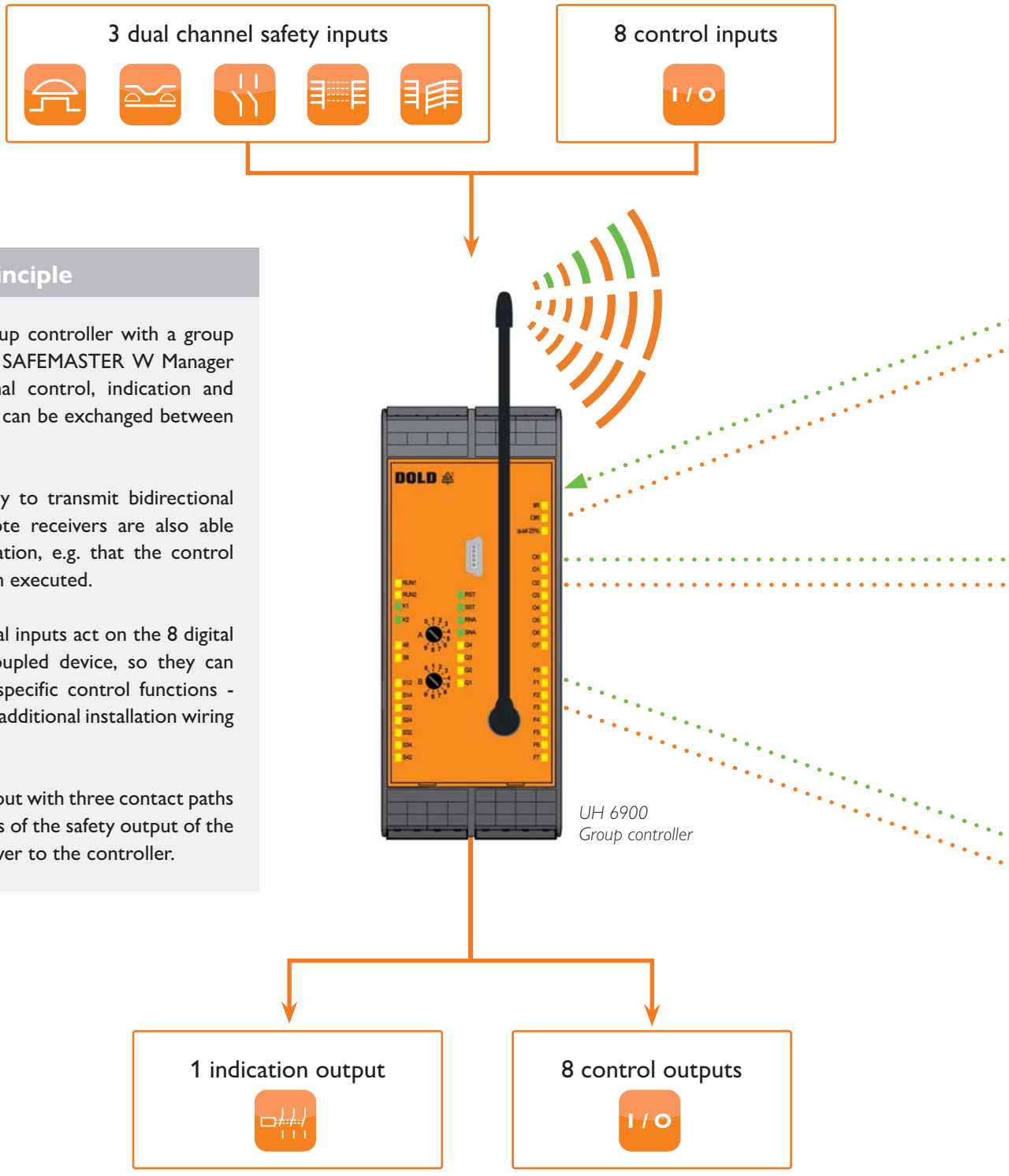
Operating principle

By pairing the group controller with a group receiver using the SAFEMASTER W Manager software, additional control, indication and status information can be exchanged between these devices.

