



Australian Government
Department of Industry,
Science and Resources

**National
Measurement
Institute**

36 Bradfield Road, West Lindfield NSW 2070

Certificate of Approval
NMI 6/4C/256

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.

Rinstrum Model XS30A-R420 Weighing Instrument

submitted by Rinstrum Pty Ltd
41 Success Street
Acacia Ridge QLD 4110

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 76, *Non-automatic weighing instruments, Parts 1 and 2*, 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 & variants 1 to 5 approved – certificate issued	1/10/08
1	Pattern & variants 1 to 5 amended (Tables 2 to 4) – notification of change issued	24/01/09
2	Variant 5 amended (explanation of Max₁ Max₂) – notification of change issued	16/07/09
3	Pattern & variants 1 to 5 reviewed & updated – certificate issued	25/08/16
4	Variant 6 approved – certificate	28/05/19
5	Variant 5 amended and variant 7 approved – certificate issued	17/02/23

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI 6/4C/256' 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 S1/0/A or No S1/0B.

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.

This approval shall NOT be used in conjunction with General Certificate No 6B/0.

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 6/4C/256

1. Description of Pattern

approved on 26/09/08

A Rinstrum model XS30A-R420 (#) class  multiple range self-indicating non-automatic weighing instrument (Figure 1) with a verification scale interval (e_1) of 0.005 kg up to 15 kg and a verification scale interval (e_2) of 0.01 kg from 15 kg up to the maximum capacity of 30 kg.

Instruments are configured so that the weighing range can change automatically with increasing load and when the indication remains at rest at zero.

Instruments are NOT FOR TRADING DIRECT WITH THE PUBLIC and shall be so marked.

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

- (#) The instrument may also be known according to the basework only (e.g. XS30A) or according to the basework series (e.g. XS).

1.1 Basework

The Rinstrum model XS30A basework has the load receptor directly supported by a single load cell. The load receptor has maximum nominal dimensions of 300 × 300 mm, and typically uses a stainless steel type 304 construction.

1.2 Load Cell

A Flintec model PC1-50kg-C3 load cell of 50 kg maximum capacity is used.

1.3 Indicator

A Rinstrum model R420 digital indicator is used (Figure 1). The indicator is also described in the documentation of approval NMI S463. The indicator may be mounted on a column attached to the base.

1.4 Levelling

The instrument is provided with adjustable feet and adjacent to the level indicator is a notice advising that the instrument must be level when in use.

1.5 Sealing Provision


Sealing of the instrument is as described in the approval documentation for the indicator.

1.6 Verification Provision

Provision is made for the application of a verification mark.

1.7 Descriptive Markings and Notices

Instruments carry the following markings:

Manufacturer's mark, or name written in full	Rinstrum
Indication of accuracy class	
Maximum capacity	<i>Max</i> kg #1
Minimum capacity	<i>Min</i> kg #1
Verification scale interval	<i>e</i> = kg #1
Maximum subtractive tare	<i>T</i> = -kg #2
Serial number of the instrument
Pattern approval mark for the instrument	NMI 6/4C/256
Pattern approval mark for other components #3

#1 These markings shall also be shown near the display of the result if they are not already located there.

#2 This marking is required if *T* is not equal to *Max*.

#3 May be located separately from the other markings.

In addition, instruments shall carry a notice stating NOT TO BE USED FOR TRADING DIRECT WITH THE PUBLIC, or similar wording.

Note:

For multiple range instruments the markings shall be as above, with the exception that the maximum capacity, minimum capacity and verification scale interval for each range shall be marked, with an indication of the range to which they apply, as shown in the instrument display (e.g. '←1→')

Range	1	2 (*)
<i>Max</i> kg kg
<i>Min</i> kg kg
<i>e</i> = kg kg

(*) The markings for each weighing range shall be clearly associated with an indication of the corresponding range (i.e. '←1→') to correspond to the weighing range designations shown in the instrument display.

