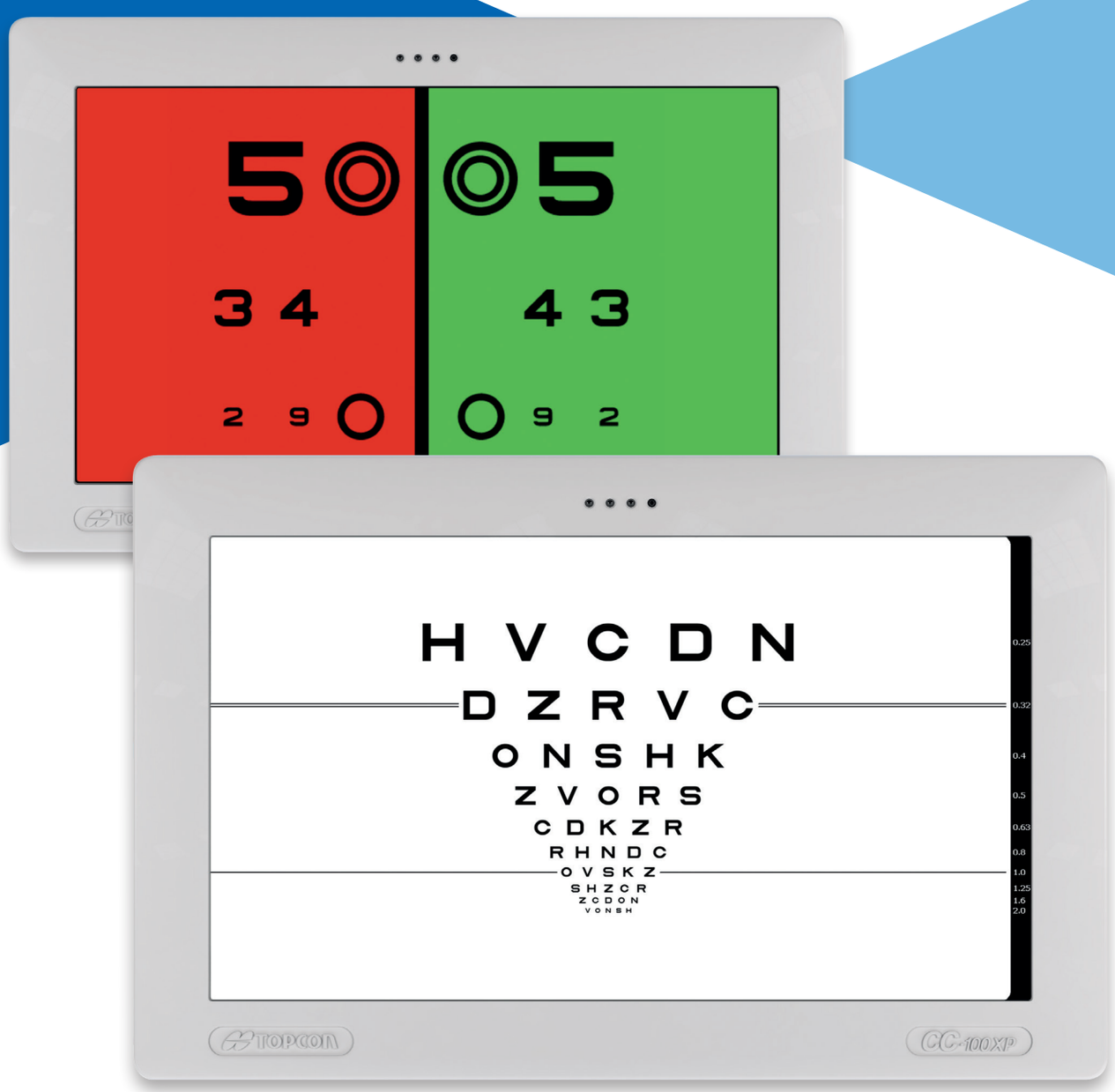
CC series

Computerized Chart systems



TOPCON

YOUR VISION. OUR FOCUS.

Computerized Chart systems

CC series

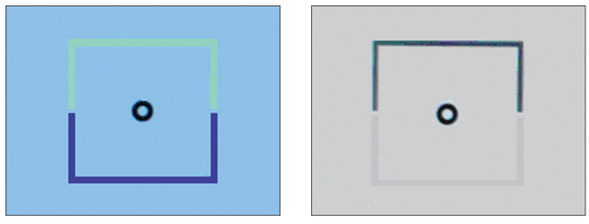
Topcon offers a wide range of Computerized Chart systems. With years of experience of providing software in the field of optics, Topcon offers a matching system depending on your wishes. Our software includes efficient and fully validated algorithms for measuring visual acuity. Topcon CC series chart systems can be operated as a stand-alone system due to a fully integrated Linux operated PC, or it can be integrated into the Topcon CV-5000S refraction lane.

