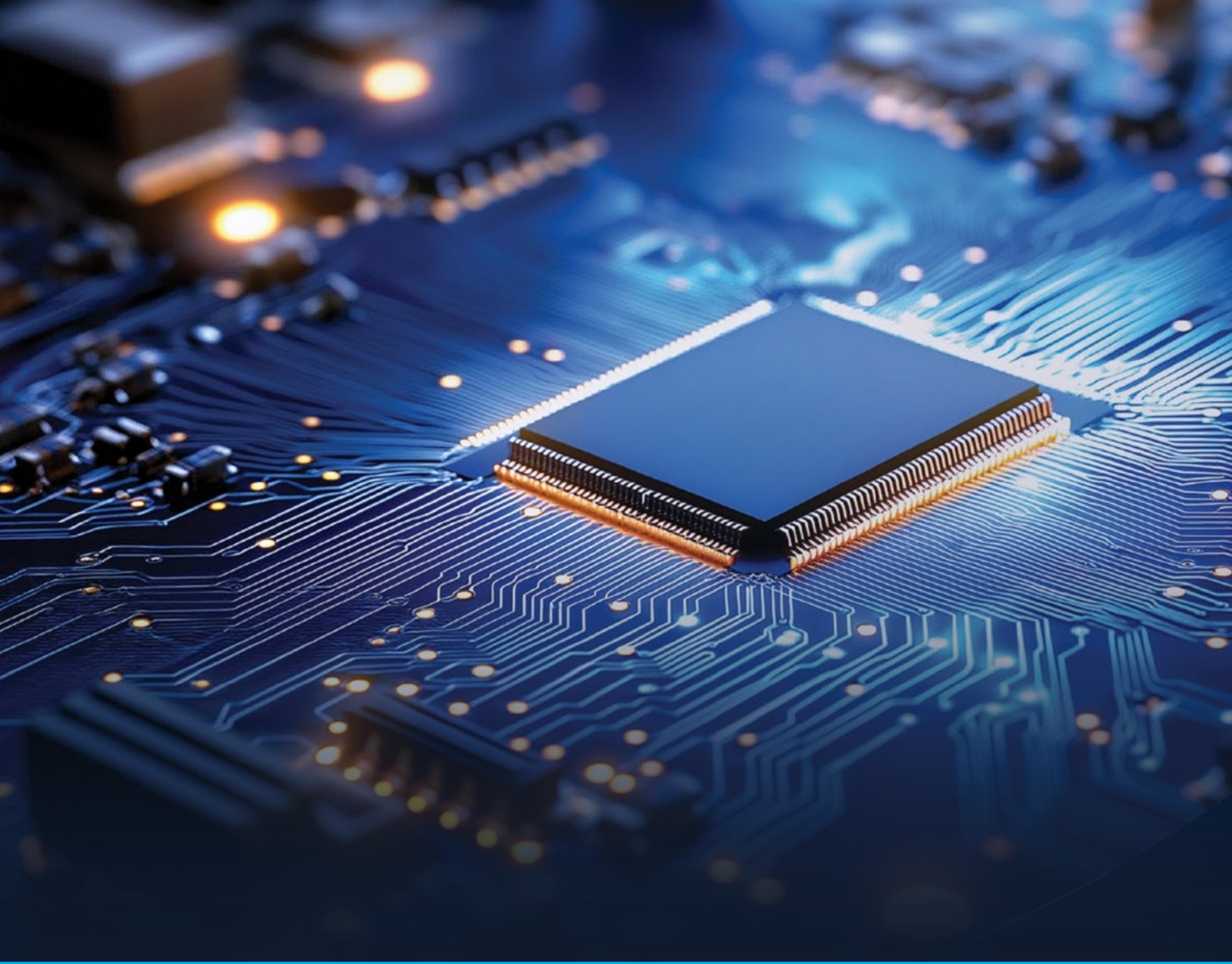




Masters & Young

1997
ESTABLISHED

Capability Statement

Electronics design, manufacture and assembly — engineered, built and tested in Brisbane, Queensland.