2. Description of Variant 1

approved on 26/09/08

Certain other Rinstrum XS**A-#### instruments, similar to the pattern but having various capacities, using various Rinstrum XS##A series baseworks (some of which use HBM model PW15A load cells) and having characteristics as listed in Table 1.

3. Description of Variant 2

approved on 26/09/08

Certain Rinstrum XT**A-#### instruments of various capacities, as listed in Table 2, which are similar to the pattern but the baseworks of which use Flintec model PC6 or HBM model PW15AH load cells. Typically these baseworks have a stainless steel type 304 construction.

4. Description of Variant 3 **approved on 26/09/08**

Certain Rinstrum XK**A-#### instruments of various capacities, as listed in Table 3, which are similar to the pattern but the baseworks of which use Flintec model PC6 or HBM model PW15AH load cells. Typically these baseworks have a stainless steel type 316 construction.

5. Description of Variant 4 **approved on 26/09/08**

Certain Rinstrum XA**A-#### instruments of various capacities, as listed in Table 4, which are similar to the pattern but the baseworks of which use Flintec model PC42 or HBM model SP4 load cells. Typically these baseworks have a mild steel type of construction.

6. Description of Variant 5 **approved on 26/09/08**
amended on 17/02/23

Certain baseworks of this approval used with a compatible approved (by Supplementary Certificate) indicator provided the conditions set out below are met. In this case instruments may be known according to the basework model number (e.g. model XS30A).

In addition to the markings specified in clause **1.7 Descriptive Markings and Notices**, instruments are marked with the NMI approval number for the indicator used, together in the same location.

The approved baseworks and their limiting characteristics are given in Tables 1 to 6.

The conditions to be met are given below, and include calculations using the following terms:

Ex = Excitation from indicator (V)

LC_Sens = Load cell sensitivity (mV/V)

E_{max} = Load cell maximum capacity (kg)

Indicator Sensitivity = Minimum sensitivity value per verification scale interval for the indicator (μV)

e = verification scale interval of the instrument (kg). ***In the case of multiple range instruments, any reference to 'e' refers to the smallest verification scale interval (i.e. e₁).***

e₁, e₂, ... = verification scale interval of each range for multiple range instruments, e₁ refers to the smallest verification interval.

Max = the maximum capacity of the instrument. This refers to the maximum capacity of the highest range (i.e. Max_r for multiple range instruments).

Max_r = the maximum capacity of the instrument for a multiple range instrument, i.e. the maximum capacity of the highest range.

Max₁ Max₂ ... = the maximum capacity of the various ranges for a multiple range instrument. Max_r refers to the maximum capacity of the smallest range.

n_{LC} = the maximum number of verification intervals for which the load cell or basework is approved (e.g. 3000 for a 'class C3' load cell).

DR = dead load return value for the load cell. Note: Many load cells do not have a specified DR value.

The conditions are:

- The excitation voltage used is within the range approved for the baseworks.
- The maximum load applied to the basework (live load plus any dead load) does not exceed the load cell maximum capacity.
- The verification scale interval is not less than the minimum value specified. ***In the case of multiple range instruments, the verification scale interval refers to the smallest verification scale interval (i.e. e_1).***
- The number of verification scale intervals is less than or equal to the n_{max} value specified. ***In the case of multiple range instruments, the number of verification scale intervals refers to the largest number in any weighing range or partial weighing range (i.e. the largest of Max_1/e_1 , Max_2/e_2 etc).***
- The signal voltage per verification scale interval is not less than the minimum sensitivity value per verification scale interval for the indicator (as specified in the approval documentation for the indicator), i.e.

$$\text{Indicator Sensitivity} \leq 1000 \times E_x \times LC_Sens \times e / E_{max}$$

Additional requirement for multiple range operation:

In the case of indicators which are configured to form a multiple range weighing instrument the instrument shall comply with one of the following conditions:

- (i) ***The smallest verification scale interval (e_1) shall satisfy the following:***

$$e_1 \geq 0.4 \text{ Max}_r / n_{LC}$$

- (ii) ***Or, the smallest verification scale interval (e_1) shall satisfy the following:***

$$e_1 \geq DR. \text{Max}_r / E_{max}$$

Of course (ii) cannot apply where a value of 'Deadload return' DR is not given.

