AA100

Programmable Alarm Annunciator

Reliable annunciation with ‘no master module’ concept

5 Year Guarantee

CE

Programmable Alarm Annunciator

Introduction

The AA100 Alarm Annunciator provides the ideal solution to all your alarm system requirements. The innovative and unique design gives exceptional flexibility, reliability and programmability.

However simple or complex your alarm requirement the AA100, with its condensed ASIC technology and 'no master module' philosophy, will give the most cost effective solution.

With a range of three window sizes, six colours and a choice of bulb or ultra-bright LED illumination, a format and size will be available to match your exact requirements.

Each individual alarm way is fully programmable from the front, using the integral programming module. This allows for many different features giving thousands of possible combinations.

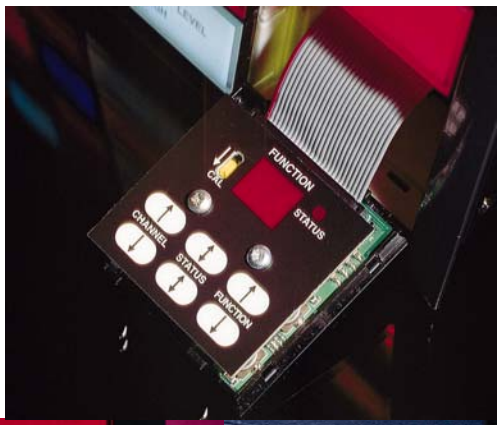
Numerous relay outputs are included as standard to connect to external equipment and individual repeat relays can be supplied as an option. The ASIC technology utilised in this design has a proven track record in a wide range of industries around the world.

- **ALL SIZES FROM 2 TO 256 WAYS**
- **'NO MASTER MODULE' ASIC TECHNOLOGY SO THERE IS NO SINGLE POINT OF FAILURE**
- **ONLY 135 MM INSTALLED DEPTH**
- **THREE DIFFERENT WINDOW SIZES**
- **AVAILABLE IN SIX COLOURS IN BOTH BULB AND ULTRA-BRIGHT LED ILLUMINATION**
- **USER PROGRAMMABLE FROM THE FRONT FOR ALARM SEQUENCES AND FUNCTION**
- **FIVE RELAY OUTPUTS AS STANDARD**
- **FULLY ENCLOSED HOUSING WITH IP54 TO IP67 WALL MOUNTING OPTIONS**
- **OPTIONAL MODBUS COMMUNICATIONS**

To allow interconnection to remote equipment, the AA100 can be supplied with RS485 serial communications using the MODBUS protocol. This allows the unit to transmit or accept alarm information from PLC, DCS or SCADA systems.

Features

UNIQUE FEATURES – UNIQUE BENEFITS



Modular Construction

The unique modular design of the AA100 makes it a simple task to assemble annunciators of any size to suit a customer's exact requirements. Hence annunciators can be delivered practically from stock.

ASIC Technology

The AA100 annunciator builds on the success of previous designs using ASIC technology but taking the design to new levels of flexibility.

No Master Module

The AA100 Alarm Annunciator is designed using the unique "no master module" philosophy. This means that all cards within the system can act as the master controller. If a card fails then only two alarm ways are affected. There is no possibility of a failure of a master CPU or control card causing complete system failure.
This feature gives the ultimate in system redundancy and vastly improves the MTBF compared to similar products.

Fully Field Programmable

The user may select from a vast range of different operating functions and alarm sequences including all the standard sequences defined in the ISA publication "Alarm Sequences and Specifications S18.1 1979(R1985)". Using the integral programming module this is a simple procedure that requires no special tools. All programmed information is stored in EEPROM giving repeatability, total reliability and requiring no battery backup.

AA100

Service From The Front

All normal servicing and maintenance is carried out from the front of the unit without the need for special tools. This includes bulb/ LED removal, legend changes and all programming. When commissioning the unit it is a simple matter to check and amend all programmed settings from the front of the unit without removing any boards, backplates or alarm bezels.

Pre-configured

If specified at the time of ordering, systems can be supplied complete with the film legends, pre-configured and ready to install and commission.

Pushbutton/Programming Module

As standard the bottom right cell is fitted with an integral pushbutton and audible module. This provides six pushbuttons and a 90dB audible together with a "power on" LED. The rubber keypad is designed for harsh environments with an effective tactile feel to aid operators. It is this keypad that is dropped down to become the programming module when configuring the system, as shown below.

