



## Subcontract Electronics and Engineering





## Company Profile



ANR is a subcontract manufacturer for the Electronics and Engineering industries offering five manufacturing divisions from Bourne End in Buckinghamshire.

We are ideally located in the South East of England within a few miles of the M4, M40 and M25 with rail links and airports within easy reach to offer our services both nationally and internationally.

The company was established in 1988, created to service the broadcast industry in panel wiring and harness assemblies. This industry is certainly still paramount to ANR, but over the years we have expanded and added three more areas of expertise.

Now offering five manufacturing divisions from under one roof, our major strength is that, unlike many subcontractors in the UK, we manage and manufacture all parts of Box Build requirements in house without the need of major third party input.

ANR's commitment is in exceeding clients expectations offering them the most flexible manufacturing to suit their personal requirements.

Our investment in new technologies, people and infrastructure ensure we continually improve our services and always maintain a high reputation for quality, attention to detail and competitive pricing.

A progressive and growing company with a proven track record and a client base of leading blue chip companies and leading OEM's in the UK. The majority of clients have been with ANR for many years, a testament to the company's pricing, quality and service levels provided.

A complete manufacturing solution from one manufacturer. Endless possibilities.



 DEPARTURES

 ARRIVALS

 TRANSFERS













# Turn Key Manufacturing

## “What is Turn Key Manufacturing?”

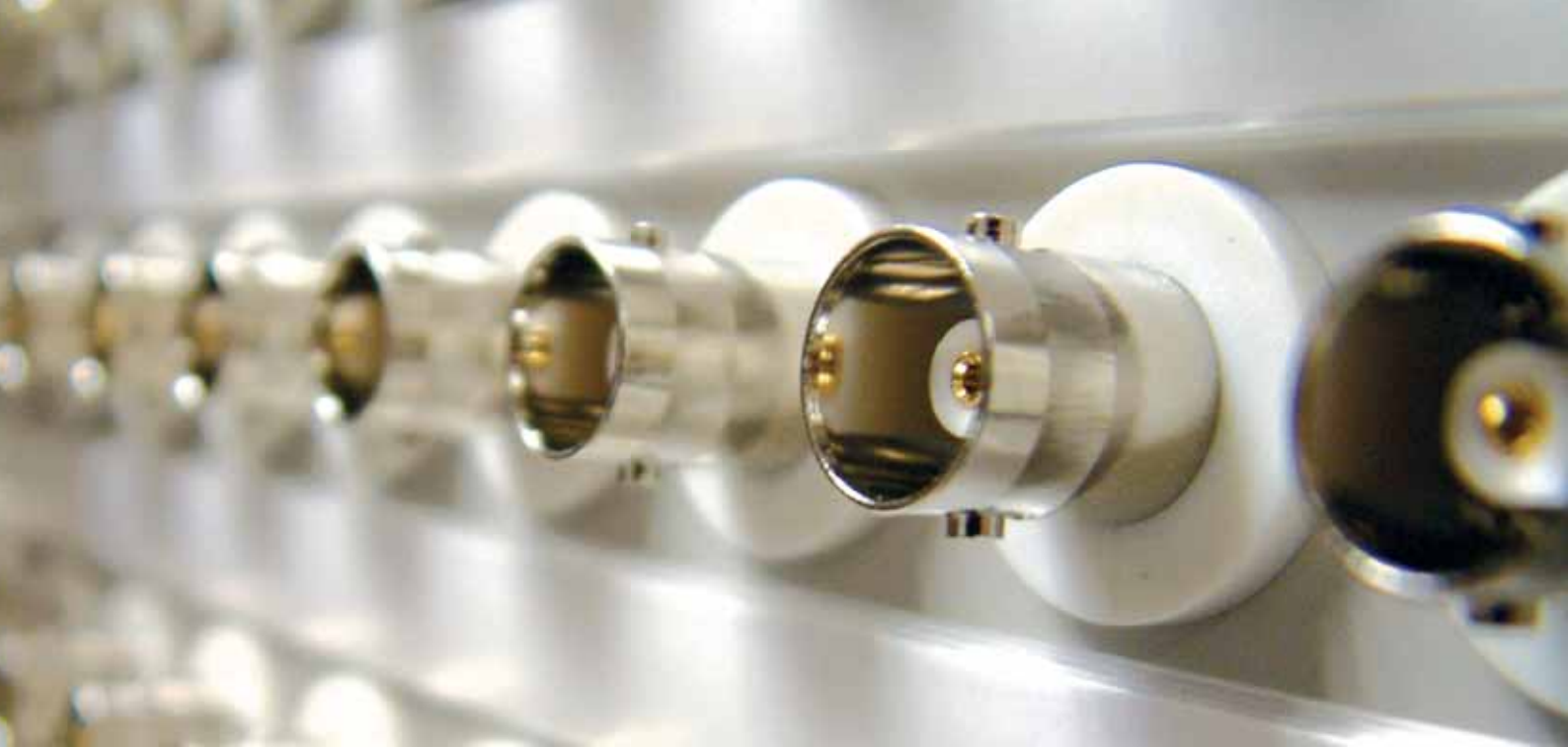
This is something which is a grey area, but here at ANR, we believe complete Turn Key is the ability to interpret client's requirements, aid in the design and material specification and follow this through into the manufacturing stages.

