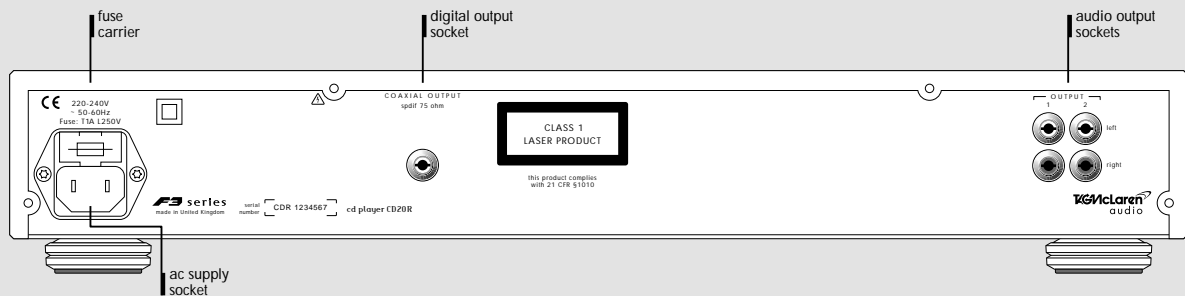
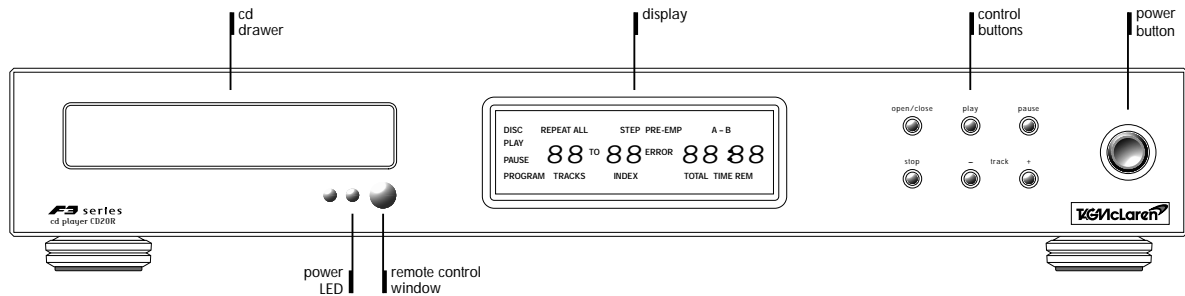




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welcome to a new partnership



Derek Scotland (on the left) - *Technical Director*
Peter Stevens - *Chief Industrial Designer*
Dr. Zucker - *Chief Executive*



..in hi-performance, hi-fidelity

All TAG companies perpetually strive for, and achieve, excellence and high-performance in every area of their business.

These qualities are demonstrated in the fastidious standards that make TAG Heuer watches some of the world's most admired; in the teamwork that makes TAG McLaren's motor racing team one of the most successful in Formula One; and in the advanced electronics technology that makes TAG Electronic Systems the first choice for many Formula One constructors and high-performance car makers.



celebrating a TAG McLaren victory

Now, this blend of talent and expertise has been combined with the award-winning experience of Audiolab to create a company with a technical advantage and access to resources second-to-none in the high end audio industry - TAG McLaren Audio.



TAG McLaren Audio has been created with one aim in mind: to produce the best high-fidelity audio and audio-visual systems available. Now the first fruits of that alliance are ready – a unique new range of audio products.

F3 series

Throughout the F3 Series development process, quality, performance and reliability have been paramount, resulting in unparalleled performance, operational excellence and sheer listening pleasure.



Thank you for purchasing the TAG McLaren Audio cd player CD20R.

F3 series cd player CD20R

We are convinced it will give you many hours of listening pleasure.