DEFENCE
& AEROSPACE

MINING

MEDICAL

INDUSTRIAL

RENEWABLES
& ENERGY

AS 9100D

ISO 9001:2015

IPC CLASS 3

DISP
CERTIFIED

JOSCAR
REGISTERED

The company at a glance

Masters & Young is an Australian electronics design and manufacturing company. We take products from concept through research, design, firmware, production and test — all of it in-house, under one roof, on one quality system.

30+

yrs

Designing and manufacturing electronics in Brisbane since 1997.

2

Lines

Dedicated SMT production lines, plus through-hole assembly.

25 000+

Printed Circuit Boards

Assembled, tested and distributed annually.

224

Reels

Component feeder capacity on our highest-capacity line.

Class 3

Inspection

IPC-A-610 workmanship and build.

1

Site

Design, build, test and repair — no core work subcontracted.



■ Who we are	Pg. 03	■ Quality, inspection and test	Pg.07
■ Industries we serve	Pg.04	■ Supply chain and compliance	Pg.08
■ What we do	Pg.05	■ Selected projects	Pg.09
■ Manufacturing capability	Pg.05	■ Partners and key markets	Pg.15



Australian ingenuity, built to order

Masters & Young Pty Ltd is a leading electronics manufacturing and engineering company based in Brisbane, Queensland. Since 1997 we have specialised in the design, development and manufacture of electronic products for customers who cannot afford them to fail.

Our facility supports defence, aerospace, medical, mining, industrial and renewable energy programs, with quality assured under AS 9100D and ISO 9001:2015. We work with innovation-driven companies to solve difficult problems and deliver products that hold up in the field.

With a commitment to excellence and customer satisfaction we provide tailored solutions ranging from simple devices through to complex systems – and we support the product long after it ships.



Our vision

To be Australia's premier problem solver in electronics engineering, delivering innovative solutions across defence and aerospace, medical, mining and industrial sectors while proudly showcasing Australian ingenuity.

We are committed to pushing technological boundaries, maintaining sustainability and giving back to our community – investing in our facility for long-term growth as a trusted partner to market leaders here and globally.

Our mission

To deliver cutting-edge electronics and engineering solutions that drive innovation.

Through continuous reinvestment of time and resource into our people, facilities, equipment and quality systems, we enable our customers to become world leaders in their respective industries.

How we work

Define

We start with the problem, not the part. Requirements, constraints, environment, compliance obligations and production volumes are agreed before a line is drawn.

Design

Schematic, PCB layout, enclosure and firmware developed together, with design for manufacturability reviewed at every stage and validated on real prototypes.

Deliver

Pilot build, full production, inspection and functional test – followed by repair, rework, obsolescence management and lifecycle support for as long as you need it.



Multiple sectors, one quality system

The environments differ. The standard does not. Every board we build is built and assembled to a Class 3 output standard guided by an AS 9100D quality system, whether it is going into a battlefield router, a haul truck engine bay or a solar field.



Defence & Aerospace

Sovereign manufacture for prime contractors and their supply chains. Security-cleared facility, controlled documentation, full serialisation and certificate of conformance on every unit.

Boeing Defence Australia · Thales · Rheinmetall · Seitec · University of Queensland



Mining

Electronics engineered for heat, vibration, dust and ingress. Intrinsically safe design for underground strata monitoring, and vehicle-mounted fire detection and suppression control for heavy mobile equipment.

Fire and Safety Industries · Nome Services · Rio Tinto



Medical

Controlled manufacture where traceability and continuity of supply matter as much as the product. Configuration management, revision control and documented test procedures throughout.

Complex PCB production · assembly · test · lifecycle support



Industrial

Instrumentation, communications and safety-critical control systems built for Australian conditions — including Type 1 certified portable traffic signal systems, water and dustproof circuitry and OLED display integration.

Outsource1 · EM Solutions · Emesent · Snap-on · Keywhere · Niagara



Renewables & Energy

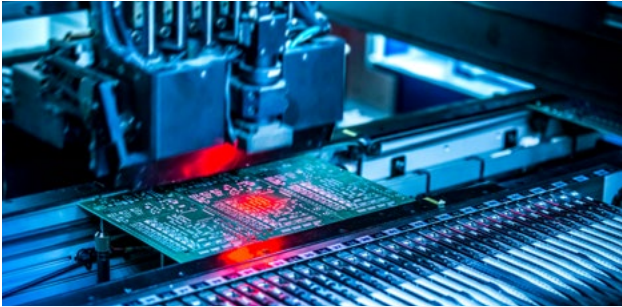
Printed circuit board assembly and design review for concentrated solar thermal power generation and storage, supporting utility-scale clean energy projects being built in regional Australia.

