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 and Profibus DP 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 for distributors dealers and distributors as it simplifies installer training and reducing 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 - two housing types are available:

- R420 (ABS) rated to IP65
- R423 (stainless steel) 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 both Ethernet and Profibus DP 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** so as 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 non volatile alibi memory storage (6M bytes) according to WELMEC 7.2 L. Compatible with later versions of software.

Ethernet (M4221)

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
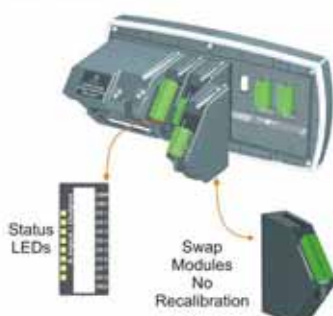
Superior Diagnostics

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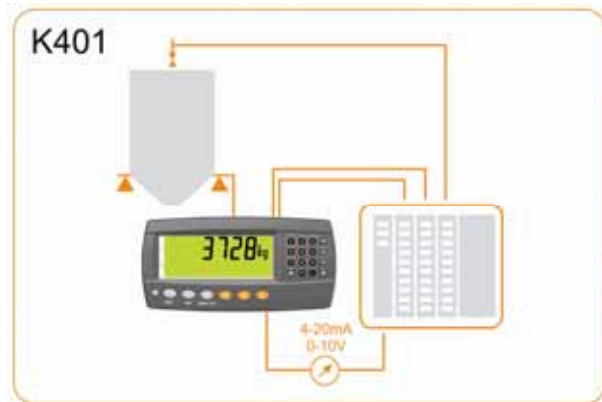
Force Output and Test Input functions allow the installer to specifically test I/O to assist in site setup

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 – K401 – Data Sheet

- Counting with piece weight entry

- Custom unit switching

- Set pointing

- Reporting

- Custom printing

- PLC integration

The K401 is a general purpose indicator suitable for weigh bridges, general trade weighing, multiple indicator weighing systems and process control. The Scale Entry/Exist features make the K401 ideal for unmanned weigh bridges.

Programmable printing for customized dockets and reports can support two separate printers

- Comprehensive print tokens allow for all instrument data to be printed in a variety of formats

- Custom print strings can be assigned to multiple instrument events, for example long and short press of a print key.

Custom Unit Switching allows for complete flexibility

- programme for standard weight units (kg, lb, t etc) or

- define alternative weighing units for your application (litres or force for example)

Flexible set point configuration for improved system integration. A set point can be individually configured to instrument status or weight target triggers. Each set point can be:

- independently configured for a given function

- associated with a given output

- configured for high or low logic

- defined to use a given weight source – Gross, Net, Alternate Units or Piece count

The large multi-line display assists the operator by displaying current weight and total weight and product name.

Smart Weighing
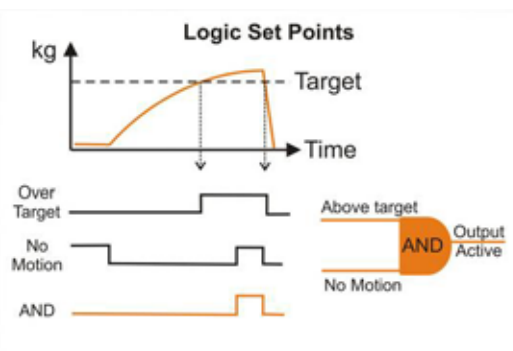
R400 Logic set points are based on the status of the inputs and the defined mask that is used to match IO1-IO24 for the logic set points.

- AND logic set point active when all inputs in mask are on.

- OR logic set point active when any inputs in mask are on.

- XOR logic set point active when only one input in mask is on.

