R400 Series – Data Sheets

- 100,000 d @ 0.25 µV/d
- Trade approved Australia, Europe and USA
- Built in RS232/RS485
- IP65 ABS or stainless-steel housing
- 16 x 350-ohm cells
- Ethernet support
- Robust precise analogue output module

The R400 series of indicators are designed with both the installer and operator in mind and cover a wide range of applications. They are engineered and built to last with reliability being foremost. The modular design allows for the installation to be commissioned with only the components required, saving on time and money. With upwards of nine (9) versions of firmware available the R400 indicator is an ideal indicator for dealers and distributors as it simplifies installer training and reduces stocking levels.

Flexibility is the key with its award winning modular accessory design. Modules include additional serial options, input/outputs, analogue outputs, external buttons, Ethernet, Alibi (Data Storage Device) and battery or AC option.

Superior housings - Three housing types are available:

- R420 (ABS) rated to IP65
- R423 (stainless steel panel mount) rated to IP66
- R427 (stainless steel full housing) rated to IP66

Both housings are designed with extra attention to detail to increase their reliability in the field, thereby reducing unplanned downtime and servicing costs. For example, the R423 uses a high impact polycarbonate lens to protect the LCD from knocks.

Simple setup - use the menu system directly via the alpha numeric keypad or the configuration utility View400 on a PC.

Operator friendly - large multi-segment display that uses logical prompts along with dedicated and programmable function keys. Printing can be tailored with custom record, docket or reports printouts. Primary display is 29mm (1.1") and secondary display 18mm.

Rugged Load Cell Input - Designed to take 16x320 ohm load cells; providing flexibility and reducing the need for summing hardware, simplifying the installation and saving money. The load cell input is protected with onboard transorbs to limit damage from external voltage surges.

Networking Capability - Support for Ethernet to improve integration into larger control systems

Modules

The R400 Series flexibility is provided through its broad range of modules that are easy to configure and neatly connect into the rear of the indicator. There are 4 module slots where an indicator can be equipped with only the features required for a given installation.

Robust Input/output Modules (M4301, M4311, M4321, M4331)

An R400 indicator can be equipped with up to 32 I/O. These I/O are electrically isolated, designed for direct connection into PLC's and are capable of driving low voltage actuators directly.

- Isolated high side (400mA current source) drivers are capable of driving low voltage actuators directly or can be connected directly with PLC controllers.
- Each module has 8 digital I/O ports which are limited to maximum input voltage of 30V and can drive up to 400mA.
- Direct connection between I/O points is supported
- Inputs are isolated to resist against system noise.

Button Module (M4302)

The Button Module provides 4 voltage free inputs for use with switches or thumbwheels. The voltage free inputs eliminate the need to wire up complicate input driver circuits.

Isolated Communication Modules

Communication modules are in addition the built in RS232/RS485 ports on the R400 indicators.

- **Fully isolated** and recommended for application where there is a risk of lightening or surges or where additional communication ports are required.
- M4201 RS232/RS232, M4202 RS232/RS485, M4203 RS485/RS485

Precise Robust Analogue Output Module (M4401)

The analogue module provides a 4-20mA or 0-10V analogue output and two digital I/O.

- **Isolated** to resist against system noise and interference therefore reducing unnecessary callouts;
- **Precise** with a 400Hz (2.5msec) update rate and 1/65,000 resolution. The fast update and high D to A conversion rate give a smooth output curve which helps a PLC to see more realistic readings (2.5msec step)
- **Scalable** to suit the input on the PLC.
- **Two digital I/O** provided the same as the M4301

Data Storage Device Module (M4501)

The Data Storage Module provides nonvolatile alibi memory storage (6M bytes) according to WELMEC 7.2 L. Compatible with later versions of software.

Ethernet (M4223-USER)

The Ethernet Module provides 10/100 Base TX with auto negotiation (1 Raw bi-directional port and 10 Raw transmit only ports).

Accessories

Converter 0-10V/4-20mA Input (M4902)

Connects to the Load Cell Input on R400 series indicators for a voltage or current input. Useful where an indicator needs to take an input from load pins on a crane scale for example. Suitable for pressure, displacement or strain transducers that output 4-20mA or 0-10V analogue signals.

rin-LINK

The magnetically coupled rin-LINK on the front panel provides a convenient temporary connection to a laptop - no need to access rear of the indicator.

