

Title	Diagnose and correct faults in industrial measurement and control systems		
Level	5	Credits	10

Purpose	People credited with this unit standard are able to: <ul style="list-style-type: none"> – describe common faults in measurement and control systems; – perform initial assessment of fault symptoms; – minimise consequences of fault and repair procedures in measurement and control systems; – locate and correct faults in measurement and control systems; and – update plant records for measurement and control systems following fault correction.
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Classification	Industrial Measurement and Control > Industrial Measurement and Control - Maintenance
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Available grade	Achieved
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Guidance Information

- 1 This unit standard has been designed for learning and assessment in a workplace environment.
- 2 Definition
Industry practice – those practices that competent practitioners within the industry recognise as current industry best practice.
- 3 Range
 - a For outcomes 2 to 5, evidence of three faults is required.
 - b All activities must comply with policies, procedures, and requirements of the organisations involved; the ethical codes and standards of relevant professional bodies; and all relevant legislative and/or regulatory requirements and industry practice.

Outcomes and performance criteria

Outcome 1

Describe common faults in measurement and control systems.

Range common faults – blocked or isolated process sensing lines, high-resistance connections, leaks in pneumatic systems, control valve faults, incorrect or defective earthing, incorrect or defective power supply.

Performance criteria

- 1.1 Describe expected symptoms of common faults.
- 1.2 Describe typical root causes for given symptoms.

Outcome 2

Perform initial assessment of fault symptoms.

Range the initial assessment may involve the process under investigation or be restricted to the measurement and control system, depending on circumstances and enterprise practice.

Performance criteria

- 2.1 Demonstrate a logical technique of evaluating all available evidence relating to the fault.
- 2.2 Use diagnostic tools and/or techniques to support the assessment.
- 2.3 Assessment is supported by reference to additional information, such as special tests and measurements, assistance from suppliers, prior history, plant drawings and documents, and manufacturers' information.
- 2.4 Clearly identify the part of the process, or measurement and control system, in which the fault lies.

Outcome 3

Minimise consequences of fault and repair procedures in measurement and control systems.

Performance criteria

- 3.1 Identify the consequences of fault on plant operation and safety.
- 3.2 Identify whether alternative operating procedures are possible and advise operators of any identified safe alternative operating procedures.
- 3.3 Identify consequences of testing and repair procedures on plant operation and safety.
- 3.4 Organise testing and repair procedures in a manner that causes minimum disruption to normal operation.

Outcome 4

Locate and correct faults in measurement and control systems.

Performance criteria

- 4.1 Systematically consider all components of a loop to assess likely causes of the fault.

 Range typical considerations – measuring point location; effects of adjacent pipework; process connections; process measuring equipment; interconnecting cables and/or pneumatic tubing; electronic, pneumatic, and hydraulic control and indicating equipment; final control elements; air supply systems; electrical power supplies; earthing.
- 4.2 Locate faults using systematic observations, measurements, and tests.
- 4.3 Correct faults according to manufacturer's and/or enterprise procedures.
- 4.4 Carry out end-to-end checks of systems according to manufacturers' and/or enterprise procedures.

Outcome 5

Update plant records for measurement and control systems following fault correction.

Performance criteria

- 5.1 Record changes made to equipment during fault correction according to enterprise procedures.
- 5.2 Record details of faults and actions taken according to enterprise procedures.

Replacement information	This unit standard was replaced by skill standard 40236.
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This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	28 August 2002	31 December 2013
Review	2	21 August 2009	31 December 2019
Review	3	21 November 2013	31 December 2027
Rollover	4	28 June 2018	31 December 2027
Review	5	30 January 2025	31 December 2027

Consent and Moderation Requirements (CMR) reference	0003
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.