Vast · VS1 modular tower CSP, Port Augusta · Tritium EV Chargers



Turnkey from concept to finished product

Come to us with a napkin sketch, a legacy product facing obsolescence, or a finished design that needs a manufacturer. We can pick the project up at any stage.



PCB design, assembly and testing

Rigid, flexible, multilayer, HDI and high-speed printed circuit boards. Surface mount and through-hole assembly for mixed-technology boards, from prototype through to volume production.



Engineering design and R&D

Schematic design, circuit design, component selection and design for manufacturability review. Rapid prototyping for proof of concept, and reverse engineering where a product needs to be recovered rather than replaced.



Housing and enclosure design

Custom enclosures that protect, organise and optimise the assembly inside them — sealed against ingress, specified with keyed connectors, and designed around real installation constraints in the field.



Firmware and software testing

Embedded software that brings the hardware to life, developed alongside the board it runs on. Software testing verifies timing, input handling and hardware interaction before the product reaches evaluation.

Also available as standalone services

- Schematic design
- Switched power supply design
- Design for manufacture review
- FPGA development board design
- Reverse engineering
- Maintenance, repair and rework



What our lines can actually build

Two dedicated SMT production lines with automated component value verification, backed by through-hole assembly, vacuum vapour phase reflow and in-house rework. Board dimensions and process limits are published below so you can check fit before you send us a design.

PROCESS	LENGTH	WIDTH	THICKNESS / NOTES
SMT Line 1	50–475 mm	40–400 mm	0.38–4.2 mm
SMT Line 2	50–610 mm	40–510 mm	0.38–4.2 mm · up to 1200 mm across two multi-work lengths
Screen printers	50–510 mm	50–510 mm	0.4–6 mm
VP6000 vapour phase	up to 560 mm	up to 570 mm	Void-free solder joints
HS0802	1000 mm	50–400 mm	6 mm
3D AOI	460 mm	510 mm	Post-reflow verification

Layer count is generally not a constraint provided total board thickness falls between 0.4 mm and 4.2 mm; multilayer boards are accommodated with a purpose-built thermal profile. Our highest-capacity line accepts 224 × 8 mm component reels, reducing as reel width increases, plus 20 components in trays.

Assembly and integration

- Two dedicated SMT lines with automated component value verification
- Surface mount and through-hole assembly for mixed-technology boards
- Rigid and flexible PCBs for high-reliability applications
- Complex, high-density assemblies including BGAs
- Full turnkey assembly from bare board to tested final product
- Final unit mechanical assembly and system integration

Specialised processes

- Conformal coating — acrylic, urethane, silicone and epoxy
- Vacuum vapour phase reflow for void-free solder joints
- PCB cleaning and ionic contamination testing
- Scorpion rework station for surface-mount removal and replacement
- Abrasive selective removal of conformal coating in defined work areas
- Production staff qualified to IPC-610, J-STD-001 and IPC-7711/7721

Board technologies we build

Rigid

General and high reliability, single and double-sided.

Flexible

Where space, weight or movement rule out rigid boards.

Multilayer

Layer count unconstrained within the thickness envelope.

HDI

High density interconnect for feature-dense assemblies.

High speed

Controlled impedance for high frequency signal integrity.



Verified before it leaves the building

Four independent inspection and test technologies, applied in-house, so defects are caught at the assembly stage rather than in the field. Every procedure is documented and traceable.

3D automated optical inspection

Post-reflow verification of placement, polarity, solder volume and coplanarity across the whole board, on both SMT lines.

Flying probe testing (SPEA)

Electrical fault detection without the cost and lead time of custom test fixtures – practical for prototypes, low volume and engineering changes.

X-ray inspection

Verification of hidden solder joints and BGA terminations that cannot be assessed optically, including voiding analysis.

Functional and board-level testing

Testing to customer-specific requirements, from board level through to fully assembled units, with test reports issued against part and serial numbers.