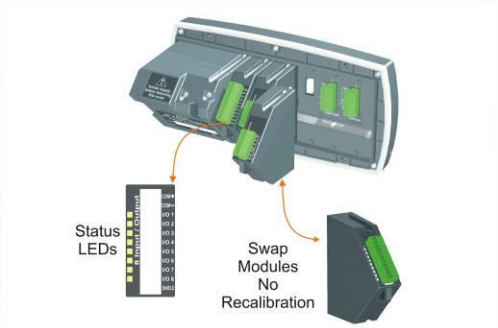
- Transfer of setup and calibration information
- Download of software upgrades

Relay Modules (M4901 and M4906)

The relay modules, used in conjunction with an I/O module, provide 8 voltage free relay outputs rated to 250VAC and 8A, available in either 12 or 24V.

- DIN rail mountable.
- Provides N/O (normally open) and N/C (normally closed) contacts for each output.

Smart Weighing



Superior Diagnostics

R400 series indicators have a range of diagnostic tools and features that aid system commissioning and maintenance.

Hardware configuration report summarises how the indicator hardware is setup, providing a record for maintenance purposes or fault finding

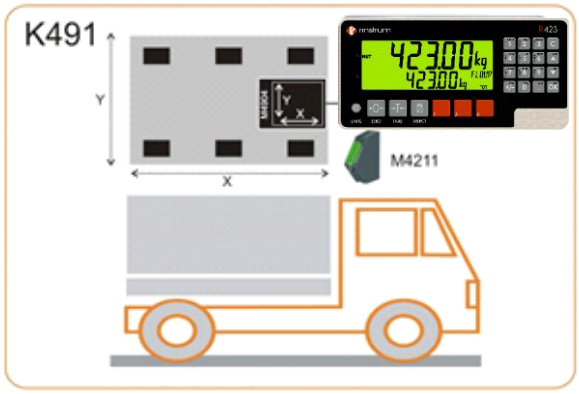
Force Output and Test Input functions allow the installer to specifically test I/O to assist in site setup

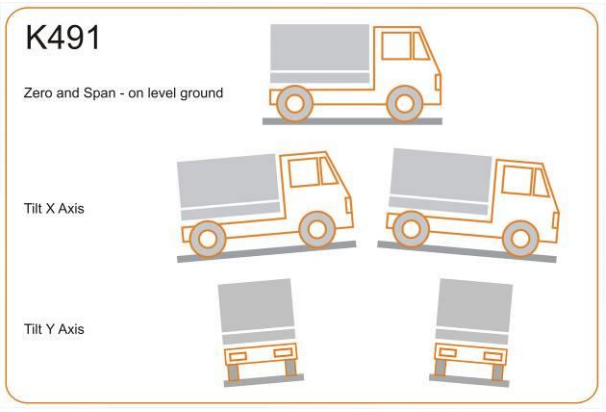
Modules can be swapped in and out without recalibration of the indicator, saving time and effort

Status LED on each I/O;

Overload counter to review if the scale has been overloaded.

R400 Series – K491 Tilt Compensation – Data Sheet





- 2 Axis tilt compensation
- Supports R400 series modules & accessories
- I/O Modules
- Communication Modules (RS232/RS485)
- Up to 250 Products
- Built in RS232/RS485 ports
- Up to +/- 15-degree compensation

The K491 is a general-purpose indicator that uses an accessory module to connect to a 2-axis tilt sensor that provides tilt compensation. The K491 is ideal for specialist truck OEM's requiring electronics for accurate load weighing solutions where the load may be on an angle. Both the ABS R420-K491 and stainless steel R423-K491 are ideal for panel mounting in a truck cab, featuring a large display and programmable function keys. The application is for a truck to have accurate weight readings that can compensate for uneven surfaces where a weight reading might be taken

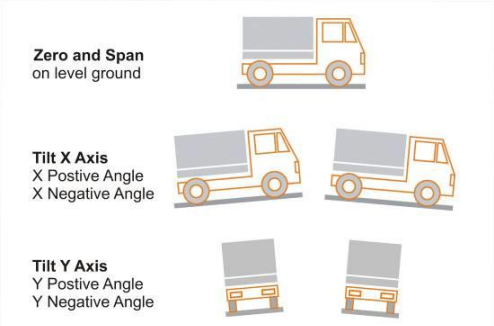
Simple calibration: Zero/Span calibration (at 0 angle) and tilt calibration to generate the four tilt parameters that are used to correct the reading.

