



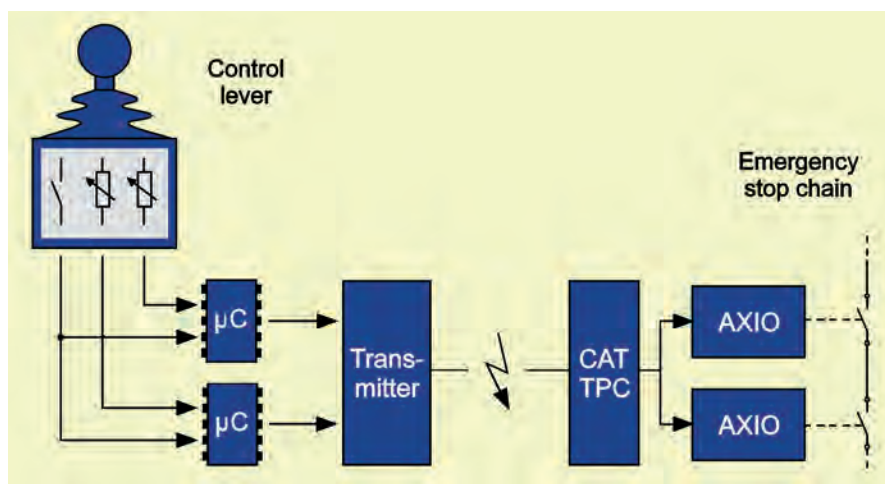
Demonstrating the CAT 100R in its halter case.

the device. In that case you connect the operating cable to the plug mounted on the unit. It is important to understand that the same desk exists in another version; the CAT 100 (without the R at the end which stands for radio transmission). And the CAT 100 works like a normal mobile desk, still very light and portable, but useable only with the cable, which can be up to 20 metres (65 ft) long.

Getting access to control machinery using the desk is achieved with the help of a chip card. If you do not have a chip card, which is a personal chip card with your data loaded onto it, you cannot move the stage machinery. I think this is an important aspect of safety. Of course there are other systems which work with a password and so on, but we thought that this method was the easiest one. And at the same time the card is used for switching on the CAT 100R.

And the last feature, which I like most, even though I'm right-handed, is that you can use CAT 100R as a left-handed or

The duplication of the control signals and their processing.



right-handed device, thanks to the symmetrical design. So you can take it and operate it from either side, and there is a facility for turning the screen display around while doing this.

Now let's have a short look at the safety technology of the CAT 100R. At first sight it might seem criminal to control something safety-critical like stage machinery, something which can be very dangerous, with something so unreliable as a wireless data link. So how can we ensure that this really works? And I would like to tell you immediately, we are not criminals; so just let me explain how we do it and how we can ensure the safety of machinery operated by the CAT 100R.

When talking about safety there are mainly two things which are very important. The first one is the control of the data, so that the control of the motion required is transmitted without any fault to the axis controllers on the fixed installation. How do we do this? We simply read the control signal from the position of the potentiometers, by two independent micro-controllers, which then both send data packets via the transmitter to the fixed installation where both data packets are forwarded to both of these axis controllers. I think there's no need to mention that of course we have two axis controllers per machine, because otherwise the whole

*This chapter reviews the stage and flying control systems manufactured by Waagner-Biro (Guddland digital), Stage Technologies, Bytecraft (State Automation) and Bosch Rexroth and covers operational facilities as well as wireless functions and safety.*

steps they would take for controlling the motor of the machinery. Only if everything is exactly the same – that is the contents of the data packet and the next steps they would take for controlling the motors – only in that case does everything continue to run. If something goes wrong in the transmission, both AXIOs have the possibility to open the emergency stop chain and so the motors will stop immediately.

Another thing which is important is what happens if the operator forgets that he is controlling some stage machinery and takes the radio desk and runs outside in the street and along the sidewalk with it? As it is so light, you really can forget that