Only 135mm deep

Even with the advanced programming facilities the unit is still only 135 mm deep, a fraction of the depth of traditional annunciator systems.

Auto-mute and Auto-acknowledge

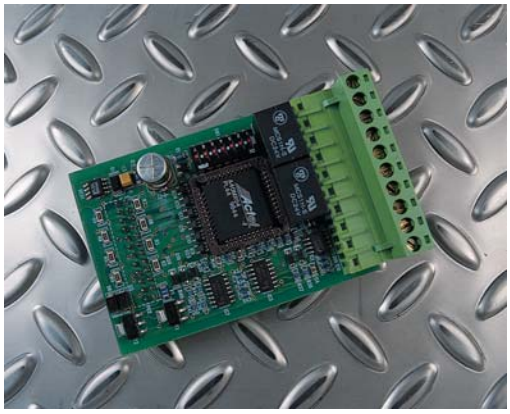
It is a frequent requirement of alarm system to have an automatic mute or even automatic acknowledge after a certain time delay. This is another programmable feature supplied as standard on all units.

Expandable

Each annunciator can be expanded by connection to further annunciator panels by simply adding a ribbon cable connection. Systems consisting of multiple annunciators can also be supplied by simply daisy-chaining annunnciators together using the ribbon cable provided. All first-up information, synchronised flash rates and pushbutton information is commoned together via this cable. This feature requires the option of a factory fitted expansion connector.

Sleep Mode

In unmanned or temporarily unmanned sites it is useful to disable both the visual and the audible outputs. This is a standard feature available on all units. In "sleep" mode the annunciator works as normal, latching in alarms and driving repeat relays, but the drive to both the lamps and horn are disabled together with the pushbutton inputs. This ensures that when the unit returns to the normal state all the alarm information is available.



INPUTS AND OUTPUTS

Inputs

All inputs are opto-coupled and comply to the stringent requirements of the European directive on electromagnetic compatibility and the low voltage directive. This ensures there is no possibility of false alarms.
The standard input voltage is 24VDC/AC but units can also be supplied with field contact voltages of 48VDC/AC, 110VDC/AC and 225VDC/AC.

Isolated Supply

Isolation is maintained between the supply & the field contact voltage.

Common Outputs

As standard the AA100 has five relay outputs to cover all normal alarm applications. These are as follows:

1 Critical Audible Relay **2** Non – critical Audible Relay **3** Critical Group Relay
4 Non – critical Group Relay **5** Special Function Relay

Each of the group relays can have a reflash facility to indicate the occurrence of a new alarm in that group. The Special Function Relay can be set to act in a number of different ways to suit the particular application. This function can be selected from one of the following:

Total Group Relay • Ringback Audible Relay • First-Up Relay • Power On/Watchdog Relay

Audible Outputs

The standard unit will be supplied with an integral 90dB(A) audible and two audible relays (critical and non-critical). Each alarm way can be programmed to be in one, both or neither of these two groups. The integral audible will always sound on the critical group.

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Alarm Annunciator

Group Outputs With Reflash Facility

Two group relays are provided as standard (critical and non-critical). As with the audible relays, each alarm way can be programmed to be in one, both or neither group. Each group relay can also be set to have a reflash facility. This means the first alarm in the group will change the state of the relay and any subsequent alarms within the same group will cause the relay to pulse for approximately 0.5 seconds.

Auxiliary Relays

Each alarm way can be supplied with individual repeat relays. Each relay can be programmed to be energised or de-energised on alarm and both normally open and normally closed contacts are available on customer terminals. The repeat relays can be set to follow the alarm logic, follow the field contact or follow the display.

Connections

All connections are made to the rear of the unit. Two part screw terminals capable of taking 2.5mm2 cable are used.

Remote Pushbuttons

Screw terminals are provided as standard to connect to remote pushbuttons. These will include all six control inputs as provided on the integral pushbutton module.
If it is required, the complete Pushbutton Module can be supplied and fitted remotely to the actual annunciator.

DISPLAY

Window Sizes

This flexible unit is designed to be fully modular using a cell based structure. Each cell can house:
One large window (60 x 60mm) Two medium windows (60 x 30mm) Four small windows (30 x 30mm)
Window sizes can be mixed as required.

