



Australian Government

National Measurement
Institute

Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S601

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.

Schenck Model DISOBOX Plus VME21000 series Analogue Data Processor

submitted by Schenck Process Australia
65 Epping Road
North Ryde NSW 2113

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use as a legal measuring instrument 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 76, *Non-automatic weighing instruments, Parts 1 and 2*, dated July 2004.

This approval becomes subject to review on 1/11/17, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – certificate issued	19/10/12

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI S601' and only by persons authorised by the submitter.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI S601' in addition to the approval number of the instrument, and only by persons authorised by the submitter.

It is the submitter'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.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificates No S1/0B.

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

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke at the bottom.

TECHNICAL SCHEDULE No S601

1. Description of Pattern approved on 19/10/12

A Schenck model DISOBX Plus VME21080 analogue data processor (Figure 1) only to be used with a Schenck model DISOMAT Tersus digital indicator (NMI approval S516) as a digital data processing device/terminal. This is one version of the VME21000 series (see variants for further details).

Instruments may be fitted with output sockets (output interfacing capability) for the connection of auxiliary and/or peripheral devices (see clause **1.9 Interfaces**).

The Disobox Plus unit is connected to the DISOMAT Tersus indicator using an RS485 interface and provides eight measuring channels. Each channel has its own A/D converter.

The measuring channels may be used with each channel connected to a single load cell, or with a number of load cells connected to a single channel. In addition use of the channels may be split, so that two baseworks may be connected to the one Disobox Plus unit.

Note Regarding Applicability of NMI General Certificate 6B/0

The calculations of NMI General Supplementary Certificate 6B/0 shall apply to each basework/indicator combination individually.

In the case of the 'TwinUnit' indication (as mentioned in the approval NMI S516 of the DISOMAT Tersus Digital Indicator), the calculations of clauses 6.3 to 6.6 of 6B/0 shall apply, with the number of load cells being the total number in both baseworks.

Where two baseworks are connected to the Disobox Plus unit, a calculation shall be carried out to ensure that the total excitation current required by the load cells of both baseworks does not exceed the value mentioned in Table 1 below.

1.1 Interfaces

The Disobox Plus unit may be fitted with interfaces for the connection of auxiliary and/or peripheral devices. The interfaces shall comply with clause 5.3.6 of NMI R76 (the basic intent of which is that it shall not be possible to alter weighing results via the interfaces).

Any measurement data output from the instrument or its interfaces shall only be used for trade in compliance with NMI General Supplementary Certificates No S1/0B (in particular in regard to the data and its format).

Indications other than the indications of measured mass (i.e. gross, tare, net, totals) displayed either on the indicator or on an auxiliary or peripheral device, are not for trade use.

The following are some of the interface options which may be fitted:

- Serial interfaces (e.g. RS 232, RS 422/485 (2-wire) or RS 485 (4-wire)) for the connection of peripheral devices.
- Analog and Digital (binary) inputs/outputs for control purposes.
- Fieldbus (Profibus, Device-Net).
- Ethernet connection, USB ports, and/or Bluetooth module.

TABLE 1 – Specifications

Maximum number of verification scale intervals	Single range instruments 8000 (class II), and 1000 (class III), or Multiple range instruments 6000 per range, or Multi-interval instruments 4000 per partial weighing range.	
In addition:	$Max / e_1 \leq 15\,000$	
Minimum sensitivity per verification scale interval	$0.5 \mu\text{V} \times \sqrt{N}$	#
Excitation voltage	5 V AC	
Supply voltage to terminal	18 to 30 V DC, 24 V nominal	
Maximum excitation current	116 mA	
Fraction of maximum permissible error	$p_i = 0.5$	
Minimum load cell impedance	43 Ω	##
Maximum load cell impedance	4500 Ω	
Measuring range minimum voltage	0 mV	
Measuring range maximum voltage	19 mV	
Operating temperature range	-10°C to +40°C	
Load cell connection	4-wire or 6-wire shielded	

N is the number of measuring channels used for any particular basework connected to the Disobox Plus unit.

The total impedance over all channels should not be less than 43 Ω . Regardless how many channels are in operation, once the minimum impedance is reached any remaining unused channels should not be used.

1.2 Verification Provision

Provision is made for the application of a verification mark.

1.3 Sealing Provision

The calibration parameters for each basework are stored within the Disobox Plus unit. The ability to change these parameters is inhibited when the selector plug (jumper) 'WE' on the connection board within the Disobox Plus is in the write protected location.

To seal the calibration parameters, it is necessary to ensure that the jumper is in the write protected location. The position can be checked by either:

- (a) Opening the Disobox Plus housing and checking that the selector plug is in the write protected location (connecting pins 1 and 2 – Figure 2 shows the jumper in the unprotected location), or
- (b) Without opening the Disobox Plus housing, by the following procedure (using the DISOMAT Tersus digital indicator).

Press the yellow up arrow key ↑ and then (continuing to hold down the up arrow key) press the enter key.

- (i) Press the enter key successively to select a line for display of the write protection status (e.g. line 7).
- (ii) Note the status of the selected line in the display.
- (iii) Change the status of the selected line in the display to 'Contacts' by using the left and right arrow keys.
- (iv) Accept this selection by pressing the 'OK' key.