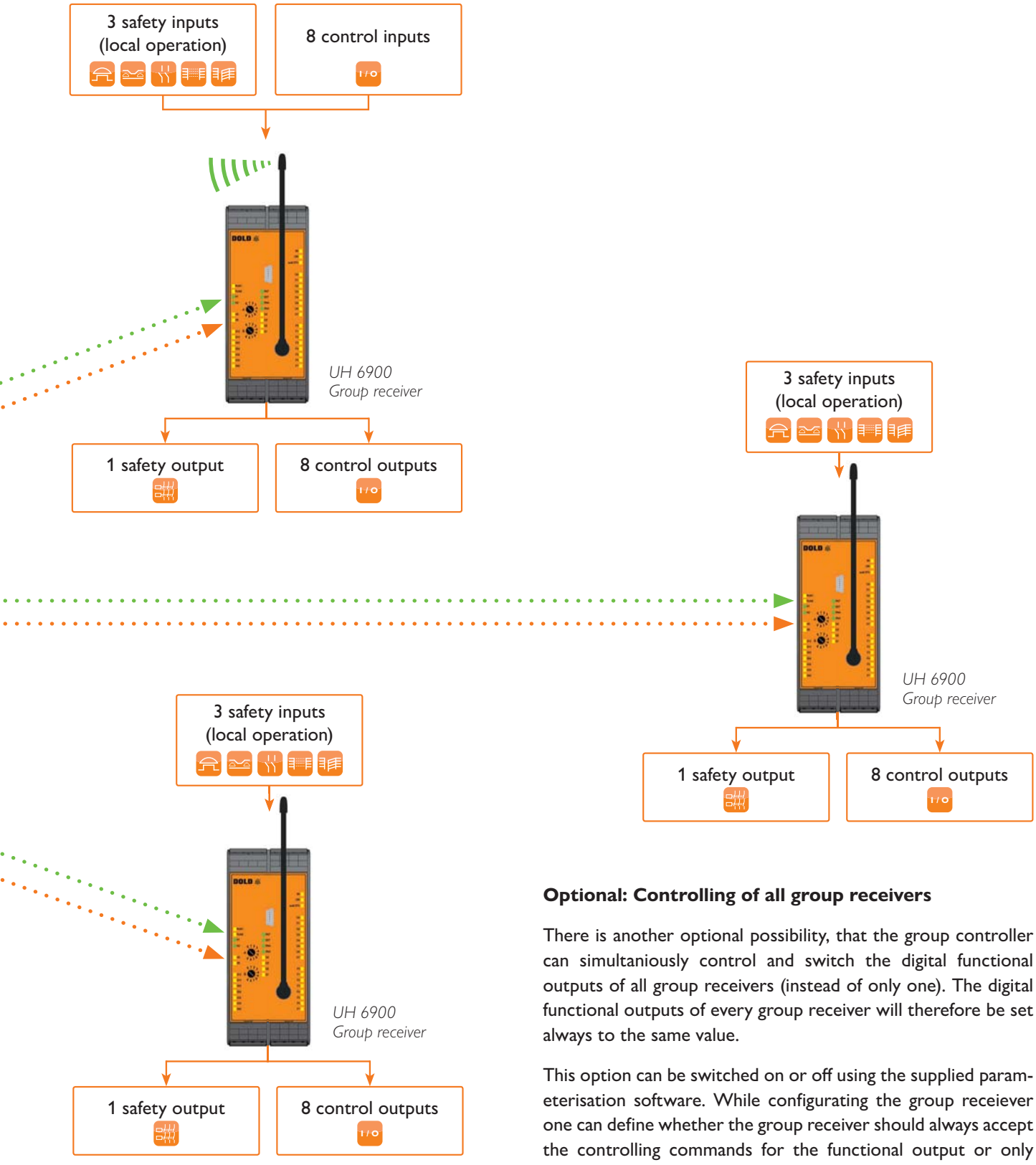
Through the ability to transmit bidirectional signals, very remote receivers are also able to receive information, e.g. that the control command has been executed.

Each of the 8 digital inputs act on the 8 digital outputs of the coupled device, so they can be used for user-specific control functions - wirelessly without additional installation wiring costs.

The indication output with three contact paths forwards the status of the safety output of the paired group receiver to the controller.



... bidirectional communication



Optional: Controlling of all group receivers

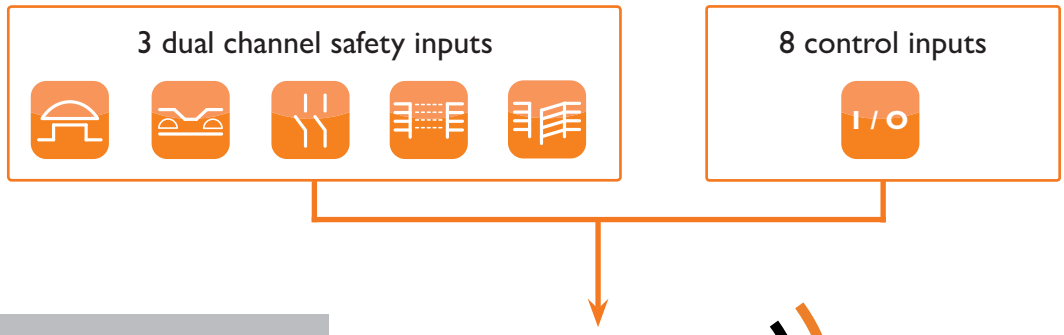
There is another optional possibility, that the group controller can simultaniously control and switch the digital functional outputs of all group receivers (instead of only one). The digital functional outputs of every group receiver will therefore be set always to the same value.

This option can be switched on or off using the supplied parameterisation software. While configurating the group receiever one can define whether the group receiver should always accept the controlling commands for the functional output or only when the group controller and the group receiver are paired.

• • • • • Safety-oriented shutdown • • • • • Indication / control signals

Function expansion:
Group shutdown by every participant ...