7. Description of Variant 6

approved on 28/05/19

Rinstrum model XS**A-#### and XT**A-#### instruments having an alternative stainless steel basework with maximum nominal dimensions of 300 x 300 mm as shown in Figure 2.

7.1 Levelling

Instruments are provided with adjustable feet and a level indicator. The level indicator (bubble) is located on basework underneath the weighing receptor. A notice indicating the location of the level indicator (e.g. "Level bubble provided under platform", or similar) shall be provided in a location clearly visible to the operator.

The instrument is to be used in a level condition as indicated by the level indicator.

8. Description of Variant 7

approved on 17/02/23

Rinstrum model XG**-#### instruments of various capacities, as listed in Tables 5a, 5b to 6 and as shown in Figure 3, which are similar to the pattern but the baseworks of which use Zemic model L6E3 or HBM model SP4MC3MR or Zemic model L6G load cells. Typically these baseworks have a stainless steel type 304 construction.

8.1 Levelling

Instruments are provided with adjustable feet and a level indicator. The level indicator (bubble) is located on basework underneath the weighing receptor. A notice indicating the location of the level indicator (e.g. "Level bubble provided under platform", or similar) shall be provided in a location clearly visible to the operator.

The instrument is to be used in a level condition as indicated by the level indicator.

TEST PROCEDURE No 6/4C/256

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

The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

Maximum Permissible Errors

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

For multiple range instruments with verification scale intervals of $e_1, e_2 \dots$, apply e_1 for zero adjustment, and maximum permissible errors apply $e_1, e_2 \dots$, as applicable for the load.

TABLE 1

Instrument model	XS15A-####		XS30A-####		XS60A-####	
	XS15A		XS30A		XS60A	
Basework model	300 x 300		300 x 300		300 x 300	
Platform size (mm x mm)	15		30		60	
Maximum capacity	kg		kg		kg	
Typical verification scale interval	0.005		0.01		0.02	
Maximum number of verification scale intervals (n_{max}), per range	3000		3000		3000	
Load cell model used	Flintec PC1-30kg-C3 (#2)		Flintec PC1-50kg-C3 (#1)		Flintec PC1-100kg-C3 (#1)	
Load cell classification	C3		C3		C3	
Load cell maximum capacity (E_{max})	kg		kg		kg	
Number of load cells	1		1		1	
Minimum value of verification scale interval for basework (v_{min} of load cell)	0.003		0.005		0.01	
Load cell sensitivity (at E_{max})	mV/V		mV/V		mV/V	
Input impedance	ohm		ohm		ohm	
Excitation voltage (maximum)	V		V		V	
Cable length ($\pm 0.1\text{m}$)	m		m		m	
Number of leads (plus shield)	4		4		4	

Notes: #### – in the instrument model shown above is determined according to the attached indicator. The instrument may be known according to the full model (e.g. XS15A-R420), the basework only (e.g. XS15A), or the basework series only (e.g. XS).

#1 – instruments using this load cell may be either a single interval or a multiple range instrument.

#2 – instruments using this load cell may only be a single interval instrument.

#MR – MR represents a multiple range instrument.

