Kendall Optometry Ministry, Inc.

"Serving the Lord by providing better vision to the people of underdeveloped countries"

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Our Mission

Kendall Optometry Ministry, Inc. (KOM) serves our Lord Jesus Christ by helping to improve the vision of the people of underdeveloped countries and many areas of the United States. This not only enables them to learn more about our Lord but also to improve their standard of living.

Our Approach

A huge number of used prescription eyeglasses are available from a variety of sources. These glasses are frequently in poor condition, not sorted in any order and no information is available as to their prescription. By providing software for cataloging, barcode labeling these glasses and interfacing to a variety of modern lensmeters, KOM has provided a solution to this problem.

Measured, cleaned and sorted used prescription glasses are also available from several sources. When they are used in an optical clinic, it becomes very difficult to choose the most appropriate pair from a large inventory of glasses of up to 32,400 pairs. Software provided by KOM solves this problem using the patient's prescription to automatically within seconds select the best pair based upon accepted ophthalmic principles.

Optical teams frequently spend a great deal of their time determining the patient's prescription. Shortening this time could mean that more patients can be helped and few will be turned away. By connecting to a variety of modern autorefractors, the software provided by KOM solves this problem. Teams have reported that they have fit one pair of glasses every 3-5 minutes. This brochure describes two computer programs developed to address these issues.

Rarely do optical teams have a professional optometrist travel with them. The KOM software helps to alleviate this problem by providing an automated analysis of every prescription by a professional optometrist.

Two Part Solution

The first part of the problem is to gather, catalog, and error check the prescriptions for the used prescription glasses. Inventory may be entered by volunteers in numerous locations manually, barcoded or from digital lensmeters. KOM developed the **Glasses Reader** program to solve this problem.

The second part of the problem is making accurate selections from a very large inventory of glasses. The inventory by necessity must be large since only a large collection of random prescription glasses will likely match a large random collection of patients. The **Eyeglasses Inventory** program solves this problem.

Both programs run on Windows XP through 10 and are available as part of an extensive training manual that is in a 1.5" binder. This manual can be purchased by sending an E-mail to:

hollandkendall@kendalloptoministry.org

Other Assistance provided.

Kendall Optometry Ministry (KOM) loans (for a $100 to $150 maintenance fee) optical equipment to Christian teams to assist them in their optical mission. Teams must provide a refundable damage and loss deposit and sign an agreement making them financially responsible for the equipment while in their possession. This equipment includes Retinomax autorefractors, iCare Tonometers, EyeNetra Phoroptors, Reichet Portable Slit lamps and a 400 lens/200 frames field assembly kit.

KOM sells plastic and cardboard eyeglasses inventory boxes to allow rapid retrieval of glasses and duffle bags for transporting the eyeglasses to international locations. Other material is also provided.

KOM also sells 1000s of pairs of used prescription eyeglasses at a shipping plus processing cost of $.35/pair (glasses are free) that have already been measured, barcoded, bagged, and boxed and ready to put into the team's inventory either manually or using a barcode reader.

KOM provides extensive training opportunities like: 1) hands on training in Louisville, Ky 2) Internet based training, 3) Remote support via internet, 4) Worldwide training of nationals via Skype using the internet.

Glasses Reader –Data Input

The Glasses Reader program version 4.6-12 (or higher) is used where glasses are being cleaned, measured and bagged for a mission trip.   It can also be used on the mission trip to introduce new glasses into inventory. This program accepts the glasses measurements entered in three different ways:

1) Manually via a mouse entry keypad:

Intermec SR-30

2) Keyboard input via Bar Code reader

Unitech MS210-1

American Microsystems Model 1000/1002

Intermec 1800 ST

3) Lensmeters

The following 19 models of lensmeters are currently supported:

Reichert LensChek

Reichert AL200

Reichert AL500

Humphrey LA340

Humphrey LA350 (French & English) & LA360

Marco VL-3000

Topcon CL-100/200

Nikon NL-2

Shin Nippon SLM-5000/4000

Nidek LM-1000

Tomey TL900

Tomey TL-2000/3000

Justice JS-700

Essilor CLE-060

VisionX VX40

**Seiko SL-7000**

Reichert LensChek Plus

Glasses   Reader   –Data   **Output**

Data gathered by the Glasses Reader program is placed in one or both of two locations. The program also automatically detects readers so they can be kept out of the inventory (if desired) to be sorted and handed out separately. This improves the likelihood of finding a close match in the prescription inventory.
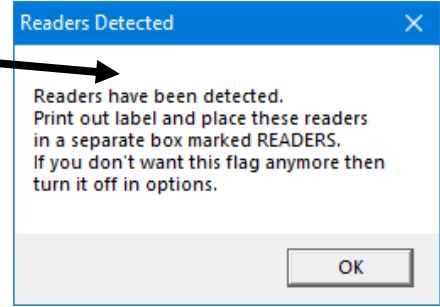
1) A file on your hard drive

A comma delimited text file (Excel Compatible) is created containing information about each pair of glasses. The information which it records contains the following fields:

| Inventory number	**Prescription information:**		
Left Sphere	Left Cylinder	Left Axis	Left Add
Right Sphere	Right Cylinder	Right Axis	Right Add
	Flags (Yes/No):		
Sunglasses	Reading	Scratched	Progressive
BiFocal	**Also:** PD Size (Value in mm)		

Other Information: Gender (Male, Female, Either, Child)
Comment about the eyeglasses & initials of person doing measurement.
Date and Time of record entry.

