



PATENTS ACT 1977

APPLICANT Fisher-Rosemount Systems Inc.

ISSUE Whether patent application number
GB0620323.6 complies with Section
1(2)

HEARING OFFICER Peter Slater

DECISION

Introduction

- 1 Patent application GB0620323.6 entitled "User configurable alarms and alarm trending for process control systems" was filed in the name of Fisher-Rosemount Systems on 4 May 2005. The application is derived from the corresponding PCT application published as WO2005/109126 on 17 November 2005, claiming a priority date of 4 May 2004 from an earlier US application. The application was then republished on 21 February 2007 as GB2429387.
- 2 The examiner has maintained throughout an objection that the invention claimed in this application is excluded from patentability under section 1(2)(d) of the Patents Act 1977 as it relates to the presentation of information. The applicant has not been able to overcome this objection, despite amendments to the application.
- 3 The matter therefore came before me at a hearing on 25 May 2010 where the applicant was represented by Dr Alex Lockey of Forrester Ketley & Co. The examiner Joseph Mitchell was also present.
- 4 Dr Lockey submitted a skeleton argument shortly before the hearing which included two alternative versions of claim 1 (claims A,B) for my consideration, should I find that the invention as currently claimed is excluded.

The Invention

- 5 The invention relates to a graphical user interface for use in a process control system for displaying the status of various alarms associated with devices within the system to an operator. A typical process control system, for example, as used in a chemical or petroleum processing plant consists of a large number of field devices including sensors for measuring temperature, pressure and flow rates throughout the system. When an abnormal condition is detected by one or more of the sensors an alarm is typically generated at the operator workstation. Often, as a result of chain reactions with the plant, the operator may be presented with a large number of alarms at the same time, generating what is referred to as an “alarm flood” which is difficult to deal with. Furthermore, it is extremely useful for the alarm indicators to present “contextual” information about a specific alarm to the operator. For example, the identity of the device generating the alarm, its location, the date and time at which the alarm was activated are often included as part of the display.
- 6 The invention relates specifically to a new user interface which allows the operator to modify, configure and manipulate alarm indicators to show alarm priority, age and location, as well as providing additional contextual information showing the relationship between various alarms within the display.
- 7 The most recent set of claims were filed on 16 November 2009 and comprise two independent claims relating to a graphical user interface for a process control system (claim 1) and a method for generating a graphical user interface for a process control system (claim 19). The wording of the claims is as follows:

1. A graphical user interface for a process control system that includes a plurality of data inputs and a variety of alarms for said inputs, the interface comprising:

a main panel display including a plurality of alarm indicators, wherein each of the alarm indicators includes a visual representation of an active alarm for a data input from one or more of a control module, an equipment module, or a processing unit and provides indicia of alarm priority and alarm age; and

an alarm profile display providing contextual information corresponding to a selected one of the plurality of alarm indicators, wherein the contextual information includes another alarm indicator to which the selected alarm indicator is a parent.

19. A method of generating a graphical user interface for a process control system that includes a plurality of data inputs and a variety of alarms for said data inputs, the method comprising:

displaying a main panel display including a plurality of alarm indicators, wherein each of the alarm indicators includes a visual representation of an active alarm for a data input from one or more of a control module, and equipment module, or a processing unit and provides indicia of alarm priority and alarm age,

displaying an alarm profile display in response to selecting an alarm indicator from the main panel display, the alarm profile display providing

contextual information corresponding to the selected alarm indicator, wherein the contextual information includes an alarm indicator to which the selected alarm indicator is a parent, the alarm profile display including a plurality of alarm profiles wherein active alarms are grouped by one or more of time span, [plant area, process unit and equipment module, and superimposing the alarm profiles on a process graphic display so that alarm profiles can be seen in the spatial context of equipment schematics depicted in the process graphic display.

Alternative claim A

1. A graphical user interface for a process control system that includes a plurality of data inputs and a variety of alarms for said data inputs, the interface comprising:

a main panel display including a plurality of alarm indicators, wherein each of the alarm indicators includes a visual representation of an active alarm for a data input from one or more of a control module, an equipment module, or a processing unit and provides indicia of alarm priority and alarm age; and

an alarm profile display providing contextual information corresponding to a selected one of the plurality of alarm indicators, wherein the contextual information includes another alarm indicator to which the selected alarm indicator is a parent, the alarm profile display including a plurality of alarm profiles wherein active alarms are grouped by one or more of time span, plant area, process unit and equipment module, and

wherein the alarm profiles are superimposed on a process graphic display so that the alarm profiles can be seen in the spatial context of equipment schematics depicted in the process graphic display.