You already know about the undoubted virtues of Compact Discs (CDs) – their convenience, ruggedness and long, uninterrupted playing time – but, up to now, you may have been disappointed by the sound quality when you play them. At TAG McLaren Audio we understand exactly what needs to be done to get the best sound from a CD.

accurate reproduction

Digital recording is quite insensitive to data losses, such as a scratch on a disc. However, rebuilding the recorded music exactly, even from a perfect digital recording, is a complex task which is often not appreciated and has only recently been fully understood.

high-quality transport mechanism

To minimise any corruption of data being read from the CD, the CD20R has a heavy-duty transport mechanism and the laser, which reads the data from the CD, has fast digital servo control to ensure that it follows the CD tracks as accurately as possible. The specially-designed Sorbothane® sonic isolation feet help the servo to track accurately by minimising the vibration that reaches the mechanism.

stable internal clock

The timing of the data is as important as the data itself. Timing inaccuracy, known as 'jitter', is responsible for a wide range of subtle distortions. In the CD20R, jitter is reduced to an absolute technical minimum using a very stable electronic clock which is synchronised to the CD data stream to provide accurate timing.

digital filtering

By its nature, digital data generates unwanted, high-frequency noise when it is converted back to the analogue domain (which is what our ears can hear). Even though the noise frequency is way above the threshold of human hearing, it has unpleasant effects on the sound due to what audio engineers call 'intermodulation'. To remove this noise, the CD20R uses a

digital filter which is made more effective by oversampling and noise shaping the data. This technique separates the noise from the music by multiplying the data rate 128 times.

high resolution

The digital signal represents the original music as rapidly changing groups of bits (i.e. the 'zeros' and 'ones' understood by computers). More bits in each group allow a more accurate representation of the music information during processing. The CD20R uses 20 bits (four bits more than a CD's original recording), which results in higher signal resolution and more precise sound details.

automatic de-emphasis

If an original recording was made with pre-emphasis the CD20R will switch on de-emphasis automatically to take advantage of it.

digital output

In the CD20R, the digital data stream coming from the CD is available at the digital output socket. This enables you to make digital recordings using a digital recorder, such as a DAT or MiniDisc.

high-quality analogue output

With all our effort on the digital side (and we have only listed a few topics here), we have not forgotten the analogue music reproduction, which is as important as the recovery of the music from the digital domain. The analogue circuit in the

CD20R is a 'no-compromise' design using high-quality, high-stability, components to send a smooth, clean signal to your amplifier for excellent sound quality. The analogue output terminals are duplicated for your convenience.

easy control

Controls on the front panel and on the remote control make the CD20R easy and convenient to operate. Our engineers have made sure that you cannot damage your CD20R, or your discs, should you accidentally operate the wrong control. The CD20R offers you sophisticated facilities to repeat tracks or specified sections of a CD, and allows you to program your choice of tracks in any sequence. You can also edit the program after you've entered it.

The CD20R provides you with hi-fidelity sound coupled to the convenience of the Compact Disc.

- Single bit, digital to analogue converter with 20 bit resolution and 128 times oversampling
- 'Straight Line Technology' **SLT** links the digital to analogue converter to the audio output
- High-quality, high-stability components
- High-stability transport mechanism with digital servo control, visco-elastic silicone rubber suspension, 3-beam laser and linear motor
- Low-noise master clock
- Back-lit LCD display to show information about the CD being played and CD2OR functions.
- Operation by front panel or remote control
- Remote control also operates selected TAG McLaren Audio F3 Series amplifiers and preamplifiers
- Microprocessor control with computer logic to prevent damage and reduce the number of key presses
- Sophisticated programming facilities allow up to 59 tracks to be played in any order, including repetitions

- Programs may be edited after they have been entered
- Repeat tracks or specified sections of a CD
- Two low-impedance stereo audio outputs
- SPDIF 75 Ω coaxial digital output
- Sorbothane[®] sonic isolation feet, specially designed by TAG McLaren Audio⁽¹⁾

1. For the very best performance we recommend that our units are placed on individual shelves and are not stacked one on top of another

We know you are keen to get your CD20R working. This section will have you listening to your favourite CD as quickly as possible. If you fold out the front cover of this manual you will locate diagrams which will help you find your way around your CD20R⁽¹⁾.

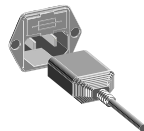
before you start Make sure that all the components of your audio system are disconnected from the AC supply whenever you change any connections.

amplifier connection Use a good-quality, screened phono-phono audio cable to connect the phono sockets marked **OUTPUT**⁽²⁾ **left** and **right** on the back of your CD20R to the corresponding CD inputs of your amplifier⁽³⁾.