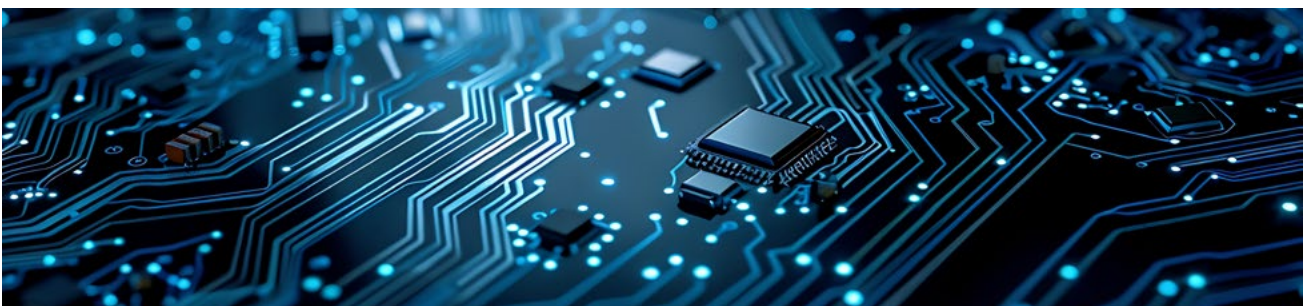
Further assurance

- Ionic contamination testing to IPC-TM-650
- Environmental testing coordination – thermal cycling, vibration and shock
- Design review and validation prior to production release (FAI - First Article Inspection)
- Pilot production runs for sign-off before volume manufacture
- Certificate of conformance documentation on delivery (as required)

Traceability

Serialisation and documentation control is applied to every component and assembly we handle. Bills of materials, revision history, test descriptions, test reports and part and serial numbers are retained and issued as deliverables.

Where a customer needs manufacturing that does not depend on any one individual's knowledge, we develop photo-illustrated work instructions that standardise every build and support operator training.





Sovereign capability, global supply

Brisbane-based manufacture with access to Tier 1 global component supply – and the procedures to keep a program running when a part goes end-of-life.

Component sourcing

- Established relationships with Tier 1 global suppliers
- Full traceability and counterfeit mitigation procedures
- Obsolescence management and lifecycle support
- Australian and international sourcing
- Bill of materials management on the customer's behalf
- Secure, controlled supply chain processes

Through-life support

- Ongoing maintenance, repair and rework after delivery
- Configuration management with full revision control
- Redesign of products facing component end-of-life
- Backward compatibility with fleets already in service
- Scalable capacity across two SMT lines as programs grow
- No reliance on external subcontractors for core manufacture



Certifications and memberships

Certified to ISO 9001 and AS 9100D quality assurance systems. All production staff are trained and qualified to IPC-610, J-STD-001 and IPC-7711/IPC-7721.



AS 9100D

Aerospace quality management system

ISO 9001:2015

Quality management system

DISP

Defence Industry Security Program member

JOSCAR-AU

Joint Supply Chain Accreditation Register



Featured projects

Ten programs across five sectors. Some we designed from a blank sheet; others we took from a proven design into repeatable, quality-assured production. In every case the electronics had to survive an environment that punishes shortcuts.

01 Tactical Services Router

02 Rapid Tactical Router

03 Fire Control Handle

04 Human-Machine Interface Module

05 NTG Node

06 HyShot hypersonic testing

07 Foamguard V6

08 Rock Monitor XR

09 Concentrated solar thermal power

10 TRILIGHT portable traffic signals



DEFENCE

Tactical Services Router

Boeing Defence Australia – Currawong Battlefield Communications System

The Currawong system, delivered under LAND 2072 Phase 2B, provides secure communications for personnel deployed to isolated and harsh environments with none of the network infrastructure available in everyday life. The TSR is its general-purpose network platform, offering individually controlled Gigabit Ethernet with PoE, VDSL, analogue voice, USB, HDMI and RS232/RS422 serial connections.

Masters & Young has delivered more than 500 units to Boeing Defence Australia over the past decade – assemblies of 2,000-plus components including BGAs, built to IPC Class 3 and released with certificate of conformance documentation.