Backlit Illumination

Each window is backlit by long life incandescent lamps or ultra-bright LED Assemblies. All colours are available for both lamps and LEDs. These colours are red, amber, yellow, white, green and blue.

GENERAL

Complete Alarm System

Everything is contained within the standard AA100 Annunciator to provide a complete alarm monitoring system. This includes all pushbuttons and a local audible.

First-Up

In alarm annunciation applications it is often essential to know which alarm occurred first in a particular group. To this end, four different first-up sequences and four different first-up groups are available, all user programmable from the front.

Power Supplies

The supply required to power the annunciator is nominally 24VDC. This can be a simple unregulated low cost source as the annunciator itself will provide all the necessary smoothing and regulation. Weis can supply suitable power supplies or DC/DC Converters if converting from other AC or DC voltages including the P673 Battery Backup System.

CE Marked

Designed within the stringent requirements of the European EMC and LVD directives ensures that the annunciatior conforms to the highest standards of both safety and function.

Wall, Panel or Rack Mounting

The standard unit is supplied as a panel mounting version ready for customers to drop into a single cut-out in a panel door. If required Weis can supply the AA100 Annunciator in wall mounting or floor standing cubicles or mounting within standard 19" anodised plates.

Custom Solutions

ANNUNCIATOR OPTIONS

Illumination (OPTION LED)

The use of LEDs is becoming more popular and can be supplied as an optional extra. The 10mm glass wedge bulb is replaced with a small ultra-bright LED Assembly which plugs into the same lampholder as the bulb.

RS485 Serial Communications (OPTION COM)

Up to 64 annunciators can be multi-dropped on the same communications connection. This option allows transmission of the alarm information to remote equipment and also allows the alarm information to be received from the serial communications. All pushbutton controls can be driven remotely via the communications link. This output is user selectable between either Modbus ASCII or Modbus RTU protocols.

Tropicalised (OPTION TRO)

In harsh environmental conditions where there may be moisture or chemicals within the atmosphere, there is an option to tropicalise the unit. This consists of covering all the pcbs with a conformal coating and using sealed relays.

Repeat Relays (OPTION RLY or RL2)

The five common relays are always fitted as standard but there is an option (RLY) of having individual repeat relays for all alarm ways. Alternatively two repeat relays per alarm channel (option RL2) can be provided, however this is only available in medium and large windows.

Customer Specified Response Time (OPTION CRT)

As standard the alarm will be activated by signals over 22ms in duration. If this time is either too long or too short to suit the particular application there is an option to increase or decrease this response time.

Disable Horn (OPTION DHN)

If the integral horn is not required when the audible relays are being used, this can be disabled.

Field Contact Voltage (OPTION FCXX)

The standard unit uses either volt-free contacts or 24VDC/AC signals to trigger alarms. It is possible to change the field contact voltage to alternatives such as 48VDC/AC, 110VDC/AC or 225VDC/AC

Rack Mounting (OPTION RAC)

The annunciators can be supplied pre-mounted in standard 19" anodised aluminium mounting plates. A maximumof 7 cells will fit across a 19" front plate.

SYSTEMS & SPECIALS

Systems

Weis has extensive systems experience and can supply an alarm annunciator as part of a complete alarm system. This may include installing in wall mounting or floor standing cabinets, integrating into mimic displays or wiring together with other switchgear, power supplies or battery backup systems.
Because of the varied nature of this type of special system, they are priced on application against an agreed specification.

Greater Ingress Protection

The standard protection is rated to IP41. Optional hinged plexiglass covers sealing to IP54 are available for all sizes. If greater protection is required for extreme environmental conditions they can be manufactured using IP66 or IP67 enclosures with viewing windows. Due to the varied nature of this type of special system, they are priced on application against an agreed specification.

LAMP-ONLY MODULE

Matching Display

In order to match the full annunciator system an equivalent Lamp-only unit is available. The same flexibility of display size, colour and illumination is available and the display fascia will appear exactly the same as a full annunciator.
Each window is simply fitted with the appropriate backlit illumination connected to terminals.
The system can be fitted with lamp test diodes, an audible device and integral pushbuttons.