Make sure the amplifier's volume is turned down and the CD input is selected.

power connection Check that the power button is *out* so that power is off when you plug in⁽⁴⁾. Using the cable supplied, connect the socket on the back of your CD20R to an AC supply outlet. For the best sound quality, we recommend that you do not use multi-plug adaptors.

switch on Press the power button in. The blue power LED will come on and the display window will light up and show the word **DISC**⁽⁵⁾.



open drawer Press the **open/close** button⁽⁶⁾. The CD drawer will slide open.

The first time you open the CD drawer you will find a transit mat which protects the CD transport mechanism while the player is being moved. Remove the transit mat from the drawer and keep it with the packaging. Put the transit mat back in the CD drawer whenever you move your CD20R⁽⁷⁾.

play a cd Put a CD in the drawer with its label facing up. Press the **play** button to close the drawer and start the CD playing. Turn up the volume on your amplifier, sit back and enjoy the music.

Feel free to experiment with the controls. You cannot damage the CD or the CD20R if you press the wrong button.

1. Throughout this instruction manual (except in titles), **bold** print indicates the lettering that you will find on the panels and display of your CD20R
2. The output sockets are duplicated for your convenience. **OUTPUT 1** and **2** are electrically identical
3. If your amplifier does not have an input labelled CD, you can usually connect to an input labelled AUX or LINE instead
4. The power button is a latching switch. One press will hold it in, the next will release it
5. If there is already a CD in the CD20R then, after a few seconds, the display will show the number of tracks and the total playing time of the CD instead of the word **DISC**
6. You can use the button on the front panel or on the remote control
7. Install the transit mat with the tape facing upwards and in line with the direction of movement of the drawer

open/close



play



Your CD20R can be operated by using the buttons on the front panel or by using the remote control supplied⁽¹⁾. The remote control also operates selected TAG McLaren Audio integrated amplifiers and preamplifiers.

open drawer Press the **open/close** button to open the CD drawer⁽²⁾. You can now put a CD in the drawer (make sure its label is facing up). Press the button again to close the drawer. The drawer will close automatically after about three minutes.

open/close



cd recognition A few seconds after the CD is loaded, the display will show the table of contents, referred to as TOC, which consists of the total number of tracks and total playing time of the CD.

If the CD is not loaded correctly or is faulty, the word **ERROR** will be shown on the display for about three seconds, followed by the word **DISC**. If this happens, open the drawer and re-seat the CD.

play Press the **play** button to start the CD playing. The **TRACK** number, **TIME**⁽³⁾ and the word **PLAY** will appear on the display. Play will start at the first track and go on to the end of the CD. If you press **play** while a track is playing, the CDT20R will return to the beginning of the track and start playing it again. If the drawer is open, pressing **play** will close it.

play



pause Press the **pause** button to interrupt the playing of the CD. **PAUSE** appears on the display while playing is paused. This function remembers which part of the CD was playing when you pressed the button. Press **pause** again, or press **play**, to restart at exactly the same place.

pause



stop Press the **stop** button to stop the CD playing. This function does not remember which part of the CD was playing when you pressed the button and clears any repeat settings (see page 16).

stop

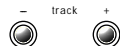


1. Some buttons have special functions when pressed for more than two seconds (see pages 14 and 19). Unless you want to use these functions you should not hold any button down for longer than two seconds
2. If you are using your CD20R for the first time, please read the notes about the transit mat on page 11
3. See page 18 for more information about the **TIME** display

Buttons on the remote control allow you to select tracks and to search through tracks as they play. The **track +** and **track -** buttons are duplicated on the front panel of your CD20R. For optimum performance from the remote control, you must point it towards the remote control pickup window on the front panel.

next/previous track

Press the **track +** button to go to the start of the next track⁽¹⁾. Press **track -** for the previous track. If you hold down either of the **track** buttons for more than two seconds, the CD20R will quickly step through the track numbers. Play will continue from the selected track to the end of the CD.



search

Press the **search +** button to play at high speed forwards. Press **search -** to play at high speed backwards. The output of the CD20R will sound strange as the music is played at high speed. The volume is automatically reduced to minimise any possibility of damage to loudspeakers.



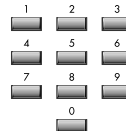
index

Press the **index +** button to go to the start of the next index⁽²⁾ and play it. Press **index -** for the previous index. If a track includes index markers, the display shows the index number and the word **INDEX**. The first index is not displayed. Play will continue from the selected index to the end of the CD.



direct entry

Press a number button to go directly to a specific track on the CD. The number you have selected will be shown on the display. If the number is flashing you can enter another digit⁽³⁾. The first digit will flash five times before the track is played. Play will continue from the selected track to the end of the CD.