Alternative claim B

1. A process control system for a process plant having a plurality of process control components comprising one or more of a control module, an equivalent module or a processing unit,

a process control system further comprising a workstation, the workstation having a graphical user interface that includes a plurality of data inputs and a variety of alarms for said data inputs, the interface comprising;

a main panel display including a plurality of alarm indicators, wherein each of the alarm indicators includes a visual representation of an active alarm for a data input from one or more of the control module, the equipment module, or the processing unit and provides indicia of alarm priority and alarm age; and

an alarm profile display providing contextual information corresponding to a selected one of the plurality of alarm indicators, wherein the contextual information includes another alarm indicator to which the selected alarm indicator is a parent; the alarm profile display including a plurality of alarm profiles wherein active alarms are grouped by

one or more of time span, plant area, process unit and equipment module, and

wherein the alarm profiles are superimposed on a process graphic display so that the alarm profiles can be seen in the spatial context of equipment schematics depicted in the process graphic display;

the interface being operable to accept an operator input to control the process control component of the process control system.

The Law

- 8 The examiner has raised an objection under section 1(2)(d) of the Patents Act 1977 that the invention is not patentable because it relates to the presentation of information as such; the relevant provisions of this section of the Act are shown in bold below:

1(2) It is hereby declared that the following (amongst other things) are not inventions for the purpose of the Act, that is to say, anything which consists of –

(a)

(b)

(c) a scheme, rule, or method for performing a mental act, playing a game or doing business, or a program for a computer;

(d) the presentation of information;

but the foregoing provisions shall prevent anything from being treated as an invention for the purposes of the Act only to the extent that a patent or application for a patent relates to that thing as such.

- 9 As explained in the notice published by the UK Intellectual Property Office on 8 December 2008¹, the starting point for determining whether an invention falls within the exclusions of section 1(2) is the judgment of the Court of Appeal in *Aerotel/Macrossan*².
- 10 The interpretation of section 1(2) has been considered by the Court of Appeal in *Symbian Ltd's Application*³. *Symbian* arose under the computer program exclusion, but as with its previous decision in *Aerotel*, the Court gave general guidance on section 1(2). Although the Court approached the question of excluded matter primarily on the basis of whether there was a technical contribution, it nevertheless (at paragraph 59) considered its conclusion in the light of the *Aerotel* approach. The Court was quite clear (see paragraphs 8-15) that the structured four-step approach to the question in *Aerotel* was never intended to be a new departure in domestic law; that it remained bound by its previous decisions, particularly *Merrill Lynch*⁴ which rested on whether the contribution was technical; and that any differences in the two approaches should affect neither the applicable principles nor the outcome in any particular case. But

¹ <http://www.ipo.gov.uk/pro-types/pro-patent/p-law/p-pn/p-pn-computer.htm>

² *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007] R

³ *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1

⁴ *Merrill Lynch's Application* [1989] RPC 561

the *Symbian* judgment does make it clear, that in deciding whether an invention is excluded, one must ask does it make a technical contribution? If it does then it is not excluded.

- 11 Subject to the clarification provided by *Symbian*, it is therefore still appropriate for me, to proceed on the basis of the four-step approach explained at paragraphs 40-48 of *Aerotel/Macrossan* namely:
- 1) Properly construe the claim
 - 2) Identify the actual contribution (although at the application stage this might have to be the alleged contribution).
 - 3) Ask whether it falls solely within the excluded matter, which (see paragraph 45) is merely an expression of the “as such” qualification of section 1(2).
 - 4) If the third step has not covered it, check whether the actual or alleged contribution is actually technical.
- 12 The operation of this test is explained at paragraphs 40-48 of the decision. Paragraph 43 confirms that identification of the contribution is essentially a matter of determining what it is the inventor has really added to human knowledge, and involves looking at substance, not form. Paragraph 46 explains that the fourth step of checking whether the contribution is technical may not be necessary because the third step should have covered the point.