SCOPE OF WORK

Printed circuit board assembly · full component procurement · board level and functional testing · final unit mechanical assembly · IPC Class 3 assembly.

SPECIAL REQUIREMENTS

Conformal coating · flying probe testing · 3D AOI · X-ray inspection · vacuum vapour phase soldering · final product testing with CoFC documentation.



DEFENCE

Rapid Tactical Router(RAPTR)

Boeing Defence Australia – LAND 2072 Phase

Built for small deployments, RAPTR is one-eighth the weight of current Integrated Battlefield Telecommunications Network equipment and provides a secure network gateway for classified and unclassified domains from a backpack-sized transit case.

Working in close collaboration with Boeing's engineering team, Masters & Young played a pivotal role in the production, assembly and delivery of the unit – a partnership that continues to demonstrate our capability to meet high-stakes defence commitments.

SCOPE OF WORK

Printed circuit board assembly · full component procurement · board level and functional testing · final unit mechanical assembly · IPC Class 3 assembly

SPECIAL REQUIREMENTS

Conformal coating · flying probe testing · 3D AOI · X-ray inspection · vacuum vapour phase soldering · final product testing with CoFC documentation



DEFENCE

Fire Control Handle for simulators

Rheinmetall Defence Australia — LAND 400 Phase 2

Design, production and integration of the electronic and electrical components for the Fire Control Handle used in Desktop Tactical Trainers and Immersive Tactical Trainers under the Mounted Combat Reconnaissance Capability project.

Each grip houses pushbuttons, a rocker switch, a D-pad, palm switches and fire switches requiring 14 digital inputs, plus two analogue channels for azimuth and elevation. We designed the motherboard PCB housing a Teensy 4.1 as a daughterboard, support PCBs for the grips, and lockable connectors and cable sets throughout — moving the interface from CAN bus to USB for training use.

SCOPE OF WORK

Integration of electronics into mechanically pre-assembled FCH units · cable sets, receptacles, controls, support PCBs, motherboards and grips · functional testing of fully assembled units

DELIVERABLES

Test descriptions · PCB documentation · bills of materials for each PCB and all electronic parts · test reports with part and serial numbers

THALES
Building a future we can all trust

DEFENCE

Human-Machine Interface Module

Thales — Close Combatant Assault Rifle digital trigger subsystem

Masters & Young developed and tested the firmware for the HMI Module in the digital trigger subsystem of a next-generation assault rifle intended for the Australian Defence Force, alongside a full package of hardware modification services.

The firmware records, counts and stores weapon shot data, verified using a test jig that simulates real trigger signals through controlled pulses. It also drives a battery indicator and detects malfunction conditions based on mechanism reset timing — all visible to the operator in low light without disassembling the weapon, and upgradable in the field by a trained technician.

SCOPE OF WORK

Firmware development and validation · hardware rework and circuit rewiring to engineering guidelines · battery status and fault display · system integration support through broader weapon system testing

OUTCOME

A robust, fully integrated module meeting the technical and contractual standards required for an advanced military program prior to official evaluation

**DEFENCE**

NTG Node

Seitec — Defence & Government Services

Seitec engaged Masters & Young to take the NTG Node — a ruggedised, environmentally sealed device incorporating RF connectivity — from proven design into repeatable, quality-assured production.

Moving a defence-grade product to volume brings a distinct set of challenges: consistent ingress protection unit after unit, internal assembly secured against vibration and handling, RF performance verified to specification, and a process that does not depend on any one person's knowledge. We developed and validated the assembly and sealing methods on real samples, then built photoillustrated work instructions to standardise every build.

SCOPE OF WORK

Manufacturability engineering · consolidated production documentation · BOM and supply chain management · printed circuit assembly on our SMT and PTH lines · pilot production run · full production with PCA-level testing

OUTCOME

A controlled, documented manufacturing process Seitec can rely on for consistent output at scale

**AEROSPACE**

HyShot hypersonic testing

University of Queensland, with NASA Langley Research Center

Masters & Young played a pivotal role in the HyShot 2 flight experiment, a successful scramjet test that relied on precision electronics to capture and transmit data through the extreme conditions of supersonic flight.