1. If you press **track +** while the CD is stopped, the CD20R will go to track 2 and start playing from there. If you press **track -** while the CD is stopped, the CD20R will go to the last track and play it.
2. An **index** is a subdivision of a **track**. It is occasionally used on classical recordings but very few other CDs have index markers.
3. If you enter a two digit number which is greater than the number of tracks on the CD, then the track corresponding to the *second* digit will be played. (e.g. if you select 18 when the CD has only 16 tracks, then track 8 will be played)

Your CD20R can be set to repeat tracks, selected sections of a CD or the entire CD. The controls for this are only on the remote control.

repeat track

Press the **repeat** button to repeat the track that is playing. The word **REPEAT** is displayed. This track will continue to repeat until you press the **repeat** button again twice¹⁾.



repeat all tracks

If you press the **repeat** button twice the words **REPEAT ALL** are displayed. The CD will continue playing to the end and then start again from the beginning. The entire CD will continue to repeat until you press the **repeat** button again.



press twice

repeat section

The **a-b** button is used to set up a section of the CD to be repeated. The section can include more than one track.

Go to the start of the section you want to repeat using the **track** or **search** button and press the **a-b** button. The display will show **A -**. Now go to the end of the section using the **track** or **search** button and press the **a-b** button again. The display will now show **A - B** and the CD20R will return to the start of the section and keep repeating it.



Press the **a-b** button again to stop repeating the section.

skip section

You can also use the **a-b** button to select a section of the CD to be skipped (i.e. the selected section will not be played).

If you set up **A - B** playing so that **B** is earlier than **A**, then the section between them will be skipped.

For example, press the **a-b** button when the total time played is 20 minutes. Then use the **search -** button to go back to 12 minutes and press the **a-b** button again. Start playing the CD from, say, six minutes. When 12 minutes is reached, play will skip to 20 minutes and continue to the end of the CD.



Press the **a-b** button again to return to normal playing.

1. The **repeat** button cycles through **REPEAT**, **REPEAT ALL** and back to normal play (**REPEAT** is no longer displayed). Pressing the **stop** button also clears the repeat settings

You can change the way your CD20R displays information. The controls for this are only on the remote control.

time display

Press the **time** button repeatedly, or press and hold, to cycle through the time display modes.



- 1 - The display shows the amount of time played so far on the current track. The word **TIME** is also displayed.
- 2 - The display shows the amount of time remaining on the current track. The words **TIME REM** are also displayed.
- 3 - The display shows the amount of time remaining on the CD. The words **TOTAL TIME REM** are also displayed.
- 4 - The display shows the amount of time played so far on the CD. The words **TOTAL TIME** are also displayed.

table of contents display

While a CD is playing, you can display the table of contents by holding down the **toc** button. This consists of the total number of tracks and playing time of the CD.

**display off**

Press the **display** button to switch the display off and on.



Programming allows you to play tracks in the sequence you choose instead of the order in which they appear on the CD. To do this, you have to enter your chosen sequence of tracks into the memory of the CD20R. When you store a program, you assign a track to each step of the program. This process is called programming and the sequence of steps is the program.

This section describes how to store and play a program. All the buttons referred to can be found on both the front panel and the remote control.

entering program mode

In order to store and play a program, your CD20R has to be in program mode. In program mode, the CD20R plays in step sequence instead of the recorded track sequence.

To enter program mode, press the **stop** button for at least two seconds. The display will show:



hold for at least two seconds

PROGRAM

TRACK with the track number above it

STEP with the step number below it

TOTAL TIME with the time above it

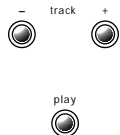
storing a program

Select the track that you want to be first in the program by using the **track +** or **track -** buttons⁽¹⁾. Press the **play** button to store the track. The **STEP** number increases by one.

Repeat this procedure for each track that you want to store.

The **TOTAL TIME** shows the approximate⁽²⁾ cumulative time of the program including the track you have currently selected.

If you want to repeat a track, you can store it more than once. If you do this, **TRACK** will flash to remind you that the track has already been selected.