Construing the claims

- 13 The first step of the test is to construe the claims. I do not think this presents any real problems since both the applicant and the examiner appear to agree as to the meaning of the claims.
- 14 However, I did ask Dr Lockey, at the hearing, to clarify what was meant by the term “parent” in claim 1, and whether it had a particular meaning. Dr Lockey explained that the term was used merely to represent a relationship between two or more alarms, for example, where they are associated with a common device within the process control system or are situated in close proximity within a defined area of the plant, and nothing more. By “contextual” information, the applicant is referring to items of information such as the identity of the device generating the alarm, its location, the date and time at which the alarm was activated, and any information showing a relationship between alarms.

Identify the actual contribution

- 15 For the second step, it is necessary to identify the contribution made by the invention. Paragraph 43 of *Aerotel/Macrossan* explains that this is to be determined by asking what it is - as a matter of substance not form - that the invention has really added to human knowledge having regard to the problem to be solved, how the invention works and what its advantages are.

- 16 Again, the applicant and examiner appear to agree as to the definition of the contribution as currently claimed. This is clearly set out in the examiner's report dated the 6 January 2010 as follows:

“A graphical user interface for a process control system having a number of data inputs and alarms for the inputs, a display panel having alarm indicators including a visual representation of an active alarm and providing indicia of alarm priority and age, and an alarm profile display providing ‘contextual information’ corresponding to a selected alarm to one of the alarm indicators and which includes another alarm indicator to which the selected alarm is a ‘parent’.”

Does the contribution fall solely within excluded subject matter? Is the contribution technical in nature?

- 17 Dr Lockey argues that the contribution amounts to a new and improved user interface for use in a process control system which takes active data from multiple components throughout the system, and controls the display to show multiple alarms to the operator and also provides an indication of the relationship between the alarms, thereby enabling the operator to deal more effectively with so called “alarm floods”. He argues that this clearly relates to more than the mere presentation of information, and that the invention per se is technical, relating as it does to a display for a process control system.
- 18 A useful summary of Dr Lockey's arguments is presented in his skeleton submitted shortly before the hearing on 24 May 2010 as follows:

“It is submitted that the issue addressed by the present invention is a technical problem. As discussed in the introduction to the description, for example in paragraphs 3 to 5, the context of the invention is process control systems. These can be large and complex systems including a large number of controllers, actuators and sensors for controlling the operation of a process plant. The examples given of possible uses are chemical manufacturing plants, power plant control and oil and gas drilling and handling processes. It will be apparent that in such process plants, close monitoring and control of the process is essential.

It will be apparent therefore that an operator who is overseeing the operation of such a process control system could potentially be faced with a large amount of information which will require the operator's active attention and possible action in response. The problems in known systems are set out in paragraphs 6 to 9, but essentially operators can be overwhelmed by the number and type of alarms presented to them.

In connection with the Aerotel/Macrossan steps, at steps 1 and 2 we agree with the examiner's view as set out in the report. It is however submitted that the claimed invention is not solely related to the display of information as such.

*As discussed in paragraph 1.30 of the Manual of Patent Practice, the exclusion covers any manner, means or methods of expressing information which is characterised solely by the content of the information. In *Autonomy Corp Limited v Controller of General Patents*, it was held that choosing where and how to display information is still a presentation of information as it is a part of a decision as to how to present the information. However, the exclusion will not take effect if the invention makes advance in a non excluded field.*

In this context, it is submitted that the contribution amounts to a new and improved user interface which takes active data from multiple components in a process control system, and controls the display to show the two alarms to the operator and also provide a relationship between two alarm indicators. As thus phrased, this addresses the problem of "alarm floods" as discussed in paragraph 7 and 8 to enable the operator to control a plant in response to a very large number of alarms. At step 4, it is submitted that the invention is per se clearly technical, relating as it does to a display for a process control system."