The selected line of the display now indicates 'IN ... OUT ...'.

If 'W' or 'w' is indicated to the left of 'OUT (e.g. 'IN ...w OUT ...') this indicates that the WE selector plug of the Disobox Plus is not in the write protection position.

- (v) Following this check, repeat steps (i), to (iv), resetting the status of the selected line to that noted in step (iii).

Note: One line of the display may previously have been set to display the 'Contacts' information (e.g. 'IN ... OUT ...'), in which case it may not be necessary to follow the full procedure above.

Once it has been ensured that the selector plug is in the write protection position, the instrument may be sealed by use of destructible adhesive labels to prevent access within the Disobox Plus housing (e.g. see Figure 2).

1.4 Descriptive Markings

Instruments are marked with the following data:

Manufacturer's mark, or name written in full	Schenck Process GmbH
Name or mark of manufacturer's agent
Pattern approval mark for the indicator	NMI No S601
Serial number of the instrument

2. Description of Variant 1 approved on 19/10/12

Certain other models of the DISOBOX Plus VEM210xy series where x represents the number of measuring channels, and y indicates the housing type and other options. Values are as follows

x – 4 or 8 (8 being the 8 channel version described as the pattern).

y – 0 (polymer housing),

1 (polymer housing, measuring channels have surge voltage protection),

4 (stainless steel housing), or

6 (stainless steel housing, with additional measuring channels for measuring temperature only)

TEST PROCEDURE No S601

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Maximum Permissible Errors

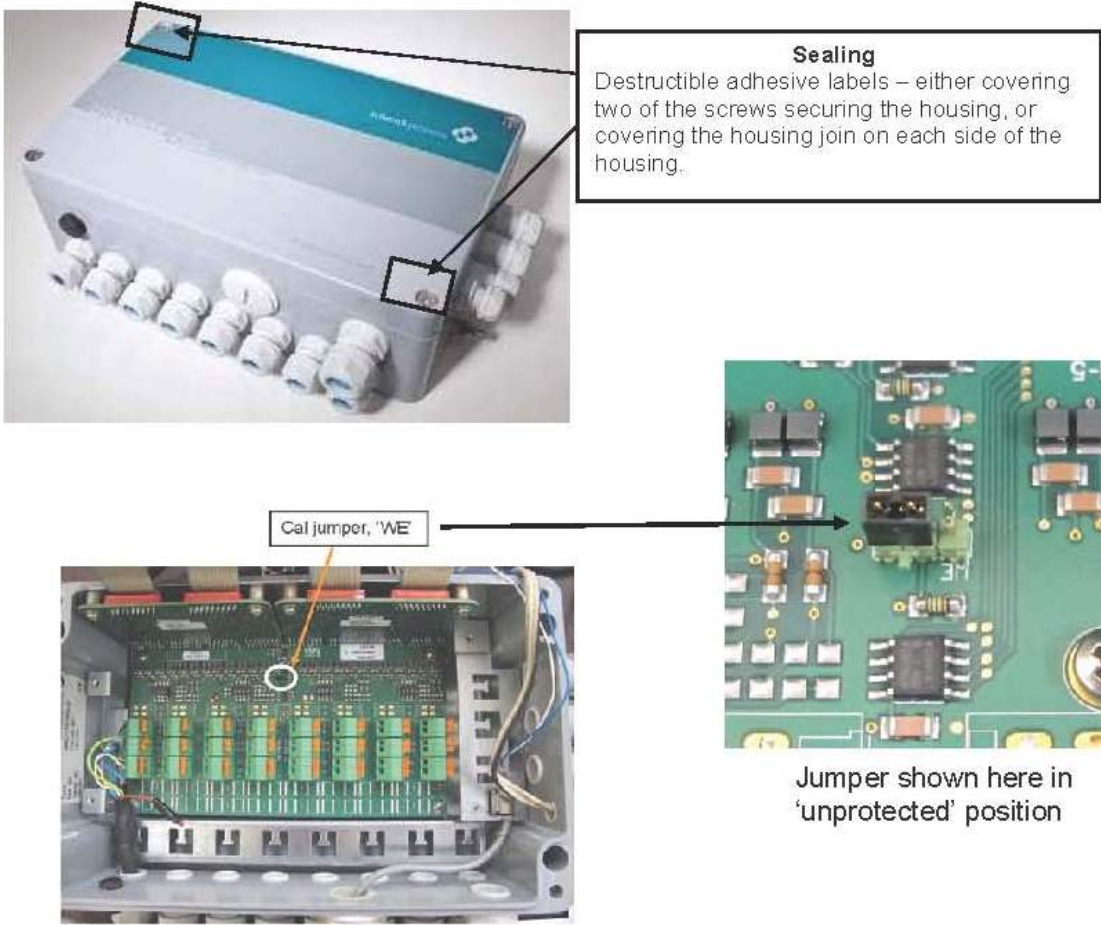
The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

FIGURE S601 – 1



Schenck Model Disobox Plus VME2100 Analogue Data Processor

FIGURE S601 – 2



Schenck Model Disobox Plus
Calibration Jumper Location, on lower board (VKE board) in Disobox Plus