Accessories: The K491 requires a tilt module and tilt sensor.

- Tilt Module (M4211)
- Rinstrum tilt sensor (M4) suitable for +/- 15 degree
- The tilt sensor must be correctly mounted given the axes that are providing data
- The K491 is compatible with a selection up to +/-15 degrees

Custom printing: dockets can be customized for the application. The built in RS232/RS485 port can be configured for printing.

Smart Weighing



Simple three stage calibration

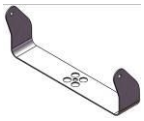
1. Zero Calibration (at 0 angle)
   - Performed on level surface
   - Tilt sensor is automatically set to 0
   - Calibrates out any inaccuracies
2. Span Calibration (at 0 angle)
3. Tilt Calibration - this generates four tilt parameters that are used to correct the reading.

..now that's smart weighing.

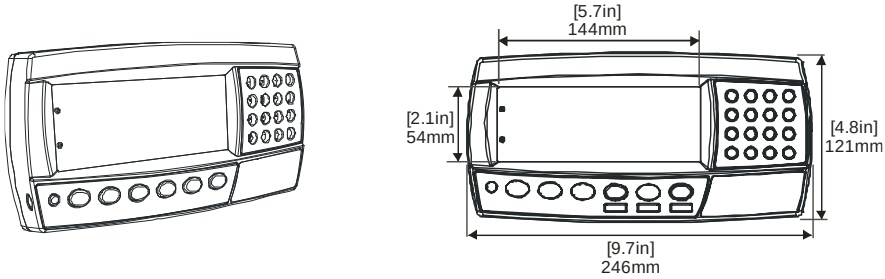
400 Series – K491 Tilt Compensation Specification Table

Resolution		Up to 100,000 d, minimum of 0.25uV/d		
Approvals		10,000 d @0.7uV/d NMI(S-463), OIML R76, AU R400 trade approval S362 FCC, CE, C-tick,		
Zero Cancellation		+/- 2.0mV/V		
Span Adjustment		0.1mV/V to 3.0mV/V		
Excitation		7.4V for up to 16 x 350 or 32 x 700-ohm load cells (4-wire or 6-wire plus shield) Maximum total load cell resistance: 1,000 ohms		
A/D Type		24bit Sigma Delta with ±8,388,608 internal counts		
Operating Environment		Temperature: –10 to +50°C ambient (14 °F to 122 °F) Humidity: <90% non-condensing		
Display		LCD with 4 alpha-numeric displays and LED backlighting: Primary display: 6 x 28.4mm (1.12") high digits with units and annunciators 2nd display: 9 x 17.6 mm (0.7") digits with units 3rd display: 8 x 6.1 mm (0.2") digits 4th display: 4 x 7.6 mm (0.3") digits		
Setup and Calibration		Fully digital with visual prompting in plain messages		
Digital Filter		Sliding window average from 0.1 to 30.0 seconds		
Zero Range		Adjustable from +/- 2% to +/- 20% of full capacity		
Standard Power Input		12 to 24VDC (15 VA max) - ON/OFF key with memory feature		
Variants	**AC**	AC power supply Input: 110/240VAC 50/60Hz Output: 12VDC 15VA		
	Battery	2.5AH NiMH rechargeable battery pack Charger Input: 110/240VAC 50/60Hz Output: 12VDC		
Optical Data Communications		Magnetically coupled infra-red communications Conversion cables available for RS232 or USB		
Correction		10-point linearity correction		
Serial Outputs		Serial 1A: RS-232 serial port for remote display, network or printer supports. Serial 1B: RS485 transmit only for remote display Transmission rate: 1200, 2400, 4800, 9600, 19200, 57600 baud		
Assignable Function Keys		3		
Operating Modes		Single Range, Dual Range and Dual Interval		
Battery Backed Clock Calendar		Battery life 10 years minimum		
Application Software		**K491**		
Functions		**Custom printing, custom unit switching, counting, manual hold, peak hold, auto output and totalizing**		
		Compensation +/- 15-degree tilt **Three step calibration process - Zero, Span, Tilt**		
Specialist K491 Module		**Tilt Module (M4211) is required**		
Compatible Tilt Sensors		**Rinstrum 2 Axis Tilt Sensor (M4907 +/- 15-degree tilt compensation)** **HL-Planar Technik NS-10/PL2-S or NS-15/PL2-S**		
Products/Recipes		250		
Set points		8		
Analogue Output *		1		
Additional Communications *		Module: RS232/RS232 Module: RS232/RS485 Module: RS485/RS485		
Button Input *		4 Buttons		
Data Storage Device *		1		
Ethernet *		1		
Housing Options		**R420**	**R423**	**R427**
Case Materials		ABS	Stainless Steel	Stainless Steel
Packing Weights		Indicator: 1kg (35 oz)	Indicator: 1.2kg (42 oz)	Indicator: 3kg (106 oz)
Environmental IP Rating (panel mounted, with rear boot or full housing)		IP65	IP66	IP66