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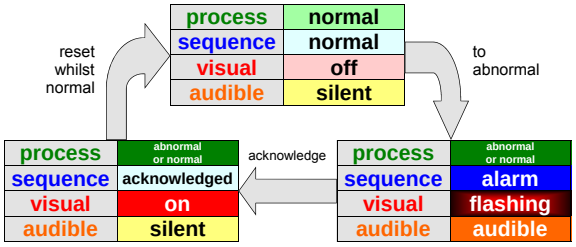
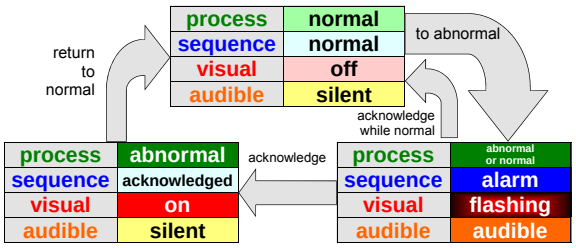
Alarm Sequences

Each alarm channel can be configured to suit the operating sequence required as listed in the ISA publication “Annunciator Sequences and Specifications S18.1 1979 (R1985)”. Systems can be configured with different features on different alarm ways. The diagram below shows the most commonly used sequences.

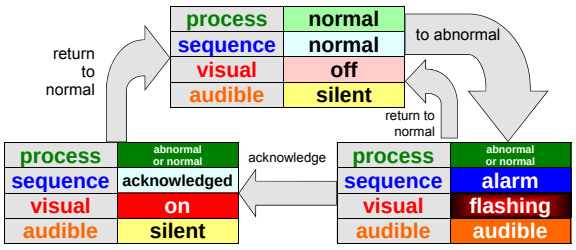
Manual Reset — Sequence Code **M**



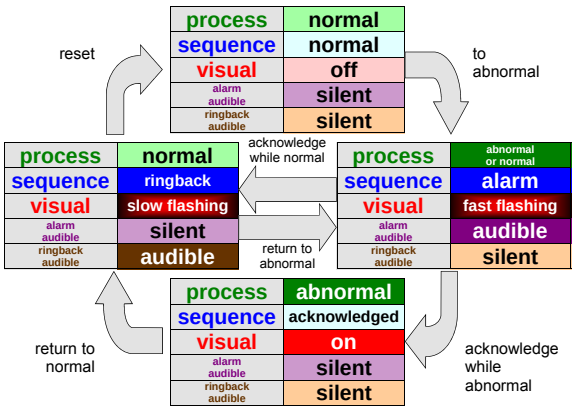
Automatic Reset — Sequence Code **A**



No Lock In

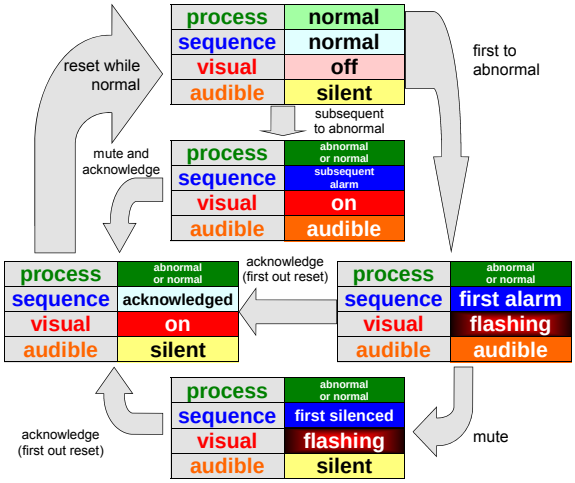


Ringback — Sequence Code **R**



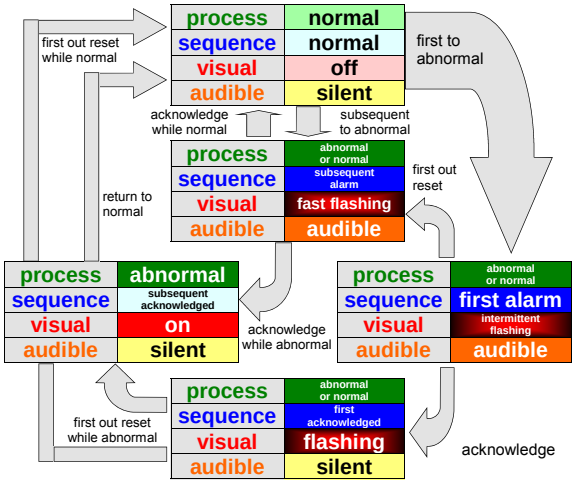
Manual Reset First-Up — Sequence **F2M-1**