**playing a program**

Once you have stored your program, you can play it by pressing the **play** button for at least two seconds.



1. You can also select a track by using the remote control number buttons. You can enter one or two digits. If you want to replace a two digit number by a single digit you have to enter a leading zero. See page 15 for more information on the use of the numeric keys for direct entry
2. The cumulative time shown on the CD20R's display is taken from the table of contents information, and includes the pause between each track. Because the pause can be any length (including zero), and may or may not be included in the times stated by the CD manufacturer, the cumulative time can only be approximate

delayed play

If you do not want to play your program as soon as you have stored it, you can press the **pause** button for at least two seconds. When you are ready to play your program, press either the **play** or the **pause** button⁽¹⁾.

**exiting program mode**

Press the **stop** button for at least two seconds to exit program mode. The word **PROGRAM** is no longer displayed. You can now play your CD in the usual way. The program has not been erased and you can return to it by pressing the **stop** button for at least two seconds to re-enter program mode.

**erasing a program**

Opening the CD drawer or turning off the power will erase the stored program. If the CD20R is still in program mode, press the **open/close** button for at least two seconds to open the CD drawer. This will also exit program mode.

**maximum program length**

Your program can include a maximum of 59 steps. If the total program playing time exceeds 99 minutes and 59 seconds, the time display will show --:--. This has no effect on the playing of your program.

1. The CD20R will start playing almost instantly from **pause** as the CD is already spinning. This is useful for cueing recordings

time display When the CD20R is playing a CD in program mode, **TOTAL TIME** and **TOTAL TIME REM** refer to the stored program.

table of contents When the CD20R is playing a CD in program mode, pressing the **toc** button on the remote control displays the table of contents of the stored program.



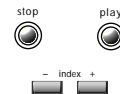
While the program is being stored, pressing the **toc** button displays the table of contents of the whole CD.

You can change your stored program at any time. To do this, the CD20R has to be in program mode. If you are not in program mode, press the **stop** button for at least two seconds.



The buttons for editing can be found on both the front panel and the remote control, except for **index +** and **index -** which are only on the remote control.

reviewing your stored program Press the **stop** button then use the **play** or **index +** buttons to step forward or the **index -** button to step back through your program. Pressing the **stop** button always returns you to the first step.



changing a selection Go to the step you want to change as if you were reviewing your program. When you find the step, you can select a different track by pressing the **track +** or **track -** buttons⁽¹⁾.



1. You can also use the number buttons on the remote control

inserting a step

Go to the step where you want to insert a new track. Press the **open/close** button for less than two seconds⁽¹⁾. A dash is displayed above **TRACK**. You can now select a track which will be stored at this step. The step numbers after the newly inserted track are increased by one.

open/close



Some recordings are made using a noise reduction technique called pre-emphasis.

erasing program steps

Go to the step you want to erase. Press the **open/close** button twice to erase the step. The step numbers after the erased step are reduced by one.

open/close



To erase your chosen step and all steps to the end of the program, press the **open/close** button then the **pause** button.

pause



If you want to erase the whole program, go to the first step, press the **open/close** button then the **pause** button.

automatic de-emphasis detection

The CD20R automatically recognises recordings with pre-emphasis and applies de-emphasis to take advantage of the digital noise reduction⁽¹⁾.

The display will show **PRE-EMP**

1. If you hold the open/close button for two seconds or more you will lose your whole program

1. Pre-emphasis is used in some recordings to improve the potential playback quality but it is not often used

audio output **OUTPUT 1** and **2** are used to connect your CD20R to an amplifier, and can also be used for analogue tape recording. The low-impedance (100 Ω) output is buffered and will drive long cables or several inputs in parallel if required. **OUTPUT 1** and **2** are connected together in parallel.

Muting of the audio output is automatic.



TAG McLaren Audio equipment is designed to give optimum performance for many years.

running in Just like a high-quality car, the performance of your CD20R will improve during the first few hours of operation. The electronic components will then have reached and settled down to near-perfect specification.

output for digital recording The digital output is provided in order to allow connection of your CD20R to equipment with a digital input, such as a DAT recorder, thereby allowing recording in the digital domain without any loss of quality.

The digital output is accessible via a phono socket on the back panel of the CD20R marked **COAXIAL OUTPUT spdif 75 ohm**. The output conforms to the SPDIF format and is intended to be used with 75 Ω cable.

