40240   Maintain temperature measuring instruments

Kaupae | Level	4
Whiwhinga | Credit	8
Whāinga | Purpose	This skill standard recognises the skills required to maintain temperature measuring instruments in an industrial control system or process control system.
	This skill standard may contribute to the New Zealand Certificate in Industrial Measurement and Control (Practice) (Level 4) [Ref: 2251].

Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

Hua o te ako | Learning outcomes	Paearu aromatawai | Assessment criteria
1. Manage risks when maintaining temperature measuring instruments.	a. Risks in maintenance of instruments are identified and control measures are followed.
2. Maintain temperature measuring instruments and verify their correct operation, calibration and integration.	a. The measuring instruments selected are appropriate for the required measuring range, process installation conditions and system integration.
	b. Measurement instruments are configured or reconfigured to meet system requirements.
	c. The measuring instrument's configuration and installation are verified as correct for the duty and purpose.
	d. Calibration records are completed in accordance with stakeholder, legal, and quality requirements.
	e. A maintenance procedure for temperature measuring instruments is followed to ensure reliable operation.
3. Create a maintenance and quality procedure.	a. A basic maintenance procedure is created to reflect manufacturers' documentation, calibration procedures, site specific requirements and other relevant documentation.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

Assessment specifications:

Identification of risks may be assessed orally, and should include consideration of people, plant, equipment, product quality and the environment.

To achieve this standard the candidate must be capable of consistently:

● performing the skill to the required industry standard
● repeating the skill on demand
● performing the skill without supervision
● applying the skill to other work.

Industry requirements refer to all asset owner requirements; manufacturers' specifications; enterprise requirements which cover the documented workplace policies, procedures, specifications, and business requirements; and quality management requirements relevant to the workplace.

Ngā momo whiwhinga | Grades available

Achieved

Ihirangi waitohu | Indicative content

● Test equipment such as dedicated test equipment, simple resistance testing device, potentiometer, comparative type testing device, ice bath, dry-block, blackbody furnace, reference thermometer.
● Selection of a suitable temperature source and reference instrument in consideration of the required range and accuracy
● Special tooling and consumables
● Drawings/documentation: Data sheets, cause and effect, general arrangement, piping and installation diagrams.
● Connection and disconnection
● Electrical and mechanical or process connection
● Types of temperature measurement devices and equipment
    − Temperature indicators
    − Temperature switches
        ▪ Bimetallic thermostats
        ▪ Liquid filled thermostats
        ▪ Digital switches
    − Temperature Transmitters
    − Temperature sensors
        ▪ RTD sensors & cabling
        ▪ Thermocouple sensors & cabling
    − Infra-red temperature sensors
● Risk identification and management working on live systems. Awareness of:
    − Risk to personnel
    − Risk to product (quality / consumer)
    − Risk to process safety / plant
    − Environment
    − Reputational risk
● Safe work practices and procedures.
● Calibration procedure and verification
● Measurement adjustments
● Reports and documentation in accordance with industry requirements.
● Procedures to service temperature measuring instruments.

Rauemi | Resources

- Programme guidance available from qualifications@waihangaararau.nz.
- Manufacturers' instructions and device specification sheets relevant to the systems and equipment used for the task.
- Electricity Act 1992.
- Electricity (Safety) Regulations 2010.
- All vocabulary will align to the IEC 60050 International Electrotechnical Vocabulary (IEV) available at IEC 60050 - International Electrotechnical Vocabulary.

Pārongo Whakaū Kounga | Quality assurance information

Ngā rōpū whakatau-paerewa | Standard Setting Body	Waihanga Ara Rau Construction and Infrastructure Workforce Development Council
Whakaritenga Rārangi Paetae Aromatawai | DASS classification	Engineering and Technology > Industrial Measurement and Control > Industrial Measurement and Control - Maintenance
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga | CMR	0003

Hātepe | Process	**Putanga** | Version	**Rā whakaputa** | Review Date	**Rā whakamutunga mō te aromatawai** | Last date for assessment
Rēhitatanga | Registration	1	30 January 2025	N/A
Kōrero whakakapinga | Replacement information	This skill standard replaced unit standard 2635.		
Rā arotake | Planned review date	31 December 2029		

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council qualifications@waihangaararau.nz to suggest changes to the content of this skill standard.