CC-100XP

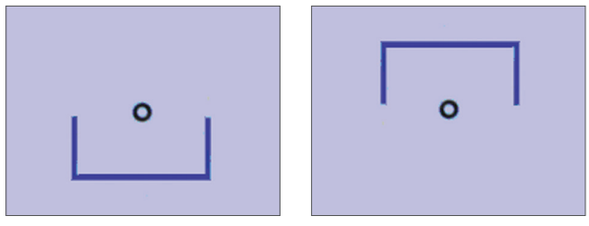
Topcon is proud to present the latest development in high-tech LCD test charts, the Topcon CC-100XP. The CC-100XP with LED technology is the top model of Topcon's chart system product line. All important visual acuity tests, binocular tests, color vision tests and contrast sensitivity tests are included. The most remarkable feature is the circular polarization technique used for binocular testing.

Circular polarization

Image separation for binocular testing is created through a specific polarization technique which is unique for visual acuity test LCD charts. This unique circular polarization technique provides 100% image separation, without any "ghost image" and provides equal background color. This is a significant improvement compared to all conventional linear polarized LCD chart systems currently available on the market.



Ghost images and different background colors in conventional LCD chart systems



100% blocking and equal background colors in Topcon CC-100XP

To ensure proper settings of the screen contrast and brightness, the CC-100XP is making use of the latest LED screen technology. The white Maddox LED provides a bright LED light source, which is extremely well fitted for Maddox testing. The CC-100XP is also able to determine if the environment illumination is correct by using a light sensor.

Key characteristics

- Unique circular polarization
- Available testing distance 2.9-6.1 m
- Fully integrated Linux operated PC
- Wide range of optotypes
- Spatial frequency contrast sensitivity test
- Pseudoisochromatic color vision test
- MKH test sequence according to Haase
- White Maddox LED light source
- Fits seamlessly in the CV-5000S refraction lane

CC-100

The Topcon CC-100 features the same functionalities as the CC-100XP. However, the CC-100XP uses unique circular polarization while the CC-100 provides image separation through red and green technique. Therefore the CC-100 is the basic version of the CC-100XP.
The high resolution 21,5 inch LED screen, similar to CC-100XP, ensures a clear and bright chart display. All commonly known visual acuity tests are available, including an ETDRS test. Like the CC-100XP, the CC-100 displays reports of the color vision tests and contrast tests. The CC-100 series can be operated as a stand-alone with an infrared remote control, or integrated in the Topcon CV-5000S refraction lane.

Key characteristics

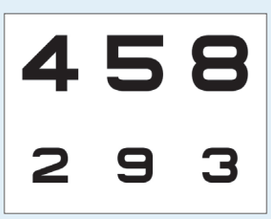
- Image separation through red and green filters
- Available testing distance 2.9-6.1 m
- Fully integrated Linux operated PC
- Wide range of optotypes
- Spatial frequency contrast sensitivity test
- Pseudoisochromatic color vision test
- MKH test sequence according to Haase
- White Maddox LED light source
- Fits seamlessly in the CV-5000S refraction lane

Visual acuity charts provided bij CC-100 series

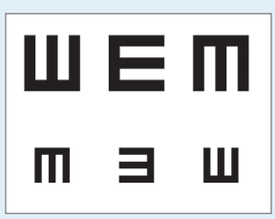
The Topcon CC series chart systems offer the most commonly used visual acuity optotypes ranging from letters, numbers, tumbling E, landolt C and up to five different children charts.

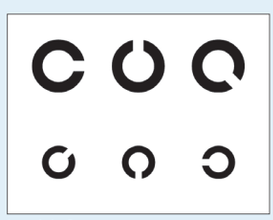
The chart systems support 20 different menu languages. The CC-100 series is also capable of displaying Cyrillic optotypes.