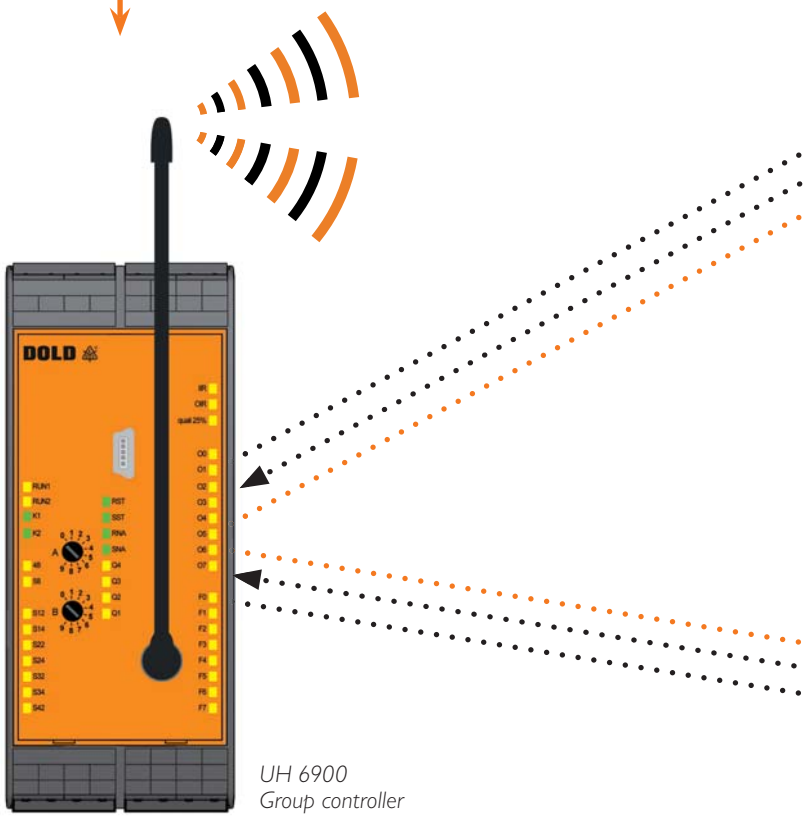
Group mode with reaction coupling



Operating principle

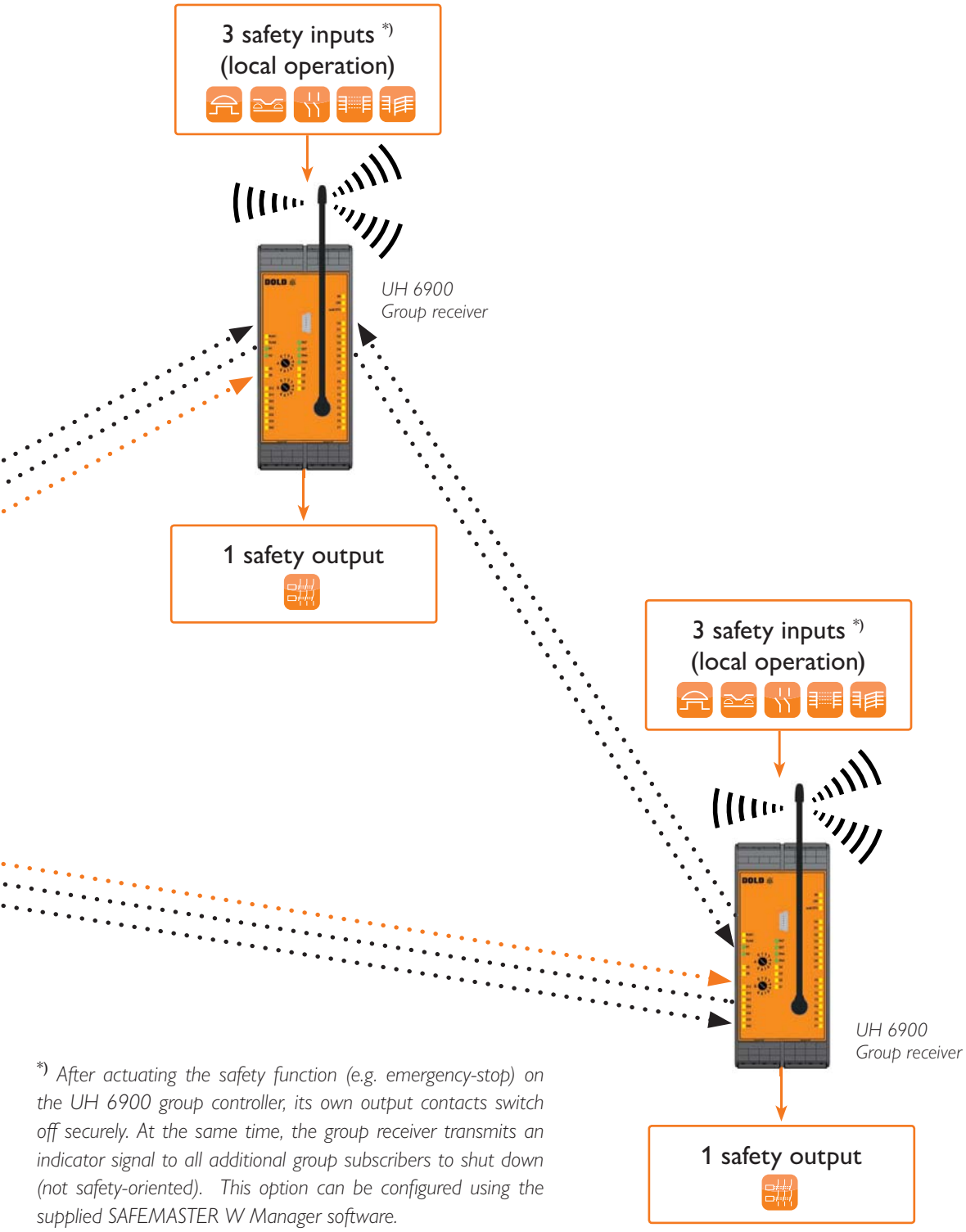
The group mode setting with reaction coupling provides a facility for the group shutdown. If the safety function of a group receiver is activated, the local safety output switches off and the output contacts of all the other group subscribers are not safety-oriented shut down.