The payload's performance depended on an assembled suite of circuit board subsystems: pressure transducers positioned for rapid response while maintaining thermal protection; thermistor, thermocouple, accelerometer and magnetometer arrays requiring expert integration and shielding; telemetry broadcasting 48 analogue and 4 digital channels at 2 ms intervals; and flight computers governing fuel injection from real-time measurements.

OPERATING CONDITIONS

Parabolic trajectories reaching 328 km altitude · Mach 8 re-entry velocities and associated thermal stress · circuit reliability maintained through 5.2 Hz roll rates and significant attitude variation · uninterrupted power throughout the mission profile

SCOPE OF WORK

PCB assembly · board level testing · design review and validation · full component procurement · product readiness



MINING

Foamguard V6

Fire and Safety Industries — mining and heavy vehicle services

Foamguard is a vehicle-mounted fire detection and suppression control system fitted to heavy mobile equipment. A key sensor across the existing fleet was heading towards obsolescence with no direct replacement, so FSI engaged us to re-engineer the platform and extend the life of a product operators already trust.

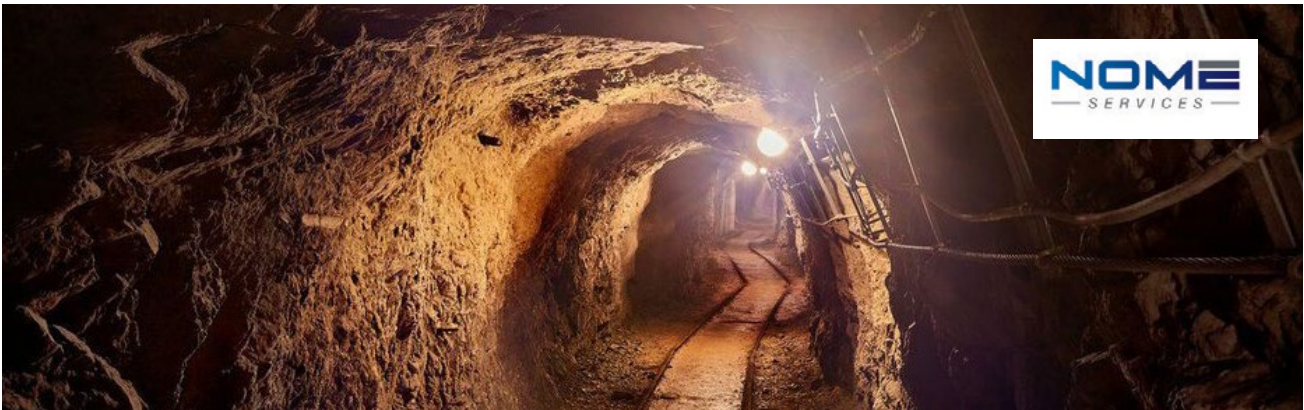
We moved to a modern sensor array within the processing capacity of the existing control platform, added inputs so the system can distinguish a genuine fault from normal environmental variation rather than simply reporting low pressure, and fitted it all into an enclosure that is physically shorter in one dimension to resolve installation constraints in the field.

SCOPE OF WORK

Schematic design · firmware development
· housing design · PCB design and manufacturing.

ENGINEERING RESPONSE

Rugged sealed enclosure with keyed connectors to prevent incorrect field wiring
· configurable fault warning ahead of full alarm · multi-source fault confirmation to reduce false alarms · uplifted backup power for standby runtime · existing operator panel retained and extended so nothing has to be relearned · evaluation prototypes delivered for validation before production.



MINING

RockMonitorXR

Nome Services — intrinsically safe underground mining

Masters & Young delivered the electronic infrastructure behind the Rock Monitor XR strata monitoring system. Our precision-manufactured PCBs and integrated electronics form the backbone of an intrinsically safe technology that protects underground mining operations.

Our expertise in intrinsically safe design was instrumental in creating systems that monitor roof and roadway strata conditions with uncompromising reliability — engineered to withstand the harsh demands of underground environments while holding the exacting performance standards real-time safety monitoring requires.

SCOPE OF WORK

Printed circuit board assembly · board level testing · design review and validation
· full component procurement · product readiness.

SPECIAL REQUIREMENTS

Flying probe testing · 3D AOI testing · X-ray inspection · intrinsically safe design for underground use.