By doing this, through the design stage, allows ANR to production engineer requirements for optimum efficiencies, and such, makes our clients ends products cheaper and quicker to manufacture.

Turn Key to ANR is therefore the ability to Manufacture a unit, procuring materials and building a unit utilising facilities and services which we have in house, through our Electronics and Engineering divisions, combined with full testing and product packaging. Finished goods ready for end user applications.

We believe we are unique. CNC Milling and turning in house, supporting Electronics design and manufacturing allowing us full control on the manufacturing process. Further more, combined with our systems integration division, we can complete the process with on site installation and commissioning if so required.





## Turn Key / Box Build

At ANR our job as an electronics and engineering designer and CEM is to make our clients working life as easy as possible whilst working with them to reduce material and manufacturing costs.

Products have a life cycle, and we at ANR work close to ensure this life cycle and design to product fulfilment is as quick and economic as possible.

In house PCB assembly, cable assembly and harnessing, CNC Milling and Turning offering the ability to deliver, quality finished product with lower costs and on time.

We can work from design briefs, client schematics or end user interface information, producing when required Solid Works® drawings to support this combined with break down build instructions and drawings for production engineered stages.

Our belief, by taking manufacturing requirements and production engineering them for optimum efficiencies saves both the client and ANR resources in making the best product and at the lowest price, both aesthetically and commercially.

In the box build division, we manufacture small mechanical assemblies with no electronics requirements, breakout boxes as interfaces for IO requirements, Electronics instrumentation control equipment through to full 19" rack assemblies.

All units are tested, either from client test procedures or through industry standards for safety and working environments.













## Solution Provision

ANR's understanding of clients requirements is that they need quality product at a predetermined price, manufactured on time and delivered when they want it.

This extends to product design support, material fit for purpose support, bespoke material design and implementation as well as best practice manufacturing technique requirements.

Since 2005, ANR have worked to supply the industry with a flexible and efficient solution in the market place to Electronic and Engineering requirements, cumulating in final product build and integration into our clients products.

Whilst this can be as simple as a Break out box, our experience over recent years has meant we have created the new systems division to cater for a variety of market places for the build of full systems and control racks, combined with their testing, interfacing and unit commissioning on site at the client, or even at a third party facility where products need interfacing or wiring to other equipment. This is all offered from the team at ANR.

Our ethos is simple. We engineer assemblies on the understanding that if we know how units work, we can build in the best practice, test to the best and highest levels combined with fault finding and supporting warranty requirements for products.

Solutions are not only in the manufacturing process, but also in reducing waste and being flexible in our clients requirements.

ANR will support clients in product supply by stock holding finished goods ready for despatch, reducing our clients cash flow and stock holdings, and as such allows ANR to deliver more product on time, allowing for more flexible end client production requirements.

Above all, ANR maintain a flexible and relaxed attitude to manufacturing. Whilst we will look at any project, we also appreciate the needs of clients requirements meaning we will look, when and if required, at our partners over-seas for volume applications to support product realisation, working with them in making sure we can deliver what is required, when it is required.



## ANR's Facilities



In December 2008, ANR's facility changed with the opening and operation of our new factory.

Split level manufacturing, with Engineering on the ground floor, with Electronics on the first floor meant we moved from our original three units, unifying our facilities under one roof.

