










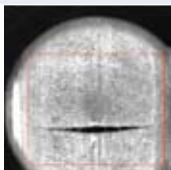









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COMMAND GROUP	USES	APPLICATION	EXAMPLE
IMAGE PRE-PROCESSING			
<ul style="list-style-type: none"> • Lowpass filter • Sobel filter • Prewitt filter • ... 	<ul style="list-style-type: none"> • Image improvement • Feature extraction • Edge extraction • Data reduction 	<ul style="list-style-type: none"> • Edge improvement • Noise suppression • Interference removal • Difficult inspections such as, e.g. glass or shiny objects 	 
OCV			
<ul style="list-style-type: none"> • Image difference • Mask check • Count pixels 	<ul style="list-style-type: none"> • Completeness inspection • Quality inspection • Rotation invariable OCV inspection 	<ul style="list-style-type: none"> • Print control • Label control • Logo control 	 
COLOUR TRANSFORMATION			
<ul style="list-style-type: none"> • Colour conversion • Colour binarization 	Transformation from colour to grey scale images using configurable weighting of individual colour channels (RGB and HSI colour space)	<ul style="list-style-type: none"> • Colour recognition • Grey scale MV algorithms due to different colour properties 	 
COUNTING TOOLS			
<ul style="list-style-type: none"> • Locating edges on a line • Locating edges on a circle • Blob analysis 	<ul style="list-style-type: none"> • Counting parts • Inspecting for completeness 	<ul style="list-style-type: none"> • Completeness inspection 	 
POSITIONING TOOLS			
<ul style="list-style-type: none"> • Locating points • Locating lines • Locating circles • Locating contours 	Finding specific objects via parameterisable location algorithms (Binary, Grey Value, Convolution, Gradient)	<ul style="list-style-type: none"> • Measuring technology • Exact object localisation 	
TOOLS FOR ANALYSING GREY SCALE VALUES			
<ul style="list-style-type: none"> • Brightness percentage • Test grey scale value 	<ul style="list-style-type: none"> • Quality of objects using their brightness • Grey value analysis • Brightness analysis 	<ul style="list-style-type: none"> • Quality inspection • Completeness inspection 	 
SURFACE CHECKING			
<ul style="list-style-type: none"> • Surface inspection 	<ul style="list-style-type: none"> • Determination of scratches, cracks or other damages to surfaces 	<ul style="list-style-type: none"> • Surface inspection 	 



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ANGULAR POSITION			
<ul style="list-style-type: none"> Via correlation Via moment 	<ul style="list-style-type: none"> Universal and very rapid automatic position and 360° angular position detection of objects 	<ul style="list-style-type: none"> Robotics Gripping Tracking of MV commands Position inspection in assembly technology 	
READER TOOLS			
<ul style="list-style-type: none"> Data matrix OCR 	<ul style="list-style-type: none"> Reading characters DM codes 	<ul style="list-style-type: none"> Inspection of imprints Fitting together of parts Data determination for storage 	
IDENTIFICATION			
<ul style="list-style-type: none"> Searching for objects Identifying objects Blob analysis Searching for patterns 	<ul style="list-style-type: none"> Identification and localisation of objects using definable object or texture characteristics Rotation invariant Object recognition 	<ul style="list-style-type: none"> Localisation of parts for inspection Robotics Gripping Position tracking 	
COLOUR ANALYSIS			
<ul style="list-style-type: none"> Colour blob analysis Testing colour 	<ul style="list-style-type: none"> Finding of objects of a particular colour, inspection of colour applying tolerance limits with RGB and HSI colour space 	<ul style="list-style-type: none"> Colour determination Sorting Discrimination of colour codes 	
SHAPE ANALYSIS			
<ul style="list-style-type: none"> Contour curvature analysis Comparing contours Extreme points of contours 	<ul style="list-style-type: none"> Quality of object shapes Comparison with reference objects 	<ul style="list-style-type: none"> Inspection of stamped parts Burrs from injection moulding Position tracking 	
REMOTE CONTROL			
<ul style="list-style-type: none"> vicorem[®] Monitor menu 	<ul style="list-style-type: none"> Remote control of the MV by a master system Remote control with no PC attached to the equipment 	<ul style="list-style-type: none"> Changing parts in production Parameterisation of individual inspection tasks without a PC Robotics 	
<p>And many other commands including image acquisition, image output, coordinate system adaptation, communication, archiving, statistics, focusing, brightness tracking, measuring and evaluating measuring results, strings and time.</p> <p>It is possible to combine all machine vision commands and to branch your program in many different ways.</p>			