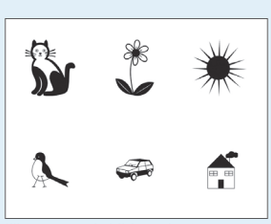
Letters

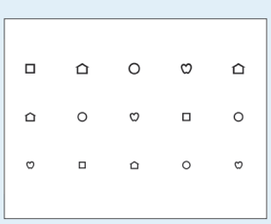


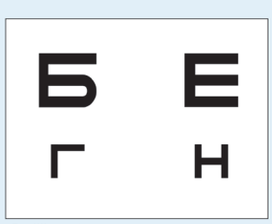
Numbers


Tumbling E

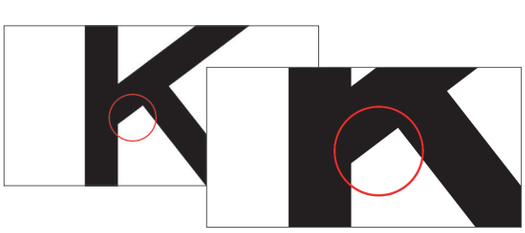

Landolt C


Illiterates and children charts
(5 different chart types)





Cyrillic optotypes

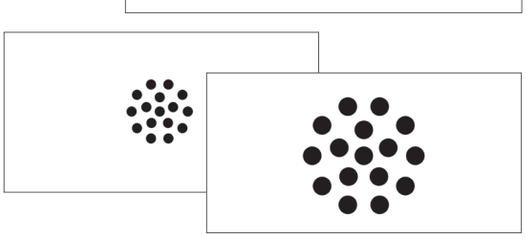


Resolution

Optotypes are rendered as vectorial graphics, keeping crisp and high resolution of low visual acuity optotypes.

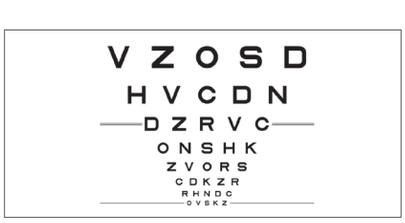
Masking / Randomize

Masking is available for horizontal (row), vertical (column) and single characters. When masking is active, the system visualizes only the non-masked optotypes. All optotypes can be randomized and the initial opto-type at start up can be programmed.



Scaling

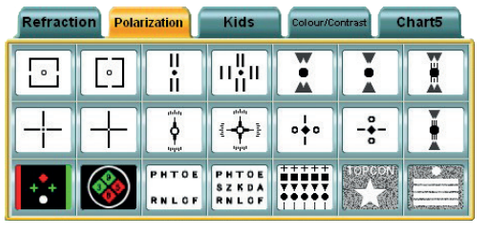
Dots chart used for Cross Cylinder testing can be scaled according to the patients visual acuity independent from working distance setting.



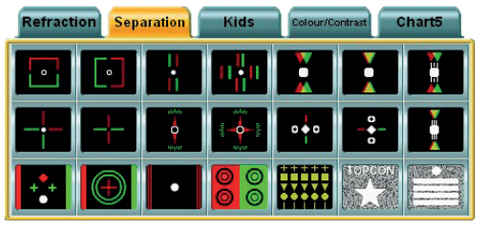
ETDRS test

ETDRS acuity testing is the worldwide standard for visual acuity testing in diabetic retinopathy studies. The ETDRS test is designed to eliminate inaccuracies in the Snellen and Sloan tests.

Additional tests provided by CC-100 series



Circular polarization separation tests of CC-100XP



Red/Green separation tests of CC-100

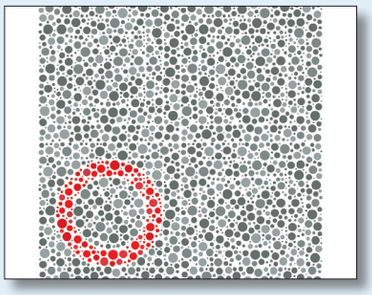
Measuring phoria compliant to MKH - Haase

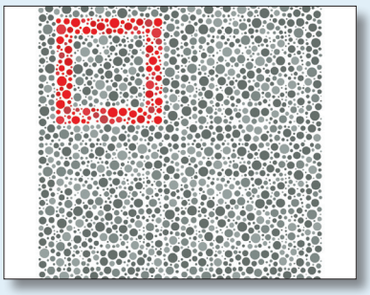
Unimpaired binocular vision is an important prerequisite for optimum vision. The methodology developed in this context is known as MKH (measuring and correcting methodology). The MKH-Haase method has been considered a reliable method for prescribing prisms to symptomatic binocular vision patients.

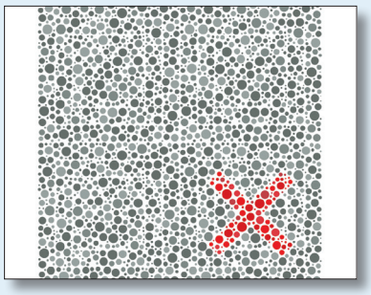
The MKH test measures associated phoria at distance and near using a sequence of different polarized test charts. MKH test sequence is available in the CC-100 series for testing phoria due to the variety of stereo separation tests available.