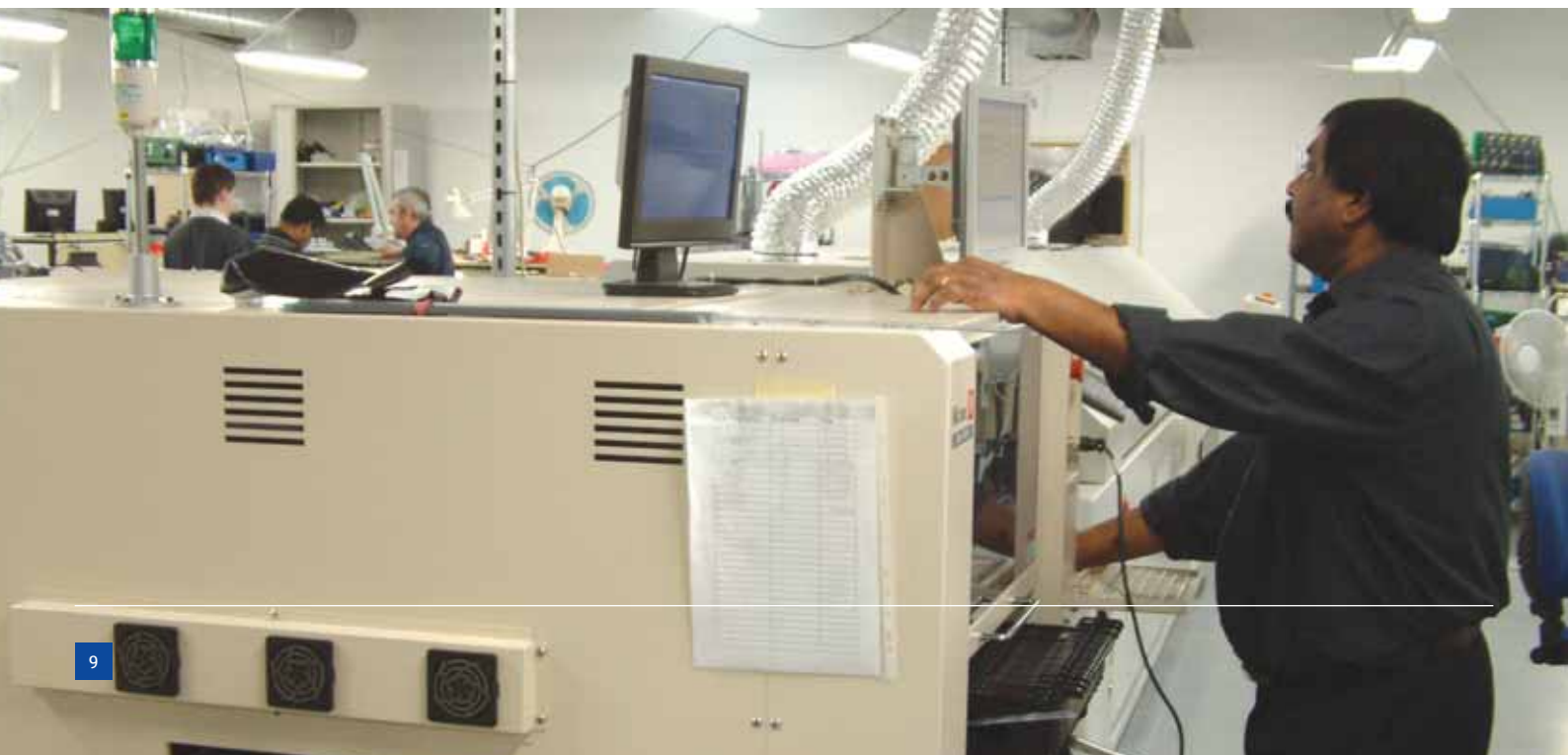
Our new unit is a great improvement for ANR, offering over 20,000ft<sup>2</sup> of manufacturing space, in a clean, anti-static environment which is temperature controlled.

This open plan production area, offers a user friendly, efficient process, laid out in line with our lean manufacturing programme reducing waste.

Further more, recycling of waste is now paramount, from office and manufacturing usage, and in turn provides a fresh and 'green' environment.

At ANR's new facility, combined in the board room is our training and services room, where on regular basis we invite clients to training and introduction sessions with leading component manufactures where on site, they can see advantageous reasons for manufacturing streamlining or change.

We still operate an open door policy at ANR, one of our project managers is always on site, and we fully welcome clients to drop in and see our manufacturing environment in a transparent format.









## PCB Assemblies

Within ANR's electronics sector is the automated PCB assemblies division.

Working with clients to allow products to market faster, the flexible manufacturing allows fast turn-around production when other subcontractors are unable to deliver.