This function expansion can be optionally activated with the SAFEMASTER W Manager software and offers some advantages, especially when processes are coordinated with each other. If, e.g., a local emergency-stop is actuated in a zone, all system parts that are participating are also shut down.



UH 6900
Group controller

... wireless and from any location



*) *After actuating the safety function (e.g. emergency-stop) on the UH 6900 group controller, its own output contacts switch off securely. At the same time, the group receiver transmits an indicator signal to all additional group subscribers to shut down (not safety-oriented). This option can be configured using the supplied SAFEMASTER W Manager software.*

• • • • • Safety-oriented shutdown • • • • • Group shutdown

UH 6900 application ...

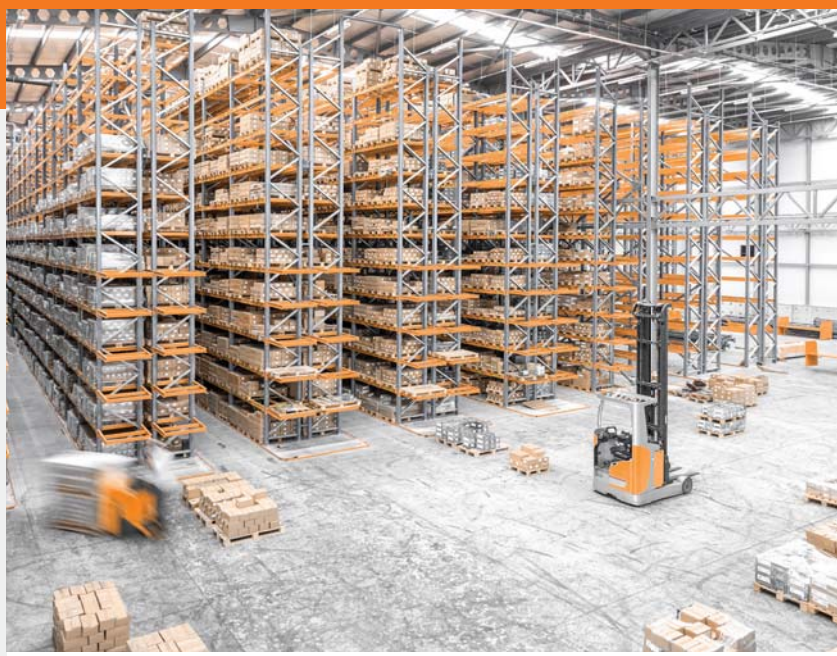
Practical application

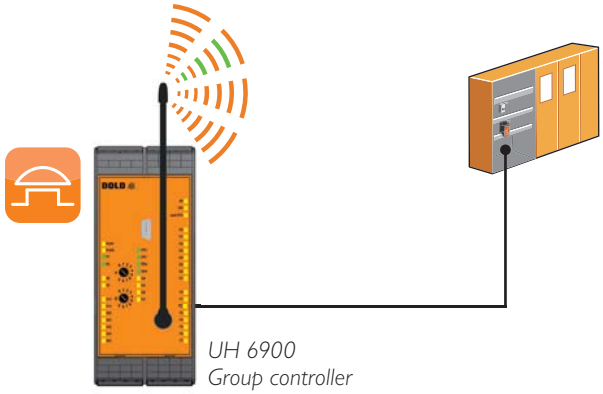
The radio controlled safety system UH 6900 makes best use of its inherent advantages in wide ranging and mobile systems where wiring is not possible, e.g. in logistics with automated guided vehicles (AGV).

With the group controller in the switch cabinet, all AGV's can be safety switched off during an emergency stop. This guarantees safety during service or maintenance procedures and on installation.

