Australian Government
Department of Industry, Science, Energy and Resources

National Measurement Institute

36 Bradfield Road, West Lindfield NSW 2070

# Supplementary Certificate of Approval

# NMI S812

Issued by the Chief Metrologist under Regulation 60
of the
*National Measurement Regulations 1999*

This is to certify that an approval for use for trade has been granted in respect of the instruments herein described.

Rice Lake Model RL5416DC Digital Load Cell

submitted by Rice Lake Weighing Systems
230 W Coleman St
Rice Lake
WI 54868
USA

**NOTE:** This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI R 60, *Metrological Regulation for Load Cells*, dated July 2004.

This approval is subject to review at the decision of the Chief Metrologist in accordance with the conditions specified in the document NMI P 106.

DOCUMENT HISTORY

| Rev | Reason/Details | Date |
|---|---|---|
| 0 | Pattern and variants 1 to 2 approved – certificate issued | 10/02/22 |
| | | |

# CONDITIONS OF APPROVAL

## General

Instruments purporting to comply with this approval shall be marked with approval number ‘NMI S812’ and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked ‘NMI S812’ in addition to the approval number of the instrument, and only by persons authorised by the submittor.

It is the submittor’s responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

The values of the performance criteria (maximum number of scale intervals etc.) applicable to an instrument incorporating the pattern approved herein shall be within the limits specified herein and in any approval documentation for the other components.

Signed by a person authorised by the Chief Metrologist to exercise their powers under Regulation 60 of the *National Measurement Regulations 1999*.

**Darryl Hines**
Manager
Policy and Regulatory
Services

TECHNICAL SCHEDULE No S812

## 1. Description of Pattern approved on 10/02/22

A Rice Lake model RL5416DC stainless steel compression digital load cell of 30000 kg maximum capacity (Figure 1 and Table 1b) and approved for use with up to 4000 verification scale intervals.

These load cells shall only be used with indicators which are NMI-approved for use with compatible Rice Lake digital load cells.

The load cells are provided with two communication ports and are connected to an indicator in daisy chain fashion as shown in Figure 3. A termination device is used in the second port of the last load cell in the chain.

### 1.1 Method of Mounting

Mounting is to be in accordance with the manufacturer's instructions and as shown in Figure 4.

### 1.2 Markings

Each load cell is marked with the following:

| | |
|---|---|
| Manufacturer's mark, or name written in full | Rice Lake Weighing Systems |
| Model number | ……. |
| Maximum capacity, $E_{max}$ | ..…... kg (or t) |
| Serial number | ..…... |
| Pattern approval mark | NMI S812 |
| Software version number and checksum | ……. |

### 1.3 Table of Specifications

Specifications for the pattern are given in Table 1b.

## 2. Description of Variant 1 approved on 10/02/22

Certain other capacities and characteristics of the Rice Lake model RL5416DC series digital load cells (Figure 1) as listed in Tables 1a and 1b.

## 3. Description of Variant 2 approved on 10/02/22

Certain capacities and characteristics of the Rice Lake model RL5416D series digital load cells (Figure 2) as listed in Tables 1a and 1b.

TABLE 1a

| Model Number | RL5416D<br>RL5416DC | | | |
|---|---|---|---|---|
| Maximum capacity, $E_{max}$ (kg) | 10 000 | 15 000 | 20 000 | 25 000 |
| Minimum dead load, $E_{min}$ (kg) | 0 | 0 | 0 | 0 |
| Accuracy class - Classification | C | C | C | C |
| Maximum number of verification intervals, nLC | 4000 | 4000 | 4000 | 4000 |
| Minimum value of verification interval, $v_{min}$ (kg) | 1.19 | 1.79 | 2.38 | 2.98 |
| Minimum dead load output return value, DR (kg) | 0.83 | 1.25 | 1.67 | 2.08 |
| Output rating (resolution) | 60 000 counts at $E_{max}$ | | | |
| Supply voltage (DC), (V) | 8 - 15 | | | |
| Cable length | up to 100 m (RL5416DC) (*)<br>up to 20 m (RL5416D) (**) | | | |
| Communication | RS485 with Modbus protocol | | | |
| Apportionment factor, $p_{LC}$ | 0.7 | | | |
| Software version number and checksum | Version number: xx.xx.xx.01<br>Checksum: xx.xx.xx.6C<br>(where xx refers to the identification of non-legally relevant software) (***) | | | |
| Digital indicator | Dini Argeo model 3590 series indicators (****) | | | |