Low manufacturing costs with high efficiencies allow ANR to compete with high volume manufacturers but with shorter lead-times and no hidden costs.

Surface mount pick and placement capabilities, utilising the latest Mirae fast process equipment allowing placement of 0402 to QFP 50mm<sup>2</sup>, micro BGA and BGA.

With capabilities for complex, high component count, double sided BGA boards to high speed, lower technology fast placement PCB's, ANR have a competitive edge.

All processes are controlled and built to and in accordance with ANSI/IPC-A-610 class 2 and 3.

ANR offer flexible stock control, working with free issue inventory, client on site inventory and procure for build facilities, full component traceability with the Datatrack software package under the companies material management programme.

Procuring bare PCB's from UK and off-shore manufacturers, offers a full range of quick turn-around production for proto-typing through to low cost volume boards from fully accredited vendors.

The service also expands to JIT and Kan Ban options for clients, where ANR hold stocks to save on client's costs with guaranteed next day deliveries where required on product requirements.





## Cable Assemblies

ANR's harnessing and cable assembly division has been developed over many years working in a variety of industries.

Manufacturing capabilities allow a varied approach to clients requirements, whether requiring high volume crimping of wires, through to bespoke drop in complex cabinet looms.

The variety of assemblies manufactured in the UK cover RF semi-rigid assemblies, copper single and multi-core harnesses through to simple wire preparation. All assemblies utilise the latest wire preparation equipment from Schleuniger and are tested using Cirris hi pot equipment.

ANR's competitiveness in the UK market place has been proven on both volume manufacturing of automated crimping and wire preparation requirements through to time consuming high power mains cables.

All cables are delivered fit for purpose. Whether clients require them on-site or delivered to a contractor off site, ANR ensure that not only does your product arrive on time, but is fully tested, labelled and ready for use and where required supplied with full client certification.

ANR's Datatrack software and component management system allows the company to work with free issue, client on-site stock and our own stock to ensure full component and batch traceability.

Utilising the distribution division allows ANR to work closely with the leading connector and cable manufacturers to provide clients, in the value added harness division, the most competitive pricing and reliable deliveries possible.





## CNC Milling & Turning



ANR's investment in new CNC multi-axis machines provides commitment to clients looking for high precision and competitive machining requirements.

Utilising Mazak and Hurco milling and turning centres, ANR's new generation 5 axis centres guarantee minimal handling and processes leading to increased quality and more competitive pricing.

The milling centres accommodate materials up to 1000mm x 500mm x 500mm. ANR work with a full range of standard through to exotic materials in varying sizes and offer flexible and efficient production cycles.

ANR extend our CNC milling services with our internal turning centres. ANR can work with material up to 750mm diameter x 1050mm. This compliments the other parts of engineering and allows greater fulfilment from producing one off fast turn around prototypes through to high volume competitive output.

The extent of ANR's expertise flows through the company from the front end materials management system allowing batch and material traceability through to the latest Solid Cam® software allowing 'direct to line' and 'lights out' operations.

Combined with continual production engineering ANR strive to improve the products and services offered, promoting not only the highest quality, but also manufacturing techniques allowing even the most complex of requirements to be handled in the quickest and most efficient manner.





## Over Moulding

ANR have worked hard to achieve customers requirements, both in terms of cable and PCB assemblies, and in reducing costs to the market place. On top of this whilst driving for lower costs, aesthetics of end products is in more essential.

Our over moulding services was introduced through client demand, to offer fast production cycles to cables and PCB's with low tooling and accurate and attractive product development.

Whilst on cables, heat-shrink applications have been the standard for assemblies, our over moulding facility allows both over-moulding to cable mount connectors and ferrites, but also in allowing customer logo's and product names to be added onto assemblies – something which was previously unavailable from ANR other than through raw cable manufacturing.

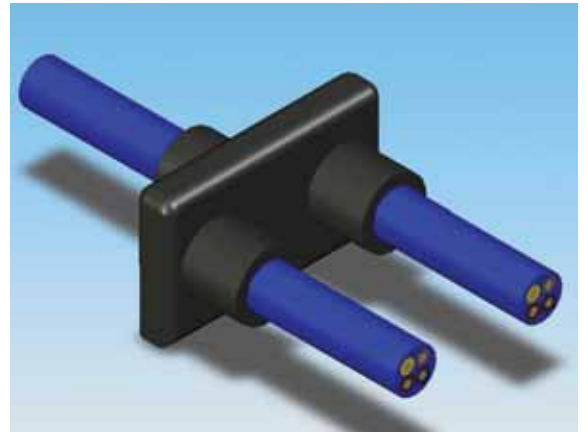
The materials used for over-moulding are generally specified by the client, whether for application or through preference, but ANR's standard resin meets WEEE and RoHS directives.