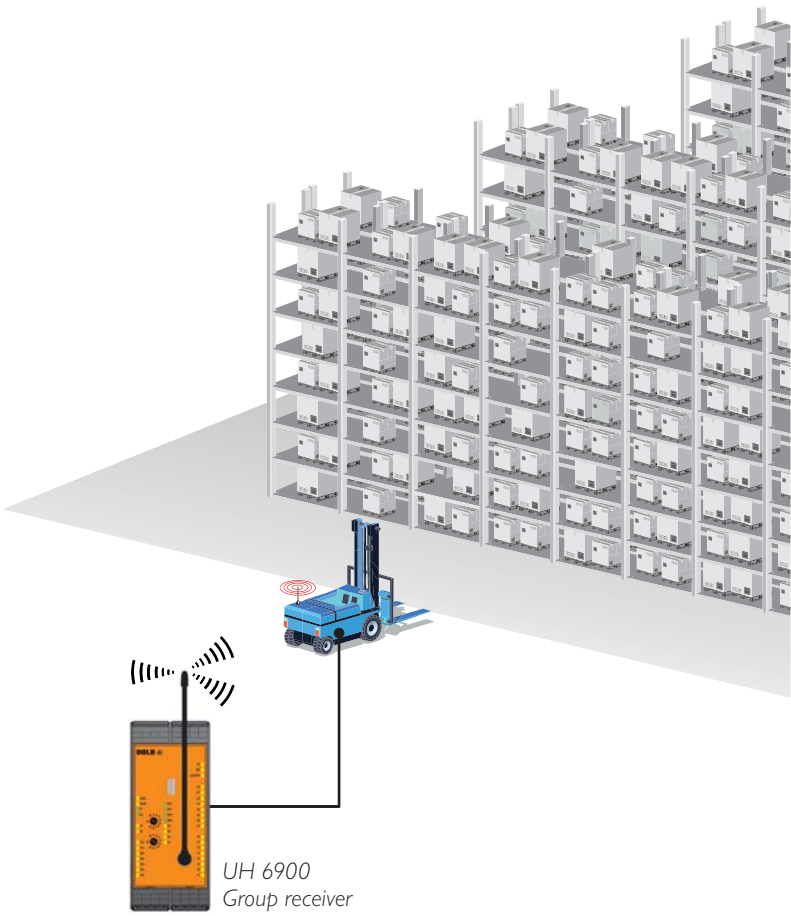
In addition, each AGV can be locally switched off during a dangerous situation. With "Group mode with reaction coupling" all subscribers in the group can also be simultaneously stopped, which prevents a possible collision with the stationary AGV.

During maintenance or service work, the maintenance staff (forklift in Zone 2) can communicate through the "Group mode with feedback" function with the PLC. For example, certain zones can be blocked or released to let service work be carried out unimpaired in an active zone.



