File created: 15-Aug-90 15:42:46 **{DSK}<usr>local>lde>SOURCES>loops>LIBRARY>GAUGEALPHANUMERICS.;2**

changes to: (VARS GAUGEALPHANUMERICSCOMS)

previous date: 23-Feb-88 23:00:07 {DSK}<usr>local>lde>SOURCES>loops>LIBRARY>GAUGEALPHANUMERICS.;1

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

```
;;
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(RPAQQ GAUGEALPHANUMERICSCOMS
       ((DECLARE%: DONTCOPY (PROP MAKEFILE-ENVIRONMENT GAUGEALPHANUMERICS))
        (FILES (FROM VALUEOF LOOPSLIBRARYDIRECTORY)
               GAUGES)
        (CLASSES AlphaNumeric LCD LCDMixin)
        (METHODS AlphaNumeric.ComputeScale AlphaNumeric.PrintReading AlphaNumeric.Reset AlphaNumeric.Set
               AlphaNumeric.SetParameters AlphaNumeric.ShowInstrument AlphaNumeric.ShowReading LCD.PrintReading
               LCD.SetParameters LCD.Shape LCD.ShapeToHold LCDMixin.ComputeScale LCDMixin.PrintReading
               LCDMixin.SmallRegion)))

(DECLARE%: DONTCOPY

(PUTPROPS GAUGEALPHANUMERICS MAKEFILE-ENVIRONMENT (:PACKAGE "IL" :READTABLE "INTERLISP" :BASE 10))
)

(FILESLOAD (FROM VALUEOF LOOPSLIBRARYDIRECTORY)
       GAUGES)

(DEFCLASSES AlphaNumeric LCD LCDMixin)

(DEFCLASS AlphaNumeric (MetaClass AbstractClass doc "A gauge which gives an alphanumeric display of a value"
                            Edited%:                              (* edited%: "29-Jan-87 03:32"))
       (Supers Gauge)
       (InstanceVariables (height 14)
              (width 30)
              (precision 5 doc "value= num chars in reading. readingRegion is derived from precision and
                     rading")))

(DEFCLASS LCD (MetaClass Class Edited%:                              (* RBGMartin "10-Apr-86 16:07")
                     doc "This is the default metaClass for all classes")
       (Supers AlphaNumeric))

(DEFCLASS LCDMixin (MetaClass AbstractClass Edited%:                 (* edited%: "29-Jan-87 03:34")
                          doc "Abstract classes are placeholders in the inheritance network, which cannot
                          themselves be instantiated.")
       (Supers AlphaNumeric)
       (InstanceVariables (precision 3 readingRegion NIL doc "value= num chars in reading. readingRegion is
                                 derived from precision and rading")
              (readingY 7 doc "y position of bottom of reading")))

(\BatchMethodDefs)

(METH AlphaNumeric ComputeScale (min max)
      "Sets the precision based on the width of min and max"
      (category (AlphaNumeric)))

(METH AlphaNumeric PrintReading (printingRegionFlg)
      "Print the displayVal in the window or printingRegion by painting black and then inverting"
      (category (AlphaNumeric)))

(METH AlphaNumeric Reset (newReading)
      "set reading to value. Same as Set since there is no special way to do this"
      (category (Gauge)))

(METH AlphaNumeric Set (newReading)
      "Put number in box"
      (category (AlphaNumeric)))

(METH AlphaNumeric SetParameters NIL "Make sure the window is large enough for the font." (category (Internal)))

(METH AlphaNumeric ShowInstrument NIL "Nothing needed" (category (Internal)))

(METH AlphaNumeric ShowReading NIL "Put the displayVal up on the instrument" (category (AlphaNumeric)))

(METH LCD PrintReading NIL "Print the displayVal in the printingRegion by painting black and then inverting"
      (category NoCategory))

(METH LCD SetParameters NIL "sets min width and height." (category (Internal)))

(METH LCD Shape (newRegion noUpdateFlg)
```

```
      "Shapes outside of region to specified shape. Uses GETREGION and width:,min height:,min"
      (category (Public)))

(METH LCD ShapeToHold NIL "changes dimensions of LCD to the smallest required to hold the reading. If a variable
      pitch font is used, there may still be blank space on the left and right sides of the reading or the
      characters of the reading may extend beyond the end if too many are wider than the letter A" (category
                                                                                                    (Gauge)))

(METH LCDMixin ComputeScale (min max)
      "Sets the precision based on the width of min and max"
      (category NoCategory))

(METH LCDMixin PrintReading NIL "Print the displayVal in the readingRegion by painting black and then
      inverting" (category (AlphaNumeric)))

(METH LCDMixin SmallRegion NIL "Create small LCD region for mixin display" (category (LCDMixin)))

[Method ((AlphaNumeric ComputeScale)
         self min max)                                          ; RBGMartin  5-May-86 12:11
        "Sets the precision based on the width of min and max"
        (_@
         precision
         (IMAX (if (NEQ min NIL)
                   then                                         (* This is here because (NCHARS) returns 3)
                        (NCHARS min)
               else

            (* Use 1 instead of 0 to make sure gauge is at least one character wide.)

                     1)
               (if (NEQ max NIL)
                   then (NCHARS max)
                 else 1]

[Method ((AlphaNumeric PrintReading)
         self printingRegionFlg)                                ; RBGMartin 30-Jan-87 05:02
        "Print the displayVal in the window or printingRegion by painting black and then inverting"
        (AND (_ self HasLispWindow)
             (PROG (w op rdString printingRegion (window (@ window)))
                   [SETQ rdString (COND
                                     ((Object? (@ reading))
                                      (GetObjectName (@ reading)))
                                     (T (@ reading]
                   (SETQ w (NCHARS rdString))
                   (COND
                      ((IGREATERP 0 (IDIFFERENCE (@ precision)
                                                 w))

            (* * String too long, change precison and make window grow if necessary)

                       (_@
                        precision w)
                       (_ self Update)))
                   [COND
                      (printingRegionFlg (SETQ printingRegion (@ precision%:,readingRegion]
                   (DSPFILL printingRegion BLACKSHADE 'PAINT window)