with no subsequent alarm flashing and silence pushbutton



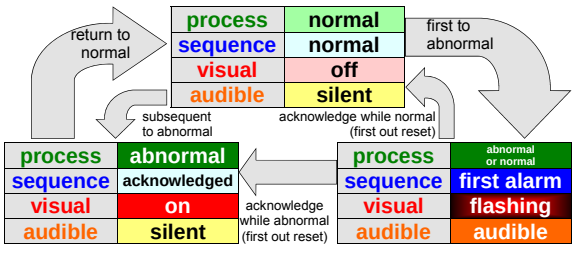
Automatic Reset First-Up — Sequence **F3A**

with first-up flashing and reset button



Automatic Reset First-Up — Sequence **F1A**

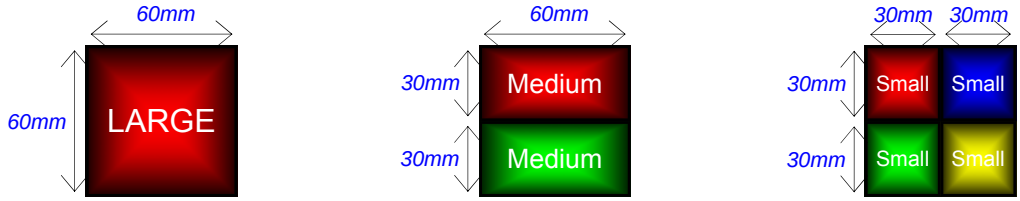
with no subsequent alarm state



System Configuration

WINDOW SIZE & LAYOUT

The AA100 Annunciator is a modular design allowing customers to quickly design an alarm system to suit their exact requirements for both window size and number of windows. The system is built up of multiple cells; each cell has dimensions of 60 x 60mm and can be configured as a single large window (60 x 60mm), two medium windows (60 x 30mm) or four small windows (30 x 30mm).



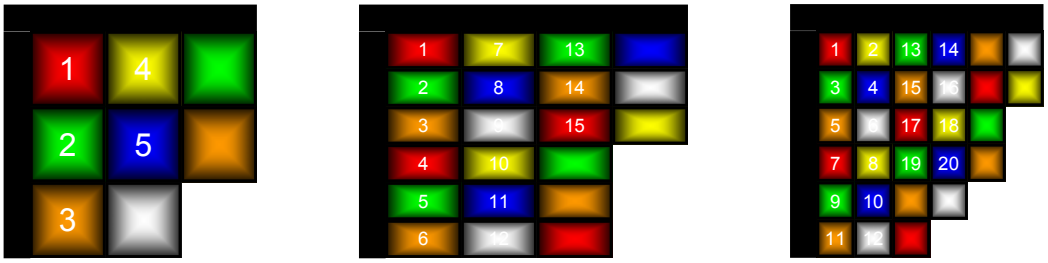
The units are built up from pre-tested components so custom solutions can be provided with the fastest possible response time.

The overall limits for the annunciator are as follows:

Large window	(60 x 60mm)	99 windows
Medium window	(60 x 30mm)	198 windows
Small window	(30 x 30mm)	256 windows

These can be configured into almost any shape and size as long as the overall width or height is no greater than 30 cells.

The numbering scheme adopted are shown below. To avoid any confusion when providing text or configuration details please refer to these numbering schemes.



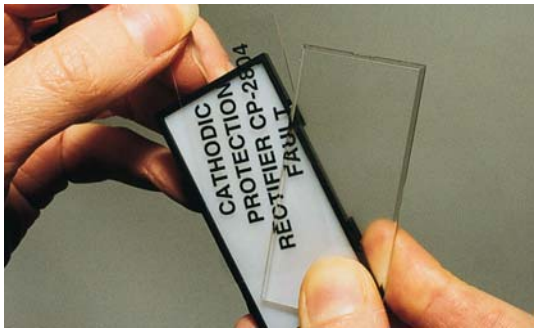
Large *Medium* *Small*

REAR VIEW / *REMOVABLE TERMINALS*

DIMENSIONS

The dimensions are very simple to work out, using the following formula which is the same for width and height.