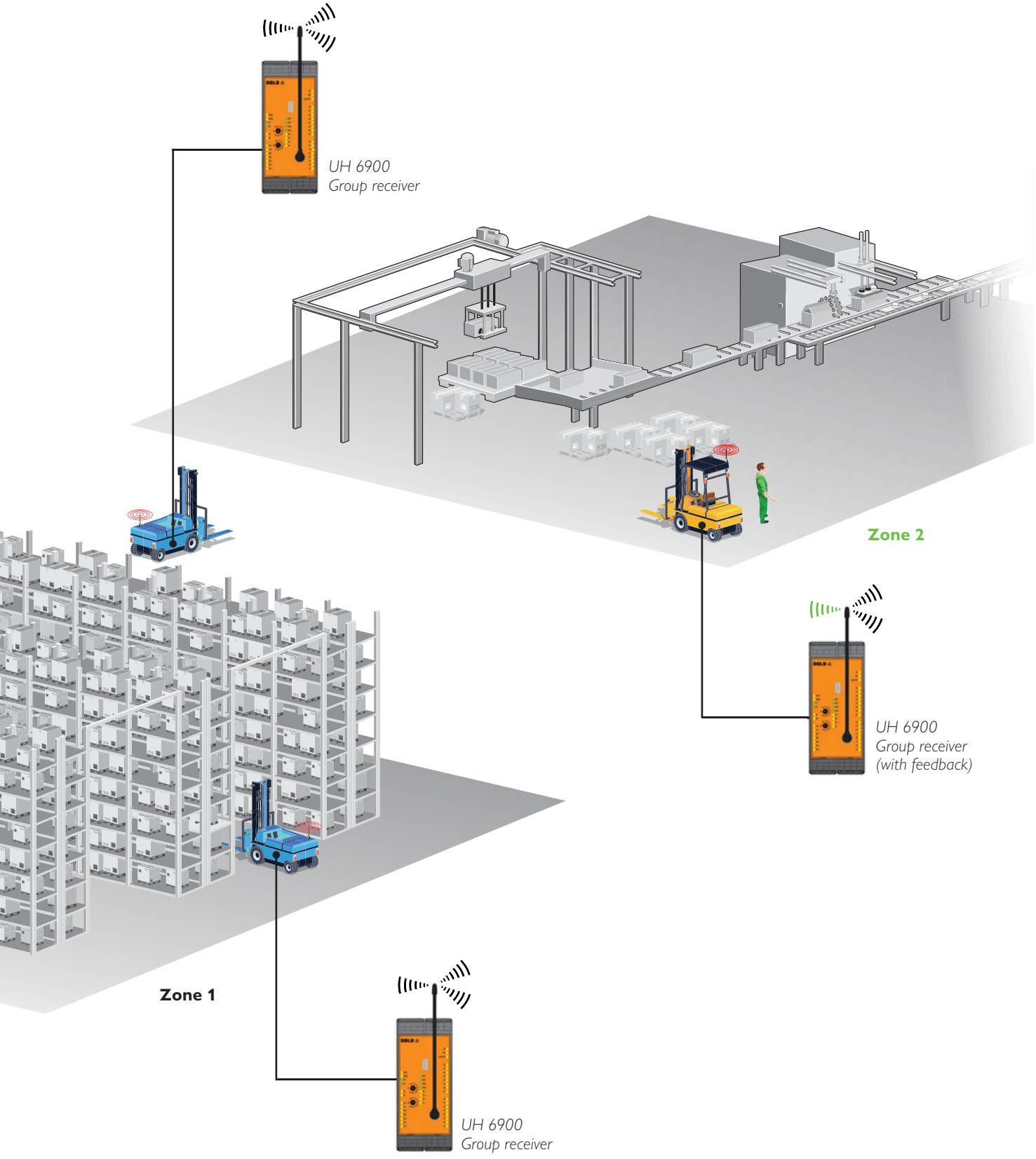


UH 6900
Group controller



UH 6900
Group receiver

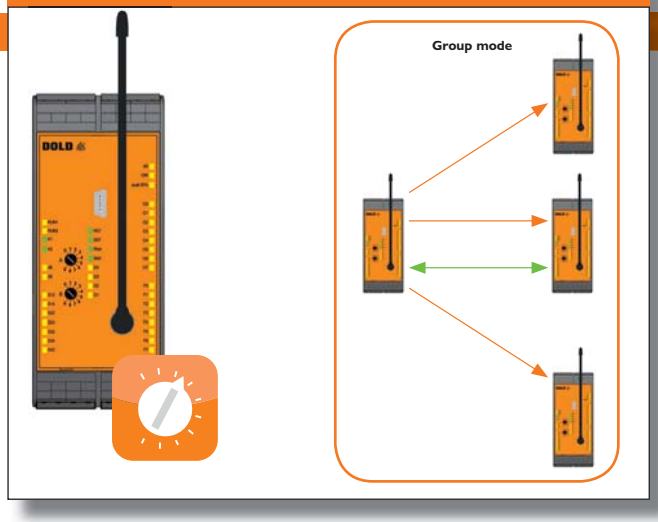
... complete protection for mobile systems and plants



• • • • • Safety-oriented shutdown • • • • • Group shutdown • • • • • Indication / control signals

