

## INTERVIEW WITH GEORGE TURNBULL— A VISIONARY IN THE CONTROLS INDUSTRY

By George Thomas,  
Contemporary Controls



**Professor George Turnbull**  
Ph.D. MIEE.FRSA.

*Professor George Turnbull is adept in the design and development of control systems, specifically process control. He joined the Eurotherm Group in 1966 as a research and development engineer before establishing Turnbull Control Systems (TCS) as a subsidiary of Eurotherm in 1974. Turnbull acted as Managing Director of this company for five years before acquiring the position as Technical Director for the Eurotherm Group worldwide. His skill held him accountable for many of the*

*Groups successful products and also formulating the overall international product strategy. Before his role with the Eurotherm Group of Companies, Turnbull lectured at Manchester University in the control section of the Department of Electrical Engineering. He has always maintained close alliance with the IEE and was awarded the Senior Control Medal in 1999. He is now Chairman of the Control Professional Network. After resigning from Eurotherm in 1998, he performed a role as Director of the Open Architecture Control Group for Object Automation and later joined Industrial Control Services PLC (ICS) as Group Technical Director on the main board of the company. He left ICS recently for a new venture—his own company, Open Automation and Control. For information you may contact George Turnbull at his e-mail address: [turnbull@mistral.co.uk](mailto:turnbull@mistral.co.uk).*

**George Thomas met with George Turnbull in London during the OPSMA FieldComms**

**Show and Conference at the new ExCel Conference Centre. Turnbull, a visionary in the controls industry, founded Turnbull Control Systems. Thomas wanted a better understanding on the state of the controls industry and the impact of office automation technology to our industry. Turnbull was optimistic as he predicted the industry's new frontiers.**

**Thomas:** It is nice seeing you again. The last time we had a lengthy conversation was in the Eurotherm offices in Worthing. What is your opinion about this brand new Excel Conference Centre?

**Turnbull:** First, it is certainly a pleasure meeting you again. Much has happened to me since our last meeting. To answer your question, I am extremely impressed with the new conference centre. The location is ideal and, the centre will play a vital role in London's expansion and economy.

**Thomas:** This show does not appear to have grown, but it does represent the fieldbus industry. What do you think of this show?

**Turnbull:** I have attended the show each year, and I always found it to be a good exchange of the latest technologies and services. I am good friends with Geoff Hodgkinson and Bob Squirrel who pioneered this event. They were very successful at first but then sold out. They are unique in the UK in that they have been promoting fieldbuses—Profibus and AS-I in particular, but really the whole scenario—since early on. If ever you are in the Southampton area, I recommend you have a drink with them as they explain in more detail what they achieved. Both they and I appreciate how difficult it is to promote industrial networking in the UK. I must admit that the show this year was a disappointment. As you indicated, it has not grown, in fact just the opposite with many of the large players absent. There is a general decline in most of the industrial shows in the UK as companies increasingly question the return they receive for the large expense incurred. I think we need to reevaluate these shows in general and this show in particular.

**Thomas:** I heard your keynote address given during the C&I Show and you were quite adamant on the UK's inability to develop new technologies. In what ways do you continue to support that view?

**Turnbull:** One of my themes is that the UK is very slow to use new technologies. Let's look at fieldbus as one example. One statistic reports that 50% of new installations in Germany use industrial networks whereas the corresponding figure in the UK is in the single digits. As far as developing new technology, our record is much better. I believe we are at the forefront. However, our main weakness is our inability to exploit this technology.

**Thomas:** What is your technical background and when was Turnbull Control Systems' inception?

**Turnbull:** Originally, I was a lecturer at Manchester and followed my Ph.D. supervisor, Mike Somerville, into Eurotherm. He was one of the founders as was Jack Leonard, also from Manchester. I subsequently brought several of my research students into Eurotherm. All of them achieved senior positions in the group. We were often referred to as the "Manchester Mafia." Mike and I worked in the central R&D. We developed products used to start Chessel Recorders and Shackleton System Drives. I then convinced the group that it should penetrate the process control market. Gerry Martin, another one of the founders said, "If you so passionately believe this, why don't you start a company." So we developed the product range in central R&D and made it in a corner of Eurotherm—hence Turnbull Control Systems was

born. I had no knowledge on business procedures, but I was helped by another one of the founders, Jim Hartnett.

**Thomas:** What are you most proud of in terms of technical accomplishments by TCS?

**Turnbull:** I was quite proud during the early days with our position in the glass industry. We were able to take on and beat the big guys, Foxboro and Honeywell in particular. We worked all hours of the day and night, but we were totally dedicated in a situation where common sense deemed it impossible. We gained considerable progress with the development of the 6350 controller. Nick Lutte, one of my researchers from Manchester, did the detailed work. It was one of the very first microprocessor—based process controllers. It was only when I was residing in the United States that I realized just what we had accomplished. This is a typical comment from my good friend, Skip Jones, who was operating EMC at the time. "You scared the @\$% out of us." If only we had more presence over there at the time. Despite this the product was a huge success in its own right and formed the basis of a complete range.