2) A barcode label

A barcode label can be created to allow future rapid entry of the prescription by mission teams. Glasses can be entered into inventory at the rate of 50 pairs every 4.5 minutes. This procedure is being performed today by 19 digital lensmeters owned by KOM and several teams. The preferred printer is a Dymo Labelwriter as shown above along with a sample of one of the labels. The program can be set to default to a particular printer and label setting without having to maintain your default printer as the Dymo Labelwriter. Spherical equivalent can now also be shown on the label.
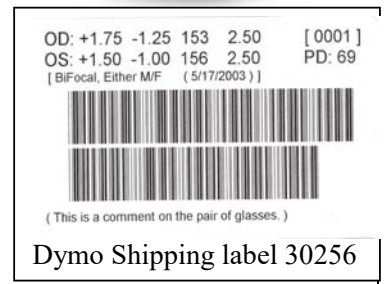
Glasses Reader –Merging multiple files

When building a very large eyeglasses inventory, it is always best to solicit the help of several people. One person will be responsible for maintaining the master copy of the inventory while multiple people will work on different groups of the inventory. One person may build the inventory for records 1-999, another for 1000 – 1999, another, for 2000 – 2999, etc. They will then E-Mail these files to the person maintaining the master copy and this person will merge them into a single file. In the process of merging the files, Glasses Reader checks for possible prescription errors.

Glasses Reader –Data Correction, Analysis, and Reporting.

The program can be configured to load the entire inventory file into memory. Individual modifications can be made to records and saved in the file. A sorted and error checked file can then be written for use by the Eyeglasses Inventory Program.   Errors can be reviewed and corrected immediately. Extensive inventory analysis can also be made to ascertain you have the right prescription blend before your mission trip. Reports on errors, rejected items, vacancies, gender, and clear glass are also provided.

Glasses Reader –Inventory file release and Update.

The Glasses Reader program can load the deleted inventory list from the Eyeglasses Inventory program and use this list to vacate entries in the inventory file that it maintains. It can then use a separately created file (called the "update inventory file") to fill this vacancies. Also, each location can be manually updated. In the process of filling these vacancies, it creates a vacancy list file which can be used by an Excel spreadsheet (also provided) to produce new labels (containing location numbers) for the eyeglasses. The program can then be used to release the new inventory into the default location for the Eyeglasses Inventory Program.

Glasses Reader & Glasses Inventory Network Operation.

Both the Glasses Reader and Glasses Inventory programs can now run in a network allowing multiple PCs with multiple autorefractors to share a common inventory file. Even in a single autorefractor network, other PCs can speed up the operation allowing the glasses to be removed or monitored while the main PC is being used to measure patients.

Readers Detected

Readers have been detected.
Print out label and place these readers in a separate box marked READERS.
If you don't want this flag anymore then turn it off in options.

OK

OD: +1.75 -1.25 153   2.50   [0001]
OS: +1.50 -1.00 156   2.50   PD: 69
[BiFocal, Either M/F   (5/17/2003)]

(This is a comment on the pair of glasses.)
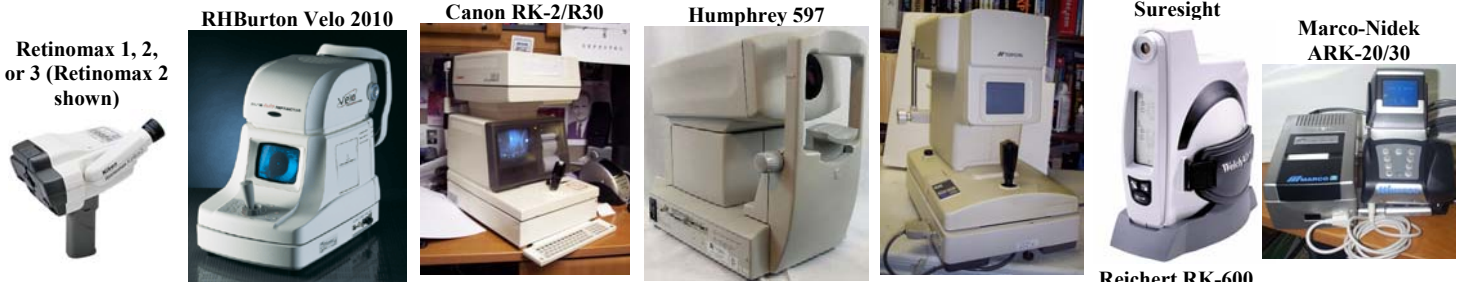
Dymo Shipping label 30256

Glasses Inventory Program

   The Glasses Inventory Program (Version 7.5-10 or above) takes the patient's eyeglasses prescription and uses this prescription to search for a pair of glasses in the inventory file created by the Glasses Reader program. The search technique is using accepted ophthalmic principles developed through consultation with numerous optometrists to maximize the probability of finding a match and to also increase acceptability of the eyeglasses for the patient. Dr Sammy Rose, OD, of Indianola, Ms was the primary consultant.