Easy start up -
Quick start in just 3 steps

1 Quick and easy setting of the operating mode via a rotary switch

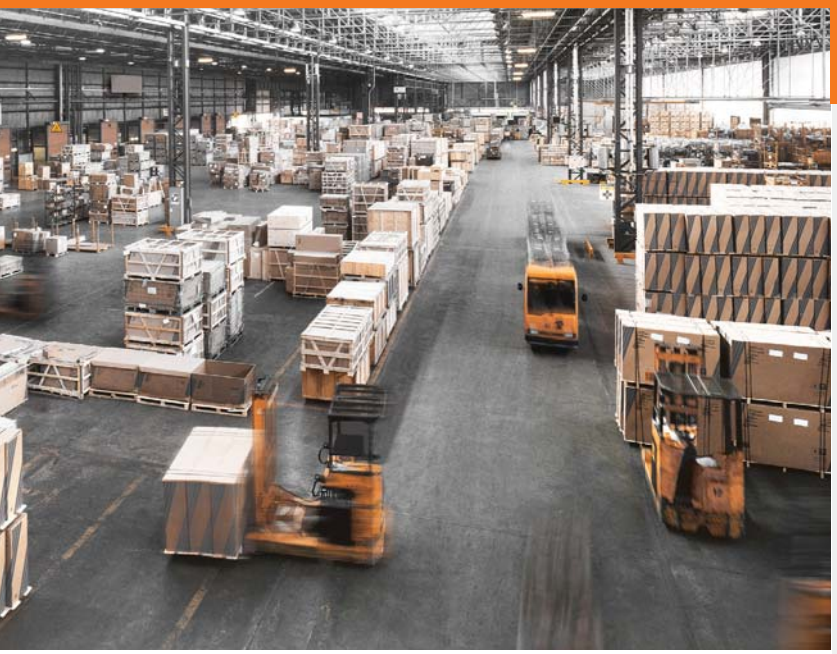


2 Select frequency channel using SAFEMASTER W Manager*

3 Set transmission power using SAFEMASTER W Manager*

** Option - PC not required for start-up operation*

SAFEMASTER W Manager - comprehensive diagnostics



SAFEMASTER W Manager

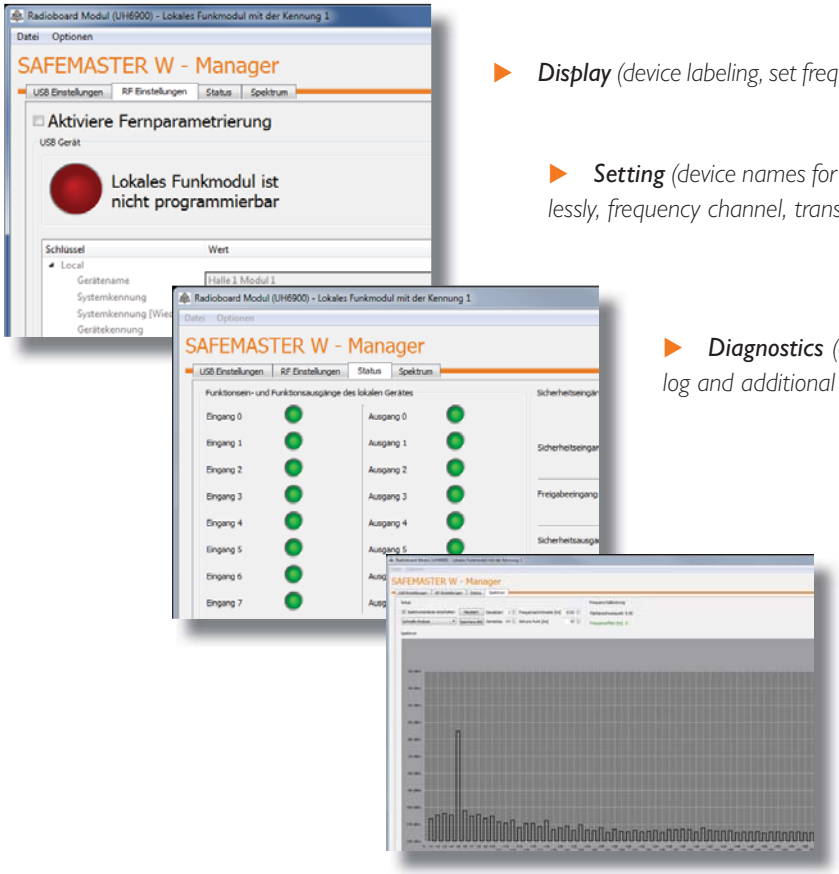
Quick and easy set up and diagnostics for your wireless system

DOLD offers a free software program "SAFEMASTER W Manager" which facilitates set up, diagnostics and system logging through a simple graphic user interface.

The "Group mode with feedback or reaction coupling" function expansion can be set with the SAFEMASTER W Manager software.

The software ensures fast diagnostics, additional live status displays and data logging, facilitating the best possible availability of machinery and systems.

The integrated Spectrum Analyzer provides a quick overview of all available radio channels and potential interference.



- ***Display*** *(device labeling, set frequency range, received transmission power)*

- ***Setting*** *(device names for the two UH 6900 modules connected wirelessly, frequency channel, transmission power)*

- ***Diagnostics*** *(current module status display, assessment of status log and additional diagnostic options)*

- ***Spectrum analysis*** *(the integrated Spectrum Analyzer provides a quick overview of all available channels)*

Flexible, versatile - System components

SAFEMASTER W System overview

Wireless Safety Solutions from a single source

The radio controlled safety system UH 6900, expands on the comprehensive DOLD functional safety wireless product range. In addition to the existing SAFEMASTER W safe mobile emergency stop systems and wireless enabling switches, DOLD now offers a safe wireless solution for paired and group mode operation systems. It can be integrated wirelessly into a variety of safety-related applications, even in rugged, difficult to access and wide ranging systems.

The radio controlled safety system UH 6900 can be configured to easily and efficiently handle many different wireless functional safety challenges. Especially in areas where wiring would be impractical or impossible. Evaluate the Safemaster W solutions now for yourself!

	Frequency range
	433 - 434 MHz EU variant
	869 MHz EU variant
	911 - 918 MHz US variant
	Accessories

*) Aerial not included in scope of delivery

Economic efficiency

The UH 6900 wireless safety module - safe and economical to use:

Higher availability
Fast start-up
Reduced wiring and installation work
Simple retrofitting

Do you need a system for the safe ***bidirectional transmission of emergency-stop functions?***

UH 6900 pair mode

Best possible safety for all industries

- Intralogistics
- Machine building industry
- Paper and printing industry
- Food industry
- Automotive industry
- Recycling industry
- Packaging machines
- Mining and steel industry
- Gantry cranes
- Transportation and conveying technology
- Wind energy systems
- Ship building and harbour systems
- Construction materials industry

... and anywhere else where safety is the highest priority.