TABLE 2

Instrument model	XT15A-####		XT30A-####		XT60A-####	
Basework model	XT15A		XT30A		XT60A	
Platform size (mm x mm)	300 x 300		300 x 300		300 x 300	
Maximum capacity	15	6/15 (#MR)	30	15/30 (#MR)	60	30/60 (#MR)
Typical verification scale interval	0.005	0.002/0.005	0.01	0.005/0.01	0.02	0.01/0.02
Maximum number of verification scale intervals (n_{max}), per range	3000	3000	3000	3000	3000	3000
Load cell model used	Flintec PC6-20kg-C3 (#1)	HBM PW15AH-20kg-C3MR (#1)	Flintec PC6-50kg-C3 (#1)	HBM PW15AH-50kg-C3MR (#1)	Flintec PC6-100kg-C3 (#1)	HBM PW15AH-100kg-C3MR (#1)
Load cell classification	C3	C3	C3	C3	C3	C3
Load cell maximum capacity (E_{max})	20	20	50	50	100	100
Number of load cells	1	1	1	1	1	1
Minimum value of verification scale interval for basework (V_{min} of load cell)	0.0016	0.0013	0.005	0.0033	0.01	0.0067
Load cell sensitivity (at E_{max})	2	2	2	2	2	2
Input impedance	1100	380	1100	380	1100	380
Excitation voltage (maximum)	15	15	15	15	15	15
Cable length ($\pm 0.1m$)	3	3	3	3	3	3
Number of leads (plus shield)	4	6	4	6	4	6

Notes: ##### – in the instrument model shown above is determined according to the attached indicator. The instrument may be known according to the full model (e.g. XT15A-R420), the basework only (e.g. XT15A), or the basework series only (e.g. XT).

#1 – instruments using this load cell may be either a single interval or a multiple range instrument.

#MR – MR represents a multiple range instrument.

TABLE 3

Instrument model	XK15A-####		XK30A-####		XK60A-####	
Basework model	XK15A		XK30A		XK60A	
Platform size (mm x mm)	300 x 300		300 x 300		300 x 300	
Maximum capacity	15	6/15 (#MR)	30	15/30 (#MR)	60	30/60 (#MR)
Typical verification scale interval	0.005	0.002/0.005	0.01	0.005/0.01	0.02	0.01/0.02
Maximum number of verification scale intervals (n_{max}), per range	3000	3000	3000	3000	3000	3000
Load cell model used	Flintec PC6-20kg-C3 (#1)	HBM PW15AH-20kg-C3MR (#1)	Flintec PC6-50kg-C3 (#1)	HBM PW15AH-50kg-C3MR (#1)	Flintec PC6-100kg-C3 (#1)	HBM PW15AH-100kg-C3MR (#1)
Load cell classification	C3	C3	C3	C3	C3	C3
Load cell maximum capacity (E_{max})	20	20	50	50	100	100
Number of load cells	1	1	1	1	1	1
Minimum value of verification scale interval for basework (V_{min} of load cell)	0.0016	0.0013	0.005	0.0033	0.01	0.0067
Load cell sensitivity (at E_{max})	2	2	2	2	2	2
Input impedance	1100	380	1100	380	1100	380
Excitation voltage (maximum)	15	15	15	15	15	15
Cable length ($\pm 0.1m$)	3	3	3	3	3	3
Number of leads (plus shield)	4	6	4	6	4	6

Notes: ##### – in the instrument model shown above is determined according to the attached indicator. The instrument may be known according to the full model (e.g. XK15A-R420), the basework only (e.g. XK15A), or the basework series only (e.g. XK).

#1 – instruments using this load cell may be either a single interval or a multiple range instrument.

#MR – MR represents a multiple range instrument.

TABLE 4

Instrument model	XA15A-####	XA30A-####	XA60A-####
Basework model	XA15A	XA30A	XA60A
Platform size (mm × mm)	300 × 300	300 × 300	300 × 300
Maximum capacity	15 kg	30 kg	60 kg
Typical verification scale interval	0.005 kg	0.01 kg	0.02 kg
Maximum number of verification scale intervals (n_{max}), per range	3000	3000	3000
Load cell model used	Flintec PC42-20kg-C3 (#1)	Flintec PC42-50kg-C3 (#1)	Flintec PC42-100kg-C3 (#1)
Load cell classification	C3	C3	C3
Load cell maximum capacity (E_{max})	20 kg	50 kg	100 kg
Number of load cells	1	1	1
Minimum value of verification scale interval for basework (V_{min} of load cell)	0.002 kg	0.005 kg	0.01 kg
Load cell sensitivity (at E_{max})	2 mV/V	2 mV/V	2 mV/V
Input impedance	413 ohm	413 ohm	413 ohm
Excitation voltage (maximum)	15 V	15 V	15 V
Cable length (± 0.1 m)	1 m	3 m	1 m
Number of leads (plus shield)	4	4	4

Notes: #### – in the instrument model shown above is determined according to the attached indicator. The instrument may be known according to the full model (e.g. XA15A-R420), the basework only (e.g. XA15A), or the basework series only (e.g. XA).