Pseudoisochormatic color vision test

The pseudoisochromatic test is based on the well-known HRR test, but provides better quantitative data on color vision deficiencies. The test includes several pseudoisochromatic plates, each composed of a pattern of differently shaded dots. Within each pattern, a number or symbol is present. CC-100 series displays the results in a report showing various color perception deficiencies.



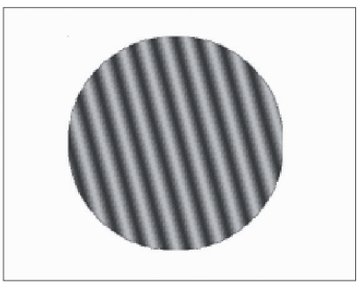


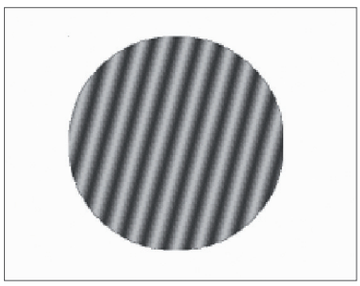


Spatial frequency contrast sensitivity test

The spatial frequency contrast sensitivity test can be customized by setting the amount of spatial frequencies and contrast levels.

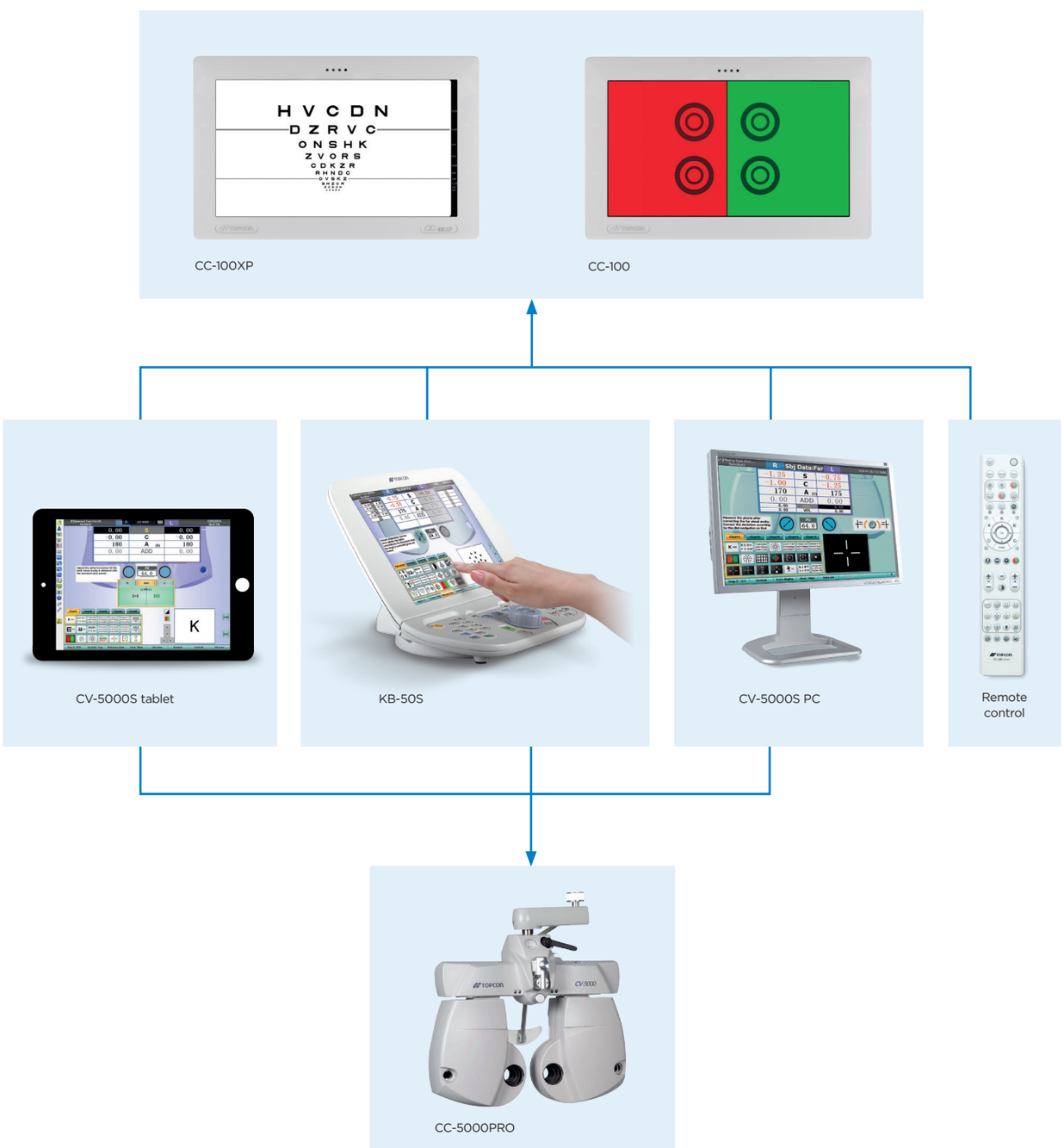
The result gives valuable information about the patients contrast visual acuity. Test results are displayed in an easy to understand graph.