Type	Device type	Performance Level (PL) according to EN ISO 13849-1	Safety Integrity Level (SIL) according to IEC 61508	Safety Inputs [1]	Outputs	Semiconductor		Connection type [3]	Art. no.
						Inputs	Outputs		
UH 6900.03PS/00GC0	Wireless Group controller	Cat. 4 / PL e	3	3	3 NO	8	8	Screw terminal	0067955
UH 6900.22PS/00GC0	Wireless Group controller	Cat. 4 / PL e	3	3	2 NO, 1 NC	8	8	Screw terminal	0067959
UH 6900.03PS/00GR0	Wireless Group receiver	Cat. 4 / PL e	3	3	3 NO [2]	8	8	Screw terminal	0067957
UH 6900.22PS/00GR0	Wireless Group receiver	Cat. 4 / PL e	3	3	2 NO, 1 NC [2]	8	8	Screw terminal	0067961
ZB 6900/040	Aerial 1/2 wave, BNC without adapter	-	-	-	-	-	-	-	0067254
ZB 6900/041	Aerial 1/4 wave, SMA	-	-	-	-	-	-	-	0067255
UH 6900.03PS/00GC1	Wireless Group controller	Cat. 4 / PL e	3	3	3 NO	8	8	Screw terminal	0067956
UH 6900.22PS/00GC1	Wireless Group controller	Cat. 4 / PL e	3	3	2 NO, 1 NC	8	8	Screw terminal	0067960
UH 6900.03PS/00GR1	Wireless Group receiver	Cat. 4 / PL e	3	3	3 NO [2]	8	8	Screw terminal	0067958
UH 6900.22PS/00GR1	Wireless Group receiver	Cat. 4 / PL e	3	3	2 NO, 1 NC [2]	8	8	Screw terminal	0067962
ZB 6900/050	Aerial 1/2 wave, SMA	-	-	-	-	-	-	-	0067256
UH6900.03PS/00GC2	Wireless Group controller	Cat. 4 / PL e	3	3	3 NO	8	8	Screw terminal	0069362
UH6900.22PS/00GC2	Wireless Group controller	Cat. 4 / PL e	3	3	2 NO, 1 NC	8	8	Screw terminal	0069363
UH6900.03PS/00GR2	Wireless Group receiver	Cat. 4 / PL e	3	3	3 NO [2]	8	8	Screw terminal	0069366
UH6900.22PS/00GR2	Wireless Group receiver	Cat. 4 / PL e	3	3	2 NO, 1 NC [2]	8	8	Screw terminal	0069367
ZB 6900/051	Aerial 1/2 wave, SMA	-	-	-	-	-	-	-	0069490
ZB 6900/042	Cable extension with cable pass through (2 m) SMA	-	-	-	-	-	-	-	0067257
ZB 6900/043	Cable extension with cable pass through (5 m) SMA	-	-	-	-	-	-	-	0067258
ZB 6900/044	Adapter BNC/SMA	-	-	-	-	-	-	-	0067642
ZB 6900/045	Angle connector SMA	-	-	-	-	-	-	-	0067675
ZB 6900/060	Photo sensor for additional start signal (infrared)	-	-	-	-	-	-	-	0067259
ZB 6900/061	Extension cable set for photo sensors (2 m)	-	-	-	-	-	-	-	0067260
OA 6920	Programmer cable mini USB/USB (1 m)	-	-	-	-	-	-	-	0064160

[1]) 2-Channel *[2]) Forcibly guided contacts* *[3]) Also available as cage clamp terminals*

Our experience. Your safety.

SAFEMASTER - Multifunctional safety solutions

Innovative safety concepts

As a solution provider for safe automation and electrical safety, DOLD offers a comprehensive product portfolio from a single source. Our SAFEMASTER solutions have been successfully used for many decades around the world.

From single function safety switching devices for simple safety applications through to multifunction, modular safety systems, DOLD develops tailor-made solutions for your industry and applications.

We would be happy to provide you with information about further safety solutions.

SAFEMASTER STS

The SAFEMASTER STS modular safety switch and key transfer system serves to monitor the moveable safety guards. It combines the advantages of safety switches, guard locks, key transfer and command functions in a single system. The new FRP variation stands out for its attractive design, and can be combined with our trusted stainless steel version.

SAFEMASTER S

Our solutions for secure drive monitoring utilise a combination of safe speed, standstill, or frequency monitoring, with or without external sensors, to increase productivity and safety.

SAFEMASTER PRO

The modular and configurable SAFEMASTER PRO safety system monitors all safety circuits of your machinery and installations – in a simple, flexible and safe manner. The number of inputs and outputs of the central control unit can be upgraded via extension modules at any time. Now also featuring safe speed monitoring and dynamic program realization.

SAFEMASTER W

The emergency stop system and radio controlled enabling switch in the SAFEMASTER W series can be used to wirelessly shut down hazardous movements in a fraction of a second. The Wireless Safety System thus ensures maximum freedom of movement for the operating and maintenance personnel.

More

Info

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