#1 – instruments using this load cell may be either a single interval or a multiple range instrument.

#MR – MR represents a multiple range instrument.

TABLE 5a

Instrument model	XG-015S-####	XG-015M-####	XG-030S-####	XG-030M-####	XG-030L-####	XG-60S-####	XG-60M-####
Basework model	XG-015S	XG-015M	XG-030S	XG-030M	XG-030L	XG-60S	XG-60M
Platform size (mm x mm)	300 x 300	300 x 400	300 x 300	300 x 400	400 x 500	300 x 300	300 x 400
Maximum capacity (<i>Max</i>)	15 kg	15 kg	30 kg	30 kg	60 kg	60 kg	60 kg
Minimum capacity (<i>Min</i>)	0.1 kg	0.1 kg	0.2 kg	0.2 kg	0.4 kg	0.4 kg	0.4 kg
Typical verification scale interval (e) kg	0.005	0.005	0.01	0.01	0.02	0.02	0.02
Maximum number of verification scale intervals (n_{max}), per range	3000	3000	3000	3000	3000	3000	3000
Load cell model used	Zemic L6E3 C3 50 kg	Zemic L6E3 C3 50 kg	Zemic L6E3 C3 50 kg	Zemic L6E3 C3 50 kg	Zemic L6E3 C3 100 kg	Zemic L6E3 C3 100 kg	Zemic L6E3 C3 100 kg
Load cell classification	C3	C3	C3	C3	C3	C3	C3
Load cell maximum capacity (E_{max}) kg	50	50	50	50	100	100	100
Number of load cells	1	1	1	1	1	1	1
Minimum value of verification scale interval for basework (V_{min} of load cell) kg	0.005	0.005	0.005	0.005	0.01	0.01	0.01
Load cell sensitivity (at E_{max}) mV/V	2	2	2	2	2	2	2
Input impedance ohm	406	406	406	406	406	406	406
Excitation voltage (maximum) V	18	18	18	18	18	18	18
Cable length m	2	2	2	2	2	2	2
Number of leads (plus shield)	4	4	4	4	4	4	4

Note: ##### in the instrument model shown above is determined according to the attached indicator. The instrument may be known as the full model number (e.g., XG-015S-R420-K401) or base work only (e.g., XG-015S).

TABLE 5b

Instrument model	XG-60L-####	XG-60XL-####	XG-150S-####	XG-150M-####	XG-150L-####	XG-150XL-####	XG-300L-####	XG-300XL-####
Basework model	XG-60L	XG-60XL	XG-150S	XG-150M	XG-150L	XG-150XL	XG-300L	XG-300XL
Platform size (mm x mm)	400 x 500	500 x 600	300 x 300	300 x 400	400 x 500	500 x 600	400 x 500	500 x 600
Maximum capacity (<i>Max</i>)	60	60	150	150	150	150	300	300
Minimum capacity (<i>Min</i>)	0.4	0.4	1	1	1	1	2	2
Typical verification scale interval (<i>e</i>)	0.02	0.02	0.05	0.05	0.05	0.05	0.1	0.1
Maximum number of verification scale intervals (n_{max}), per range	3000	3000	3000	3000	3000	3000	3000	3000
Load cell model used	Zemic L6G C3 100 kg							
Load cell classification	C3							
Load cell maximum capacity (E_{max})	100							
Number of load cells	1							
Minimum value of verification scale interval for basework (V_{min} of load cell)	0.01							
Load cell sensitivity (at E_{max})	2							
Input impedance	406							
Excitation voltage (maximum)	18							
Cable length	3							
Number of leads (plus shield)	6							

Note: ##### in the instrument model shown above is determined according to the attached indicator. The instrument may be known as the full model number (e.g., XG-015S-R420-K401) or base work only (e.g., XG-015S).