**Thomas:** Can you inform me about the acquisition of TCS by Eurotherm and what was your role after the acquisition?

**Turnbull:** I wouldn't necessarily call it a takeover. Eurotherm was

still private and held 80% of its shares in all three subsidiaries with the remainder held by people in the companies—prior to going public. At that point all local shares were converted to Eurotherm shares and we became divisions. I became the Group Technical Director with two significant roles: central coordinator and a development director in one of the divisions handling development issues. Thus I was Technical Director of Eurotherm UK, Chessel UK, Eurotherm US and Aeonic (now Eurotherm Gauging US) whilst maintaining my duties as Group Technical Director. Finally, I became the Technical Director for the Instrumentation Division (Eurotherm Chessel and ironically TCS) prior to the Siebe/Invensys takeover, when I decided to resign. As far as my career, I always sought a position in an area where the objective was introduction of a new product range. That's what I enjoyed most and did my best work. I believe as development engineers we have to recognize the value of our task. I have always told my R&D engineers that we are only successful if the products we design are successful. There are absolutely no excuses. For instance, you can't blame the marketing department if a product fails. Therefore, I am happy to be judged by the products I am responsible for by how much they contribute to the group's financial success.

**Thomas:** The UK has witnessed a flurry of acquisitions in the last

few years. Explain how this affects the industry?

**Turnbull:** I personally don't like it. That's why after 30 years I resigned from the group immediately after the takeover was announced. In Eurotherm our philosophy was that small is beautiful and that autonomy of our companies was sacred. Of course, duplication was to be avoided but autonomy was king. Also, I cannot understand the complete lack of engineers on the boards of these giant companies. I do believe in a balance of skills on the boards and the technical side must be strongly represented. A recent example in the UK is the call for individuals to serve on the board of Railtrack—a shambolic mess—who understand railways. I often feel that in the main, engineers are too nice and should assert themselves more.

**Thomas:** The FieldComms show was created several years ago at the height of the fieldbus war. When did the fieldbus war end, and if so, who won?

**Turnbull:** The answer is simple. No one won the war. Certain fieldbuses dominate in specified markets with geography as a secondary effect. Examples are Profibus in factory automation, particularly in Europe; Foundation Fieldbus in process, particularly in the US; LON in building automation; CAN in automobiles, etc.

**Thomas:** Will Industrial Ethernet

(IE) replace all the fieldbuses? Will IE get down to the sensor level?

**Turnbull:** I am a great proponent of Industrial Ethernet. In fact, several of us on the MAP (Manufacturing Automation Protocol) committee wanted to operate MMS (Manufacturing Message Specification) over Ethernet, but the “purists” won the day and lost the war. There are many ways to achieve determinism on Ethernet, always quoted as the problem. Today techniques are well established although installation is still non-trivial. In particular, as I have written at length, there are still many software issues to solve. The transition to Ethernet will be gradual, and it will find its way down towards the sensor level. The problem is that the various factions are running their protocols —Modbus, Profibus, etc. across Ethernet. As one user so eloquently put it, “Well at least I can have one piece of wire even though the various devices cannot talk to one another.” This is why I am a great advocate of fieldbus independent profiles/messaging, like IEEE 1451, but it seems to be a lone voice in the wilderness. The issue is so straightforward. The description of a device is obviously independent of the network to which it is connected—but how to move forward. There are contenders BUT!!

**Thomas:** Some people assume Industrial Ethernet and the TCP/IP stack are forever linked. Do you

think TCP/IP can be used in real-time controls?

**Turnbull:** The application of TCP/IP in real-time controls is increasing. At one time its performance was a factor, but this is no longer an issue.

**Thomas:** SoftPLC companies have either gone out of business or have been acquired. Where does SoftPLC technology have a place in our industry?

**Turnbull:** This is one of my hobby horses. The entire PC/Soft Control market has been littered with companies with no knowledge on control issues. Hence, it has completely missed the mark. One of my main messages of my new venture is that we require OPEN Distributed Control AND NOT PC/Soft Control. I could expound on this subject, but I suspect this is not the time or the place.

**Thomas:** What new technologies peak your interest?

**Turnbull:** Like everyone I am excited with the advances the Internet can bring to us. I have chaired several conferences, and I have seen the focus move from the trivial to the serious. At the last conference, speakers discussed applications which addressed such

topics as guaranteed performance, safety, security, etc. The opportunities these new technologies bring are boundless, and there are some promising developments for growth.

**Thomas:** What is George Turnbull doing today?

**Turnbull:** In some respect, I had thought with the Eurotherm acquisition that I arrived at the end of my dream, but this is no longer true. My resignations from Eurotherm and ICS because of messy takeovers led me down a familiar road. Once again, I formed my own company. Open Automation and Control will assist people on how to implement true Open Systems through advice, design and certification services and products. We work with a strong team of suppliers who I consider "Best of Class" and add value to their products. So far, we have been completely self supporting which has not been easy, but I remain hopeful.

**Thomas:** What are your predictions for the new millennium?

**Turnbull:** One day I envision Open Distributed Systems to be supported through Internet technology. This will allow TRUE plug and play. Not too far from reality, do you think?

## Turnbull's New Venture

Turnbull's new company, Open Automation and Control, was born out of his passion for Open Systems. His company's mission is to assist other companies implement open systems through a mixture of practical advice, design and certification services and products.

Turnbull has partnered with various companies considered the "Best of Class" in this area.

Originally, his company was intended to operate in the process/factory automation areas; however, he is concentrating his efforts in the direction of the building automation sector with future interest in the home sector.

"I believe applying technology employed in the industrial sector into this rapidly growing sector places us in a unique position," smiles Turnbull.

Turnbull can be reached through his e-mail address: [turnbull@mistral.co.uk](mailto:turnbull@mistral.co.uk).