                   (SETQ op (DSPOPERATION 'INVERT window))
                   (CENTERPRINTINREGION rdString printingRegion window)
                   (DSPOPERATION op window]

(Method ((AlphaNumeric Reset)
         self newReading)                                       ; RBGMartin 11-Apr-86 17:06
        "set reading to value. Same as Set since there is no special way to do this"
        (_ self Set newReading))

(Method ((AlphaNumeric Set)
         self newReading)                                       ; RBGMartin 11-Apr-86 17:06
        "Put number in box"
        (_@
         reading newReading)
        (_ self PrintReading))

[Method ((AlphaNumeric SetParameters)
         self)                                                  ; RBGMartin 28-Jan-87 17:29
        "Make sure the window is large enough for the font."
        (PROG NIL
              (_Super)
              [_@
               width
               (MAX (@ width)
                    (_@
                     width%:,min
                     (WIDTHIFWINDOW (PLUS 2 (TIMES (@ precision)
                                                   (COND
                                                      ((NUMBERP (@ reading))
                                                       (CHARWIDTH 48 (@ font)))
                                                      (T (CHARWIDTH 65 (@ font]
```

```
          (* 65 is CHARCODE of A. This is not the widest character, but it is slightly wider than the average width.
          48 is CHARCODE of "0")

             (_@
              height
              (MAX (@ height)
                   (_@
                    height%:,min
                    (HEIGHTIFWINDOW (IPLUS 2 (FONTHEIGHT (@ font)))
                           (@ title]

(Method ((AlphaNumeric ShowInstrument)
         self)                                                    ; RBGMartin 11-Apr-86 17:06
       "Nothing needed" self)

(Method ((AlphaNumeric ShowReading)
         self)                                                    ; RBGMartin 11-Apr-86 17:06
       "Put the displayVal up on the instrument"
       (_ self PrintReading))

(Method ((LCD PrintReading)
         self)                                                    ; RBGMartin 10-Apr-86 17:11
       "Print the displayVal in the printingRegion by painting black and then inverting"
                                                                  ; for the class LCD, this is the entire window, so printingRegion is
                                                                  ; NIL
       (_Super
        self PrintReading))

[Method ((LCD SetParameters)
         self)                                                    ; RBGMartin 28-Jan-87 17:40
       "sets min width and height."
       (_Super)
       [_@
        precision
        (NCHARS (COND
                   ((Object? (@ reading))
                    (GetObjectName (@ reading)))
                   (T (@ reading]
       [_@
        width%:,min
        (WIDTHIFWINDOW (PLUS 2 (TIMES (@ precision)
                                      (COND
                                         ((NUMBERP (@ reading))
                                          (CHARWIDTH 48 (@ font)))
                                         (T (CHARWIDTH 65 (@ font]
       (_@
        height%:,min
        (HEIGHTIFWINDOW (IPLUS 2 (FONTHEIGHT (@ font]

(Method ((LCD Shape)
         self newRegion noUpdateFlg)                              ; RBGMartin 28-Jan-87 17:44
       "Shapes outside of region to specified shape. Uses GETREGION and width:,min height:,min"
       (_ self SetParameters)
       (_Super
        self Shape newRegion noUpdateFlg))

(Method ((LCD ShapeToHold)
         self)                                                    ; RBGMartin 28-Jan-87 17:47
       "changes dimensions of LCD to the smallest required to hold the reading. If a variable pitch font is
       used, there may still be blank space on the left and right sides of the reading or the characters of the
       reading may extend beyond the end if too many are wider than the letter A"
       (_@
        precision
        (NCHARS (@ reading)))
       (_@
        height 0)
       (_@
        width 0)
       (_ self Update))

(Method ((LCDMixin ComputeScale)
         self min max)                                            ; RBGMartin  5-May-86 17:44
       "Sets the precision based on the width of min and max"
       (_Super
        self ComputeScale min max)
       (_ self SmallRegion))

(Method ((LCDMixin PrintReading)
         self)                                                    ; RBGMartin  2-May-86 16:11
       "Print the displayVal in the readingRegion by painting black and then inverting"
       (_Super
        self PrintReading T))

[Method ((LCDMixin SmallRegion)
         self)                                                    ; RBGMartin  2-May-86 16:02
       "Create small LCD region for mixin display"
```

```
       (_@
        precision%:,readingRegion
        (PROG [(readingHeight (FONTHEIGHT (@ font)))
               (readingWidth (COND
                                 [(NUMBERP (@ reading))          (* The reading is a number so base the character width on the
                                                                 character "0")
                                  (IPLUS 4 (ITIMES (@ precision)
                                                   (CHARWIDTH 48 (@ font]
                                 (T
```

(* The reading is non-numeric so base the character width on the character W.
CHARCODE of W is 87 -
assuming W is the widest character in the font.)

```
                                    (IPLUS 4 (ITIMES (@ precision)
                                                     (CHARWIDTH 87 (@ font]
            (RETURN (create REGION
                            LEFT _ (IQUOTIENT (IDIFFERENCE (InteriorWidth self)
                                                           readingWidth)
                                              2)
                            BOTTOM _ (@ readingY)
                            WIDTH _ readingWidth
                            HEIGHT _ readingHeight]

(\UnbatchMethodDefs)

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PROPERTY INDEX