Typical performance requirements for over moulding can be varied, but do include:

- Adhesion capability
- Water resistance
- Physical & mechanical properties
- Electrical and chemical resistance

Over moulding is a low cost solution, whether is terms of strain relief to a connector on an assembly or even for complex issues such as multiple cable entries into a gland or connector requiring sealant.

This is ideal for applications where assemblies are exposed to the elements and where cable assemblies require increased protection in the market place.





STUDIO





## Systems Integration

ANR's System Solutions is the natural migration to offering clients completed assemblies, including on site integration from our core business of Electronic and Engineering sub-contract services.

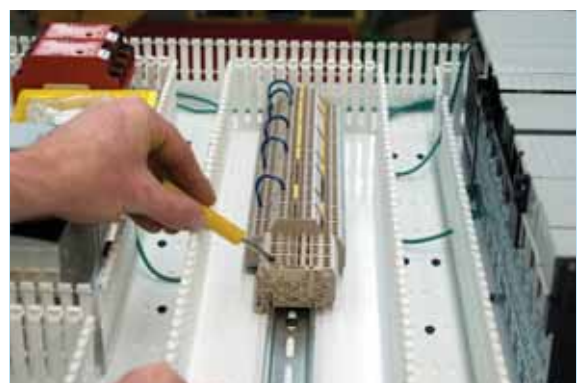
Launched as a bespoke service in 2007, we have added this area within the box build division to keep our customers current needs all in house. Saving our clients costs and resource we are able to design, support, produce, test and deliver quality assemblies including on site commissioning of equipment whether rack builds or system infrastructure.

Whilst we were already designing and building high quality bespoke cable assemblies, PCB boards and having a precision engineering workshop on site made our systems integration a natural and complimentary service.

We have invested in a skilled and dedicated work force with a broad experience of all aspects of systems installations. From the design of the electronics and internal and external cabling through to the installation of the basic ironwork, we have quickly built up a broad client portfolio for systems requirements.

We can carry out power installation and testing, data or Telco cable installations, cable termination on any end product, rack build and engineering solutions to CE standard. With the in house services already offered by ANR, we are confident to guarantee our promise to delivery a timely, cost efficient and well managed service to the market place.

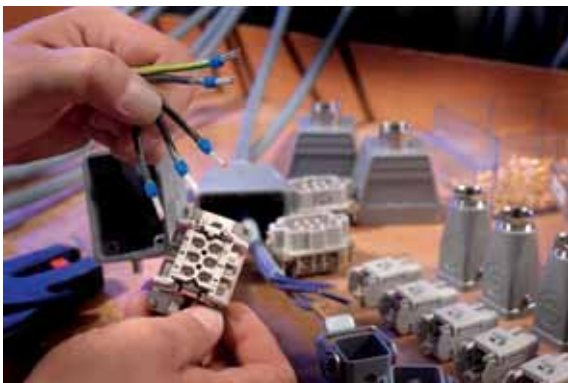
From Power to Data, Full 19" Rack Options to small break out boxes we offer a quality and time conscious solution to our clients needs.







## Rapid Response Team



The Rapid Response Team (RRT) was created in direct response to contractor and OEM requirements in I/O (Input / Output) connectivity.

Often, the cable interface is forgotten or requirements for product are unknown until last minute and delivery is paramount.

At ANR we can offer same day or next day deliveries, and we ensure your delivery requirements are achieved at the most competitive price. So often, whilst requirements can be of medium or large volume, it's small quantities which are required urgently. Our flexible team supported by our purchasing and materials team, will find where possible from stock materials or source for next day for immediate build.

Manufactured to the same high level as the standard cables division – this is a premium service designed for fast track production to ease contractor and service sector requirements.



All cables are fully tested, packaged and labelled for on site work, and where possible timed deliveries are offered for on site contractors.