TABLE 6

Instrument model	XG-015AS-####	XG-015AM-####	XG-030AS-####	XG-030AM-####	XG-060AS-####	XG-060AL-####
Basework model	XG-015AS	XG-015AM	XG-030AS	XG-30AM	XG-60AS	XG-60AL
Platform size (mm × mm)	300 × 300	300 × 400	300 × 300	300 × 400	300 × 300	500 × 600
Maximum capacity (Max ₁ /Max ₂) or Max	6/15 (#MR) or 15		15/30 (#MR) or 30		30/60 (#MR) or 60	
Minimum capacity (Min ₁ /Min ₂) or Min	0.04/0.1 (#MR) or 0.1		0.1/0.2 (#MR) or 0.2		0.2/0.4 (#MR) or 0.4	
Typical verification scale interval (e ₁ /e ₂) or e	0.002/0.005 (#MR) or 0.005		0.005/0.01 (#MR) or 0.01		0.01/0.02 (#MR) or 0.02	
Maximum number of verification scale intervals (n _{max}), per range	3000		3000		3000	
Load cell model used	HBM SP4MC3MR 20kg		HBM SP4MC3MR 50kg		HBM SP4MC3MR 75kg	
Load cell classification	C3		C3		C3	
Load cell maximum capacity (E _{max})	20		50		75	
Number of load cells	1		1		1	
Minimum value of verification scale interval for basework (v _{min} of load cell)	0.002		0.005		0.005	
Load cell sensitivity (at E _{max})	2.1		2.1		2.1	
Input impedance	400		400		400	
Excitation voltage (maximum)	12		12		12	
Cable length	3		3		3	
Number of leads (plus shield)	6		6		6	

Note: 1) ##### in the instrument model shown above is determined according to the attached indicator. The instrument may be known as the full model number (e.g., XG-015AS-R420-K401) or base work only (e.g., XG-015AS).

2) The instrument using the load cell may be either a single interval or a multiple range instrument.

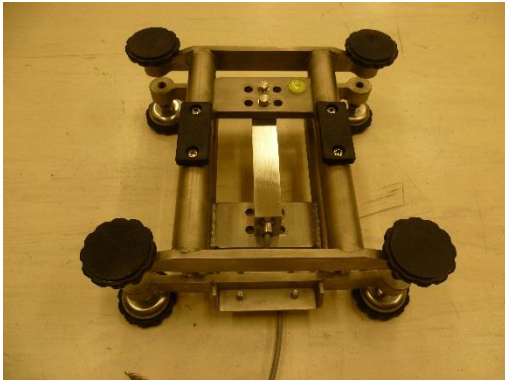
3) #MR – MR represents a multiple range instrument.

FIGURE 6/4C/256 – 1



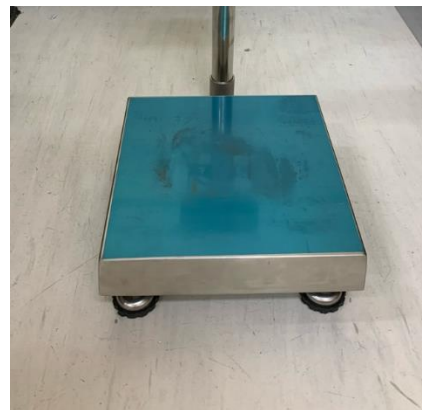
Rinstrument Model XS##A-R420 Weighing Instrument
Using a Rinstrument Model R420 Indicator

FIGURE 6/4C/256 – 2



Rinstrum Model XT**A / XS**A Alternative Basework

FIGURE 6/4C/256 – 3



Rinstrum Model XG**A Alternative Basework

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