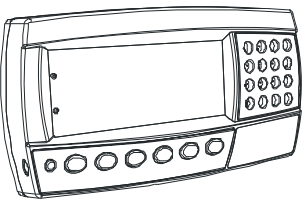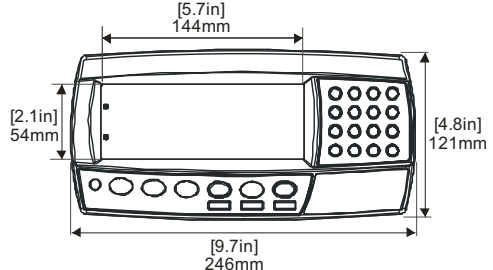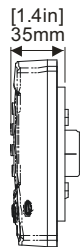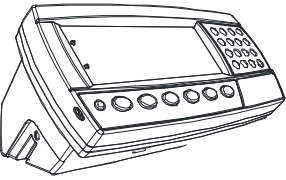For applications that require a combination of multiple conditions eg.
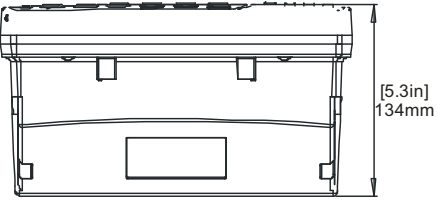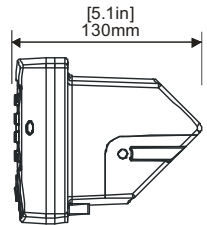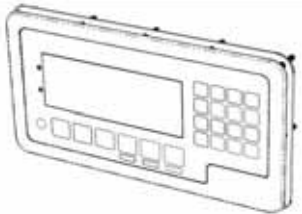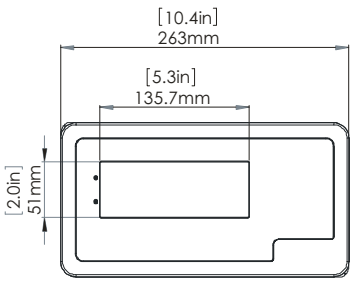
- An output that is only to be active when weight is above target and stable.
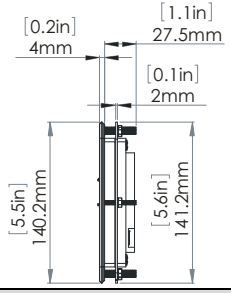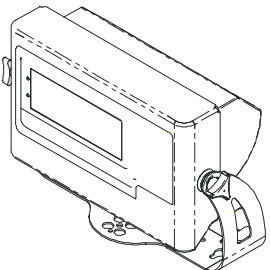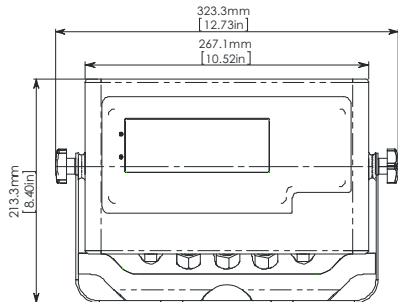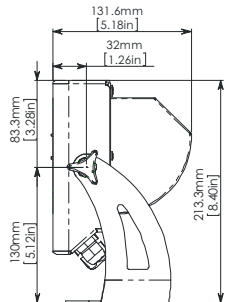
- Pass band: weigh is between two targets

..now that's smart weighing.

R400 Series 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 III/III L NTEP 08-720 MID 2004/22/EC - WELMEC 2.1 & 7.2 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	Full 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					
Variants — 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: 2400, 4800, 9600 or 19200 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	K401	K402	K404	K410	K411	K412
Functions	Custom printing, custom unit switching, counting, manual hold, peak hold, auto output totalising		Single pass weighing Two pass weighing Dedicated truck key Custom printing Temporary Truck IDs Preset Tare Specialised truck dockets	1 Material	6 Material	20 Material
				Up to 10 Batching Stages 3 Speed Fill Fill, Dump & Pulse stages Inflight & jogging correction, Negative batching Batch suspend Timer (RTC) based multiple batching		
Products/Recipes	1	250	250 Trucks	100 Recipes		
Analogue Output * (M4401)	1		-	1		-
Set points	8					
Additional Communications *	Module: RS232/RS232 Module: RS232/RS485 Module: RS485/RS485					
Button Input *	4 Buttons					
Data Storage Device * (M4501)	1					
Profibus-DP	Used with Rinstrum 1400 Profibus-DP Module					
Ethernet * (M4221)	1					

Housing Options	R420	R423
Case Materials	ABS	Stainless Steel
Packing Weights	Indicator: 1kg (35 oz)	Indicator: 1.2kg (42 oz)
Environmental IP Rating (panel mounted or with rear boot)	IP65	IP66

R420 Rear Boot for IP65 standalone unit		R420 Brackets		R423 Bracket
Rear Boot	Rear Boot with Desk Stand	Stainless Steel Wall Mounting M4003	Stainless Steel Post Mounting M4004	Stainless Steel Desk/Wall/Post Mounting

ABS Panel Mount

[5.7in] 144mm
[2.1in] 54mm
[4.8in] 121mm
[9.7in] 246mm
[1.4in] 35mm

ABS with Rear Boot

[5.3in] 134mm
[5.1in] 130mm

Stainless Steel Panel Mount

[10.4in] 263mm
[5.3in] 135.7mm
[2.0in] 51mm
[0.2in] 4mm
[1.1in] 27.5mm
[0.1in] 2mm
[5.5in] 140.2mm
[5.6in] 141.2mm

Stainless Steel with Rear Housing and Stand

323.3mm [12.73in]
267.1mm [10.52in]
213.3mm [8.40in]
131.6mm [5.18in]
32mm [1.26in]
83.3mm [3.28in]
130mm [5.12in]
213.3mm [8.40in]

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

*Optional modules