TABLE 1b

| Model Number | RL5416D<br>RL5416DC | | | |
|---|---|---|---|---|
| Maximum capacity, $E_{max}$ (kg) | 30 000 | 35 000 | 40 000 | 50 000 |
| Minimum dead load, $E_{min}$ (kg) | 0 | 0 | 0 | 0 |
| Accuracy class | C | C | C | C |
| Maximum number of verification intervals, nLC | 4000 | 4000 | 4000 | 4000 |
| Minimum value of verification interval, $v_{min}$ (kg) | 3.57 | 4.17 | 4.76 | 5.95 |
| Minimum dead load output return value, DR (kg) | 2.5 | 2.91 | 3.33 | 4.17 |
| Output rating (resolution) | 60 000 counts at $E_{max}$ | | | |
| Supply voltage (DC), (V) | 8 - 15 | | | |
| Cable length | up to 100 m (RL5416DC) (*)<br>up to 20 m (RL5416D) (**) | | | |
| Communication | RS485 with Modbus protocol | | | |
| Apportionment factor, $p_{LC}$ | 0.7 | | | |
| Software version number and checksum | Version number: xx.xx.xx.01<br>Checksum: xx.xx.xx.6C<br>(where xx refers to the identification of non-legally relevant software) (***) | | | |
| Digital indicator | Dini Argeo model 3590 series indicators (****) | | | |

(*) The RL5416DC load cells are provided with two communication ports into which connecting cables to other load cells and to the indicator are fitted (Figure 1). These cables may be up to 100 metres in length. The load cells are connected to an indicator in daisy chain fashion as shown in Figure 3. A termination device is used in the second port of the last load cell in the chain.

(**) The RL5416D series load cells are connected to a junction box and then to the indicator. The load cell cables may be up to 20 metres in length. The connecting cable to the indicator may be up to 100 metres in length.

(***) The software version number and checksum are marked on the nameplate or may be displayed on the connected indicator (if the indicator supports this).

(****) Or alternative NMI-approved for use with compatible Rice Lake models RL5416DC and RL5416D digital load cells.

FIGURE S812 – 1


Rice Lake Model RL5416DC Load Cell

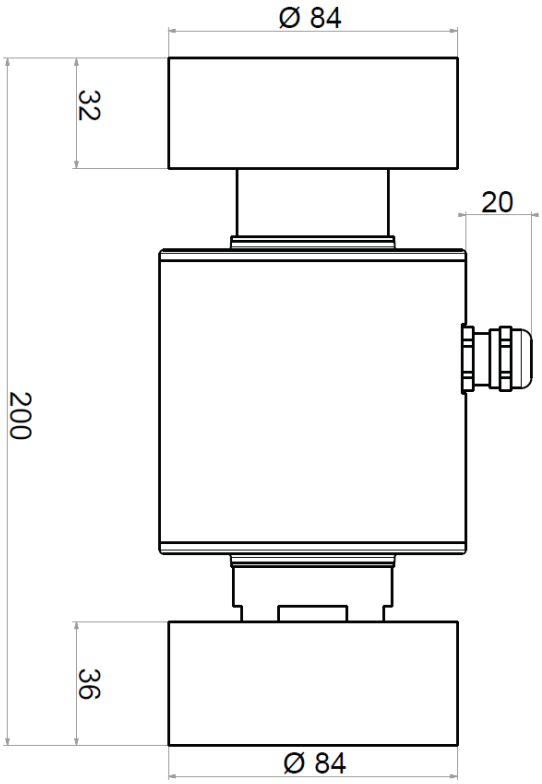
FIGURE S812 – 2


Rice Lake Model RL5416D Load Cell

FIGURE S812 – 3


Rice Lake Model RL5416DC Series Daisy Chain Network

FIGURE S812 – 4




Typical Mounting Arrangement

~ End of Document ~