Various operation options

The Topcon CC-100 series chart systems can be operated in various ways. Operation can be done as stand-alone by remote control, with the KB-50S controller or with the CV-5000S PC controller software in combination with Topcon's dedicated CV-5000PRO automated phoropter. The CV-5000S tablet controller provides a wireless operation of the CC-100 series as well.



Test charts information

		CC-100XP	CC-100
Testing distance	2.9 – 6.1 m, stepsize 0.1 m	●	●
Viewing area W x D (mm)		473 x 265	473 x 265
Visual acuity range / steps	Decimal: 0.05 to 2.0	●	●
	LogMar: 1.3 to –0.30	●	●
	Snellen (m): 120 to 3	●	●
	Snellen (f): 400 to 10	●	●
	Monoyer: 0.5 to 2.0	●	●
VA test, compliant with ISO 8596	Landolt C	●	●
VA test, compliant with ISO 8597	Letters	●	●
	Numbers	●	●
	Tumbling E	●	●
	Cyrillic*	●	●
VA tests	5 Children charts	●	●
	ETDRS	●	●
	Monocular R/G	●	●
	Clock fan	●	●
	Astigmatism dots	●	●
Binocular tests (image separation)	Schober test	●	●
	Worth test	●	●
	Color test	●	●
	Inversion test	●	●
	Sine wave contrast test	●	●
	Contrast modifying test	●	●
	Contrast sensitivity test	●	●
	Separation through RED - GREEN	●	●
	Circulair polarization	●	●
	Duochrome balance test	●	●
	Cross test	●	●
	Cross test with fixation	●	●
	Zeigertest	●	●
	Double Zeigertest	●	●
	Coincidence test H&V with fixation	●	●
	VA balance test	●	●
	Indicator	●	●
	Double indicator	●	●
	Stereo test	●	●
	Stereo triangle 11	●	●
	Stereo valenz 20	●	●
	Differential stereo	●	●
	Vertical OXO-like	●	●
	Horizontal OXO-like	●	●
	Random dot (Topcon)	●	●
	Random dot (Stages)	●	●
	Cowen	●	●
	Fixation disparity test	●	●
Other functionalities	Optotype masking	●	●
	Optotype randomize	●	●
	Scaling dots chart	●	●
	White Maddox LED	●	●

* Only available with use of remote control

Specifications CC series

Electrical specifications	CC-100 series
Power supply	AC 100 – 240 V – 50 – 60 Hz
Power input	60 VA
Mechanical specifications	
Width	60 mm
Height	360 mm
Length	560 mm
Weight	5.6 kg
Controllers	
CV-5000S	- Infrared remote control - KB-50S - CV-5000S PC - CV-5000S tablet
Operation	
Temperature	10°C to 40°C
Relative humidity	8% to 75% (no condensate)
Atmospheric pressure	700 hPa to 1060 hPa
Integrated PC components	
Operation system	Linux Custom Image
Processor	Freescale Cortex A9
RAM	512 MB
Hard disk	512 MB SSD
External connections	- 2 USB - 1 Ethernet - 1 RS-232
Screen dimensions	21.5 inch LED screen

		CC-100XP	CC-100
Dimensions W x H x D (mm)		560 x 358 x 56	560 x 358 x 56
LCD: contrast ratio		10,000:1	10,000:1
Weight (kg)		5.6 kg	5.6 kg
Power consumption	120 VA	●	●
Accessories	Polaroid filters for trial frame	●	●
	Remote controller	●	●

IMPORTANT Subject to change in design and/or specifications without advanced notice.
In order to obtain the best results with this instrument, please be sure to review all user instructions prior to operation.
Medical device Class I. Manufacturer: VISIA imaging S.r.l.

CE TÜV SÜD ISO 13485

VISIA Imaging S.r.l.

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