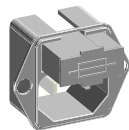


warming up Every time you switch on your CD20R, the performance will improve until the components reach their optimum operating temperature.

fuses There is a fuse in the power socket on the back of your CD20R. To change the fuse, unplug the power cable and pull out the fuse carrier drawer⁽¹⁾.

The fuse carrier contains a spare fuse; this is the first one that you see when you open the carrier.

There are no other user-serviceable parts inside the CD20R.



cleaning In order to maintain the appearance of your CD20R, you can clean it as follows:

before cleaning, always disconnect your CD20R from the AC supply.

any grease or dirt on the case may be removed with a soft, lint-free cloth moistened slightly with a mild solution of warm water and detergent or washing-up liquid. Do not use any other solutions. Do not use any solvents or abrasives.

take great care not to get any liquid inside the case. If this happens, you should have your CD20R serviced.

service The only service you should do to your CD20R is described on the left. All other servicing should only be carried out by one of our authorised service agents.

If service is required, please contact your authorised TAG McLaren Audio retailer. If your CD20R is still under guarantee, please refer to the guarantee card which gives you details on how to claim against the guarantee.

Please keep the original packaging and use it whenever your CD20R is transported. You should also install the transit mat in the CD drawer to protect the mechanism (see page 11).

1. You cannot open the fuse carrier drawer while the plug is in the socket

This section is for those of you who really want to know the 'insides' of your CD20R. You will not miss out on any of the functions or performance of your CD20R if you choose not to read any further.

cd mechanism	CDM 12.4
cd loader	L 1265/51
audio output connector	phono socket
audio output impedance	100 Ω nominal
audio output level (full scale output)	2.15 V \pm 0.5 dB
digital output format	Coaxial SPDIF

digital output connector	phono socket
digital output impedance	75 $\Omega \pm 10\%$
digital output level (into rated load)	500 mV pp $\pm 10\%$
digital filter resolution	20 bit
passband ripple	± 0.001 dB
stop band attenuation	greater than 75 dB
group delay	567 μ S

digital to analogue converter	128 times digital interpolator, fourth-order delta-sigma modulator, single bit DAC
frequency response (+ 0.2 / - 0.8 dB)	2 Hz – 20 kHz
signal to noise ratio	greater than 100 dB (A-weighted)
total harmonic distortion + noise (0 dB full scale)	less than 0.003% at 1 kHz
channel balance (0 dB full scale)	± 0.5 dB at 1 kHz
channel separation (0 dB full scale)	greater than 100 dB at 1 kHz

operating temperature range	10 – 35 °C
ac supply frequency	50 – 60 Hz
ac supply voltage	110 – 120 V or 220 – 240 V The voltage is marked on the rear of the unit
power consumption	less than 25 W
dimensions (including feet, terminals and controls)	445 mm wide 75 mm high 314 mm deep (excluding loading tray)

The rated and typical performance applies when the mains supply voltage is either 230 V AC for 220 - 240 V units or 115 V AC for 110 - 120 V units

We reserve the right to alter design and specification without notice
Specification may vary for different countries

Your CD20R meets or exceeds all the legal requirements listed below:

directives	89/336/EEC 73/23/EEC 21CFR §1010	EMC Directive (as amended by 93/23/EEC) Low Voltage Directive (as amended by 93/23/EEC) FDA rules (USA)
safety	IEC65: IEC65 A2: IEC65 A3: EN60065: 21CFR §1010:	1985 1989 1992 1993 1997
emc emissions	EN50081 -1: EN55022 Class B: EN60555 -2: EN61000 -3-2: EN61000 -3-3: FCC Part 15 Class B:	1992 1994 1987 1995 1995 1997
emc immunity	EN50082 -1: IEC801 -2: IEC801 -3: IEC801 -4: EN61000 -4-2: EN61000 -4-4: EN61000 -4-5: EN61000 -4-11:	1992 1991 ± 8 kV air discharge 1984 3 V/m 1988 ± 1 kV AC power, ± 500 V other ports 1995 ± 8 kV air, ± 4 kV contact discharge 1995 ± 1 kV AC power, ± 500 V other ports 1995 ± 2 kV common mode, ± 1 kV differential mode 1994