# Market information

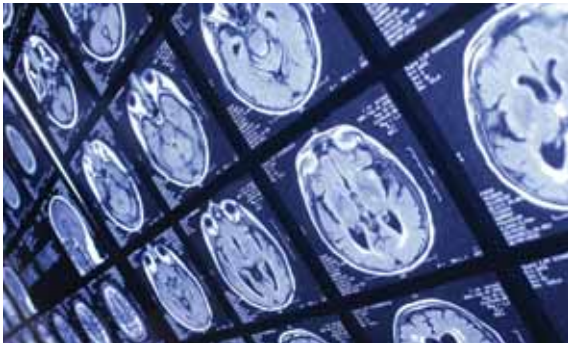
At ANR we are and have been involved in many bespoke applications in a variety of industries. As of 2010, we are involved in 32 different industries, keeping our client base quite varied which in turn allows for natural stability through any down turn in any one sector.

In the following pages we have shown in six industry sectors types of products which we have either designed, manufactured and supplied to our clients, and whilst confidentiality prevents us from detailing or showing products, may give some ideas to what we can and have manufactured.



## CCTV

- Bespoke enclosure & housing design
- PIR, Infrared and recording technologies
- IP rated enclosed units
- Fibre Optic and Copper technologies
- Bespoke cable design & manufacture
- Server control units
- Access Control
- ANPR technologies



## Medical

- Antimicrobial coating cables and over moulding
- Power distribution and hospital portal units
- Push Pull cables with quick release technology
- Instrumentation and diagnostic equipment
- High level PCB manufacturing with BGA and Micro BGA processing
- Dispensing and fluid counting machines
- Lighting and LED control units
- Scanner equipment
- Control and server racks



## Military

- Military harnesses and IO cables
- Control and ignition panels
- Boat and aircraft mounted control racks
- Communication equipment
- Headset and weapons ancillaries
- Enclosures and breakout units
- Power distribution equipment



## Design Houses

- Leading edge technologies
- Complex, multi-layer PCB assemblies
- Prototype production
- Component specification
- SBC and processor development
- Data storage
- Development and research equipment
- VME and embedded computing equipment



## Aerospace

- Wiring looms and test equipment
- Aircraft commercial lighting housings
- Slip rings
- Landing gear control units
- Control panels (in craft)
- Testing and backup support units (ground based)
- Instrumentation and calibration equipment



## Scientific

- Process and Control equipment
- High magnification processing equipment
- Power Supply Units
- IO cabling and fibre technologies
- Digital and analogue R&D equipment
- Beam line and diagnostic cabling and servers
- Wafer Fabrication control and mains distribution cabinets
- LED display and control units



## Broadcast

- Mains Distribution units
- Server and control racks
- Fibre Optic Transmit and receive PCBs
- Encoders and transmitters
- Lighting control units
- Portable battery and power units
- Outdoor broadcast vehicle modifications and wiring
- Satellite communication equipment
- Led displays and information signs
- Structured cabling and IO assemblies



## Simulators & Marine

- Water-proof cable assembly solutions
- IP68 / IP69 enclosure design solutions
- Leisure equipment and monitoring equipment
- Over-moulding for safety critical assemblies
- GPRS and analysis equipment
- Simulator and gaming machines
- Keyboard and tracker ball applications
- Lighting, LED and control systems







# General Information

## Quality:

ANR's ISO9001 management system works in conjunction with customers' approvals for the supply of goods and services in a variety of industries.

All workmanship with ANR is to IPC standards, whilst from early 2008 we have invested in staff training in the format of Lean Manufacturing Techniques and the 5 S's.

Future approval gains are planned into the future, and further information can be gained from ANR's website.

## Environmental Statement

ANR, although not holding environmental accreditations, do work to reduce both carbon footprints and waste. Accreditations are planned for, so please refer to our website for any updates.

ANR recycle all materials where possible and dispose all excess materials within RoHS and WEEE directives.

Paper, cardboard, PCB's, metal and resources are all re-cycled, whilst we are also working towards a more paperless facility, reducing the need for print.

Furthermore where possible, we try and consolidate shipments to clients, where applicable to reduce costs and usage of transport.



## Systems & Control

ANR's software system is currently Datatrak a software system written for ANR for the control and management of Electronic and Engineering manufacturing.

All materials, both raw and component stocks are bin located and on many lines have bar coding for identification.

Our control of materials easily lends itself to utilising free issue materials from clients, on site client material holding and also ANR's own stock holdings. Batch control is also important for control back to source of materials into our factory.

All processes, driven by our software for the manufacturing function have stage inspection steps which means, after every operation a second supervisor or inspector will sign off the work. Where possible we also manufacturer a master sample for future reference and client approval, whilst all production batches have first off approvals.







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