Overall width	=	[(Number of cells wide) x 60] + 24mm
Cutout width	=	[(Number of cells wide) x 60] + 14mm
Overall height	=	[(Number of cells high) x 60] + 24mm
Cutout height	=	[(Number of cells high) x 60] + 14mm



FILM LEGENDS

Because the exact text is often not known until the latter stages of the project a new method of providing film legends has been developed. These film legends can be supplied at any time by Weis or alternatively a specially designed spreadsheet template is available. This allows users to create their own legends cheaply and quickly using only a computer and a laser printer.
This software also make the production of text using different languages very straightforward.

Programmable Alarm Annunciator AA100

Technical Specification

INPUTS

Alarm Contacts
All inputs are opto-coupled, (isolated from the supply on request).
The standard unit is suitable for volt-free contacts or 24VDC/AC voltage inputs.
Optional inputs voltages include 5VDC open collector, 48VDC/AC, 110VDC/AC, 225VDC/AC

Alarm Contact & Cable Resistance
N/C contact – series resistance of contact cables 20kΩ maximum
N/O contact – parallel resistance of contact cables 50kΩ minimum
Current through the alarm contact is nominally 3mA

Input Response Time
22ms at 24VDC.
This can be changed to suit particular customer requirements.

First-up discirmination
Better than 5ms

Input protection
Inputs to chassis earth can withstand 1000V Megger test.

Pushbuttons
Both integral and terminals for remote fittings:
Lamp Test
Acknowledge
Reset
System Test
Silence
First-up Reset/Sleep mode

OUTPUTS

Common Relays
All systems come with the five common, programmable relays fitted behind the Pushbutton Module.
1. Critical Audible
2. Non-critical Audible
3. Critical Group
4. Non-critical Group
5. Special Function Relay
All common contacts are individually rated at 3A 24VDC

Repeat Relays
Each alarm way can have individual repeat relays. Changeover contact available with contacts rated at 2A 24VDC

DISPLAY

Window sizes
Small: 30 x 30mm
Medium: 60 x 30mm (W x H)
Large: 60 x 60mm

Window Colours
Red, Amber, Yellow, White, Green and Blue for both Lamp and LED Illumination

Illumination
Small window: Single Bulb/LED
Medium window: Dual Bulb/dual LED
Large window: Four Bulb/four LEDs
The LEDs are ultra-bright LED Assemblies that plug into the standard 10mm wedge style lampholder

Lamps
28V 50mA 10mm glass wedge.
14,000 hour design life

Legends
The legends can be supplied as requested or alternatively film legend generation software is available to allow customers the convenience of making their own film legends using a standard laser printer.

GENERAL

Supply Voltage
24VDC Nominal (19-28VDC)

Supply Current Per Alarm Point (at 24VDC supply)

Quiescent	9mA
Lamps	
Small window	45mA
Medium window	90mA
Large window	180mA
LEDs	
Small window	20mA
Medium window	40mA
Large window	80mA
Relays	
All window sizes	10mA per relay

Additional current for pushbutton module, common relay and audible is nominally 100mA
Standard Power Supplies and DC/DC Converters can be supplied on request

EMC Compliance
Immunity to BS EN50082-2:1995
Emissions to BS EN50081-2:1994

LVD Compliance
The unit is designed and manufactured to safety specification BS EN61010-1:1993

Environment
Operating temperature: –20 to 50°C
Storage temperature: –20 to 80°C
Humidity: 0-95%%H, non condensing

Protection
Front of panel: IP41
Rear of enclosure: IP20
Optional covers and enclosures to protect from IP54 up to IP67

Terminals
Rising clamp type terminals, for conductors up to 2.5mm^2

Weight
Approximately 0.3kg per module.

Order Code

AA100 /	M /	6W /	4H /	6T /	18A /	LED
Model	Window Size	Width	Height	Type	Alarm Ways	Options
	S small M medium L Large INT Intermixed	number of cells	number of cells	6T 6-button TAR module NT external pushbutton module	number of active alarm ways	see options list LED TRO RLY CRT DHN FCXX RAC COM

DUE TO CONTINUING DEVELOPMENT AND IMPROVEMENTS WEIS RESERVES THE RIGHT TO CHANGE THIS SPECIFICATION WITHOUT NOTICE

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