1) Capturing the prescription

The patient's prescription can be entered several ways. There are currently 11 different autorefractors which can be used where 5 are portable models and 7 are desktop models as shown below. The prescription can also be manually entered or the automatic prescriptions can be modified.

Retinomax 1, 2, or 3 (Retinomax 2 shown)
RHBurton Velo 2010
Canon RK-2/R30
Humphrey 597
Topcon KR-3000-7000
Welch Allyn Suresight
Marco-Nidek ARK-20/30
Reichert RK-600
Shin Nippon 8100
Marco/Nidek Handyref

We also support the Shin Nippon 8100 and Canon R30 (not shown). Other autorefractors can be setup upon request. Every prescription entered is automatically analyzed by an experienced optometrist (Dr Sammy Rose).

Please note that the Retinomax 2 or 3 is available for loan to qualifying Christian mission teams. Currently KOM has five Retinomax 2 kits and fourteen Retinomax 3 kits.

2) Finding a match.

> When no match is found, the extensive HELP system can be used or just click the wizard button.

Run Prescription Modification Wizard to change the prescription so something helpful can be found.)

A new feature of Version 7.5-9 is to either make a close match on the dominant eye or the best eye. Upon receiving the prescription, the computer automatically searches for as many matches as possible. Matches are made not only on Sphere, Cylinder, Axis, and spherical equivalent but also on Add (based upon age). The computer then produces a sorted list where the best optical match is at the top of the list. (See below)

#	Nr.	SPH	CYL	Axis	Add (Pwr)	PD	Rej #	Flag	SPH	CYL	Axis	Add (Pwr)	(S R P B)	G	Flag
2.6	0079	1.00	-0.75	087	0.00(0.63)	L	0	-Match	1.50	-1.50	103	0.00(0.75)	(Sxxx)	F	-Match
2.8	3011	1.00	-0.75	088	2.50(3.13)	M	0	-Match	1.25	-1.00	087	2.50(3.25)	(xxxB)	E	-Match
3.0	3941	1.25	-0.75	086	2.75(3.63)	M	0	-Match	1.75	-0.75	081	2.75(4.13)	(xxxB)	E	-Match
3.5	0095	1.25	-0.50	084	0.00(1.00)	M	0	-Match	2.00	-1.00	078	0.00(1.50)	(xxxx)	F	-Match
3.5	1139	0.25	-0.50	092	2.00(2.00)	M	0	-Match	1.75	-0.50	103	2.25(3.75)	(xxxB)	M	-Match
4.1	0732	0.75	-0.50	085	0.00(0.50)	M	0	-Match	1.25	-0.50	081	0.00(1.00)	(xxxx)	F	-Match

Each item of the list is assigned a "closeness" indicator number (left column). The smaller the number, the closer the match will be. The closest match can be made to the best eye or the dominant eye. This list can then be printed on an attached printer. The Dymo Labelwriter is the recommended printer. The list is then handed to others in the optical clinic who fit glasses to the patient.

The optometrist analysis now appears on the screen (below) and the end of the pick list.

Farsighted both eyes. Glasses needed.

3) Fitting the patient.

   Referring to the list on the right, the "fitters" (starting from the top pair of glasses on the list) then look for a pair of glasses suitable for the patient. After they have found the right pair, they then circle this pair on the list and return this list to the individual operating the computer. This person then removes this pair from inventory.

Patient #: 421 Age: 59
----------- Retinomax 2 -----------
EYE   SPH   CYL   AXIS ADD   CL
R(OD): 2.50 -1.25 x98 2.50 10
L(OS): 2.00 -0.75 x89 2.50 10
---------------- Settings ----------------
Matched Default setting.
ROSE RULE in effect for:
  NO Over Plus (+) sphere,
  NO over cylinder.
Matched ADD Power Also.

Lcn# (#Rej)   Flags
1.0 1333   M-B
     R(OD): 2.00/-0.25/87 Add:2.50
     L(OS): 2.00/-0.75/90 Add:2.50
2.0 0792   F-B
     R(OD): 2.00/-0.25/105 Add:2.50
     L(OS): 1.25/-0.50/84 Add:2.50
2.0 1228   F-B
     R(OD): 1.75/-0.75/94 Add:2.25
     L(OS): 2.00/-0.50/81 Add:2.25
2.1 1043   F-B
     R(OD): 1.75/-0.50/96 Add:2.50
     L(OS): 1.00/-0.25/74 Add:2.50

-------- Sammy Says --------
Farsighted both eyes.
Glasses are needed.
--- Dr Sammy Rose, OD. ---
-------- Indianola, Ms. --------

Program Version: 7.5.3