RENEWABLES

Concentrated solar thermal power

Vast – VS1, Aurora Energy Project, Port Augusta

Masters & Young partnered with Vast to provide printed circuit board assembly for their concentrated solar thermal power generation and storage technology, including detailed design review of the heliostat.

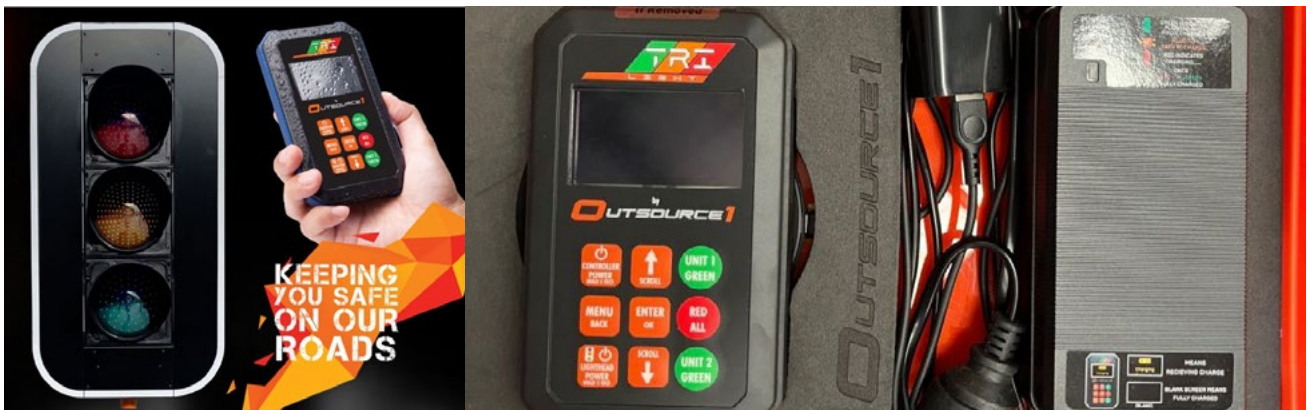
The VS1 project uses Vast's modular tower CSP v3.0 technology and is based at the Aurora Energy Project, 20 km outside Port Augusta. It will generate clean, lowcost, dispatchable power with more than eight hours of thermal energy storage.

SCOPE OF WORK

Printed circuit board assembly · board level testing · design review and validation · full component procurement · product readiness.

SPECIAL REQUIREMENTS

Flying probe testing · 3D AOI testing · X-ray inspection.



INDUSTRIAL

TRILIGHT portable traffic signals

Outsource1 – Type 1 certified portable traffic signal system

A PTSS Type 1 certified system that improves safety for road workers and the travelling public. Masters & Young supports Outsource1 with comprehensive PCB design and assembly, manufacturing these units in Australia to the highest quality standards.

Our electronic engineering enables three specialised operational modes: shuttle mode for single-remote dual signal control, plant crossing mode with RED-RED and GREEN-GREEN sequences for construction equipment, and gate mode for simplified single signal control. Water and dust-proof circuitry, OLED display systems and comprehensive event logging are integrated throughout.

SCOPE OF

Printed circuit board design and assembly · board level testing · design review and validation · full component procurement · product readiness.

SPECIAL

Flying probe testing · 3D AOI testing · X-ray inspection · sealed circuitry for Australian roadside conditions.



The companies we build for

Primes, OEMs and technology developers who need electronics that work the first time, and keep working.



THALES



RioTinto



Why Masters & Young?

- Brisbane based with international reach – Australian manufacturing, global supply chain access.
- Full in-house capability, with no reliance on subcontractors for core manufacture.
- Automated component value verification across all SMT lines, reducing human error.
- Advanced inspection technology – 3D AOI, X-ray and flying probe under one roof.
- Security-cleared facility under the Defence Industry Security Program.
- Scalable capacity across two SMT lines, with ongoing maintenance and repair support.

Ready to start a project?

We are happy to engage with product teams, engineers and procurement stakeholders on specific requirements, and to provide detailed quotations, timelines and technical proposals aligned to your program.

Let's talk about your next product

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Masters & Young

ELECTRONICS DESIGN AND MANUFACTURING · ESTABLISHED 1997