- 19 There is no doubt in my mind that the invention as currently claimed is all to do the presentation, of what the applicant refers to as "contextual" information to the operator, for example, information related to the status of a specific alarm including its relationship with other alarms within the system and the way in which this is presented to the operator on screen. The contribution therefore quite clearly resides in the presentation of information. However, this does not mean that it should be immediately excluded as such. What matters is whether or not the invention provides a technical contribution.
- 20 Contrary to Dr Lockey's arguments, I do not think the problem associated with the operator being presented with a very large number of alarms at any one time, i.e. the occurrence of an "alarm flood" is necessarily a technical one, and the mere alteration, or reconfiguration of the display to add additional items of information such as the relationship between alarms to aid in their management does not, to my mind, constitute a technical solution.
- 21 Having considered all the evidence made available to me, and all the arguments put to me at the hearing, I do not consider the invention as currently claimed to provide a technical contribution, and as such it would seem to be excluded under section 1(2)(d) as the mere presentation of information.

Alternative claim A

- 22 Alternative claim A claim includes the additional features of the alarm profile display including a plurality of alarm profiles, grouping the alarms by one of more of time span, plant area, process unit and equipment module and where the alarm profiles are superimposed on a process graphic display so that the alarm profiles can be seen in the spatial context of equipment schematics depicted in the process graphic display.

- 23 Dr Lockey argues that in this alternative the alarms are provided to the operator in the context of the physical, real world layout of the plant, thus making identifying the alarm context easier and facilitating a control response.
- 24 I do not agree. Adding additional information to the display and superimposing the alarms onto a graphical representation of the physical layout of plant whilst making the alarms easier to identify and to deal with may be advantageous but does nothing to shift the contribution away from the mere presentation of information to the operator. Furthermore, I can see no technical contribution associated with these additional features which would save the invention from exclusion.

Alternative claim B

- 25 Alternative claim B has been amended in attempt to limit the invention as claimed to a process control system. In addition, the claim has been amended to specify that the operator can as a result of the information being displayed control a component of the process plant. Specifically, Dr Lockey refers to the examples given in paragraphs 50 to 54 and in paragraphs 64 and 68 of the specification, where the operator, in response to an alarm or series of alarms on the display, changes a set point for a valve, or is able to open and close valves and turn on a pump in a tank farm respectively.
- 26 Dr Lockey argues in his skeleton, *“that these amendments place the claims squarely within the class of claims deemed allowable in decisions BL 0/148/07⁵ and BL 0/150/07⁶. Accordingly, in amended claim B, the contribution is considered to be a new and improved process control plant which receives data from a process control component within the process plant, an alarm display which displays an alarm and provides context and spatial information and identifies related alarms, and allows the operator to perform a control step of the corresponding component. It is submitted that this an improved means for an operator to control operation of the physical process and thus a contribution which goes beyond any of the exclusions, specifically presentation of information, and is hence allowable.”*
- 27 Again, I am not entirely convinced by Dr Lockey’s arguments. It is clear to me that the contribution does not extend to a new process control system, as the hardware and its arrangement is entirely conventional, nor does it reside in a new or better way of controlling the process. The contribution, as a matter of substance, is still the same, and the fact that the operator may perform some action in response to the information being displayed e.g. by manually opening or closing a valve is not what is important, to be patentable there must be some technical effect beyond the information being presented. Unlike the decisions in *BL 0/148/07 and BL 0/150/0*, where there was clearly some manipulation of the data at a technical level to produce an output for controlling the plant, I do not think the same can be said here where there is no manipulation of the data, no new output, just a new representation of existing data on the display screen

⁵ <http://www.ipo.gov.uk/pro-types/pro-patent/pro-p-os/o14807.pdf>

⁶ <http://www.ipo.gov.uk/pro-types/pro-patent/pro-p-os/o15007.pdf>

which may prompt the operator to carry out what would otherwise be a entirely conventional or common place action such as turning-off a valve. As I have already said, the contribution is unaffected by the proposed amendment, what the applicant has created as a matter of substance, is a new user interface capable of displaying a variety of information relating to alarms in a particular way, which to my mind, does not constitute a technical contribution.

Conclusion

- 28 In the light of my findings above, I conclude that the invention as claimed relates to the presentation of information as such and is excluded under section 1(2). Having read the specification I do not think that any saving amendment is possible. I therefore refuse the application under section 18(3).

Appeal

- 29 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any Appeal must be lodged within 28 days of the receipt of this decision.

P Slater

Deputy Director acting for the Comptroller