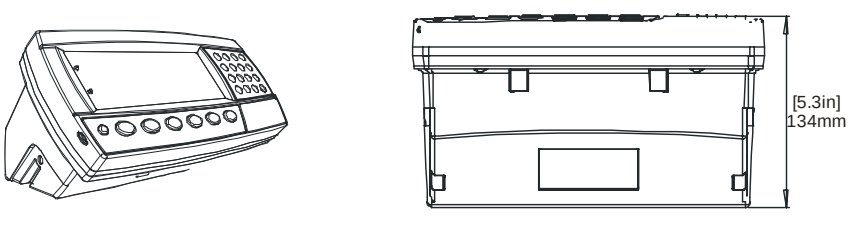
*Optional modules

R420 Rear Boot for IP65 standalone unit		R420 Brackets		R427 Bracket
				
Rear Boot	Rear Boot with Desk Stand	Stainless Steel Wall Mounting M4003	Stainless Steel Post Mounting M4004	Stainless Steel Desk/Wall/Post Mounting

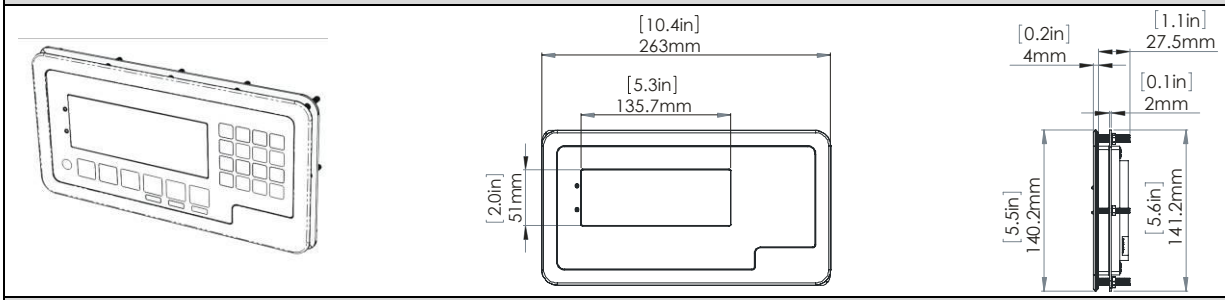
R420-ABS Panel Mount



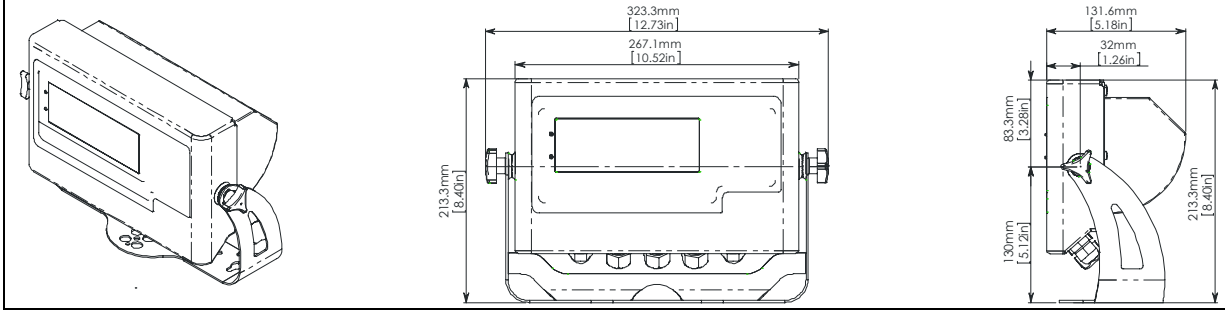
R420-ABS with Rear Boot



R423-Stainless Steel Panel Mount



R427-Stainless Steel Full Housing



Specifications are subject to variation for improvement without notice. Illustrations are indications only and variation may be evident between products.

*Optional modules